

企业简介

益阳市鹏程科技发展有限公司，成立于1994年，注册资金1500万元，是一家集研发、生产、销售铝电解电容器为一体的高新技术企业。公司占地面积50亩，职工300多人，年生产能力近18亿支，已有现代化生产车间12000平方米，二期工程竣工后，公司将拥有33000平方米5G智能管理车间。

公司拥有全球领先行业标准的研发与检测中心，并通过了ISO9001:2015质量管理体系认证、ISO14001:2015环境管理体系认证、IATF16949汽车管理质量认证体系。我们始终国际化品质为第一追求，致力于推动铝电解电容事业发展搭建合作与资源共享平台。

公司整合资源，以科技创新技术，研制出45大系列，3000余款稳定耐久，唯精唯用的高端铝电解电容。至今为止服务了三雄极光、厦门通士达、阳光照明、正泰电器、西顿照明、科谷电源、东菱、欧司朗、高新投三江、Auma、Havells India、Accord Power、Akim Metal、Makel、City Lumi等800多家国内外知名企业。

我们一直坚持不断推进“Pchicon”迈向国际性知名品牌，成为中国员工幸福指数较高的企业之一和全球高端铝电解电容器首选供应商！

Company Profile

Yiyang Pengcheng Technology Development Co., Ltd, has been founded in 1994. With a registered capital of 15 million RMB, Pengcheng is a modern high-tech enterprise that integrates the developing, manufacturing and marketing of Aluminium Electrolytic Capacitors. The company covers an area of 50 acres, has more than 300 employees, and an annual production capacity of nearly 1.8 billion pieces. It has now built a modern production workshop of 12,000 square meters. Upon completion of second building plan, the company will have 33,000 square meters of 5G Smart Management Workshop.

With a global industrial leading researching and testing centre, Pengcheng has obtained the ISO:9001:2015 quality system certification、ISO14001:2015 environmental management system certification and IATF16949 automobile management quality certification system. We always take international quality as the first pursuit, and are committed to promoting the development of Aluminium Electrolytic Capacitors and building a platform for cooperation and resource sharing.

The company integrates resources and uses scientific and technological innovation to develop 45 Series, more than 3000 values of high-end Aluminium Electrolytic Capacitors in excellent stability, durability and utility. Till now, we have provided our advanced service and products to more than 800 well-known doemestic and international enterprises including PAK, Topstar, Sunshine Lighting, CHNT, XIDUN Lighting, KeGu Power, DONLIM, OSRAM, SanJiang, Auma, Havells India, Accord Power, Akim Metal, Makel, City Lumi, etc.

We have been insisting on pushing "Pchicon" to become an internationally renowned brand, becoming one of the companies with high employee happiness index in China and the world's preferred supplier of high-end Aluminium Electrolytic Capacitors!



标准&证书 Standards&Certificate



IATF16949:2016 质量管理体系包含产品设计



ISO9001:2015 质量管理体系认证



ISO14001:2015 环境管理体系认证



关于限制在电子电器设备中使用某些有害成分的指令



化学品的注册、评估、授权和限制



GBT 5993-2003 电子设备用固定电容器 第4部分：分规范 固体和非固体
电解质铝电容器
GB/T18504 管形荧光灯和其他放电灯线路用电容器性能要求，国家标准



IEC60068 电工电子产品环境试验，国家标准

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铝电解电容器产品一览表
Variety List of Aluminium Electrolytic Capacitor

类别 Category	品种 Variety	系列 Series	特点 Features	温度(°C) Temperature	电压(V _{dc}) Voltage	容量(μF) Capacitance	寿命(Hrs) Life	页码 Page
Liquid aluminium electrolytic capacitors 液态铝电解电容器	Standard product 标准品	RR	低压, 标准品 Low voltage, standard product	-40~105	6.3~120	1~6800	2K~3K	19
		RP	无极性, 标准品 Bipolar, standard product	-40~105	6.3~100	1~3300	1K	22
		GV	中高压, 标准品 Medium and high voltage, standard product	-40~105	160~500	1~330	3K	24
		GR	中高压, 标准品 Medium and high voltage, standard product	-40~105	160~500	1~330	4K	26
	High reliability product 高可靠品	AL	通用品 General product	-40~105	160~500	1~330	6K	28
		KL	小体积品 Small volume product	-40~105	160~500	1~150	8K	31
		CL	长寿命品 Long life product	-40~105	160~500	1~680	12K	34
		GK	耐高温品 High temperature resistance product	-40~130	160~450	1~220	130°C 3K 105°C 13K~14K	37
		GE	耐高温, 长寿命品 High temperature resistance, long life product	-40~130	160~450	1.5~100	130°C 4K~5K 105°C 15K~20K	39
	Low ESR product 低阻抗品	RF	低ESR, 标准品 Low ESR, standard product	-40~105	6.3~120	1~4700	3K~7K	41
		RS	低ESR, 长寿命品 Low ESR, long life product	-40~105	6.3~120	1~10000	4K~10K	44
		RZ	低ESR, 超长寿命品 Low ESR, super long life product	-40~105	6.3~100	6.8~3300	6K~10K	47
	High temp 高温品	RK	低压, 耐高温品 Low voltage, high temperature resistance product	-40~130	10~120	1~3300	130°C 2K~4K 105°C 8K~16K	49
	Long life 长寿命品	RM	长寿命, 高可靠性 super long life, high reliability product	-40~105	10~100	1~470	10K	51
	Wide temp 宽温品	RG	GBL体系, 高可靠性 "GBL" system, high reliability	-55~105	6.3~100	10~10000	2K~7K	53
	Energy saving product 节能灯品	GA	耐高纹波, 标准品 High ripple current resistance, standard product	-40~105	160~450	1~100	6K	56
		GC	耐高纹波, 长寿命品 High ripple current resistance, long life product	-40~105	160~450	1~100	10K	58

铝电解电容器产品一览表

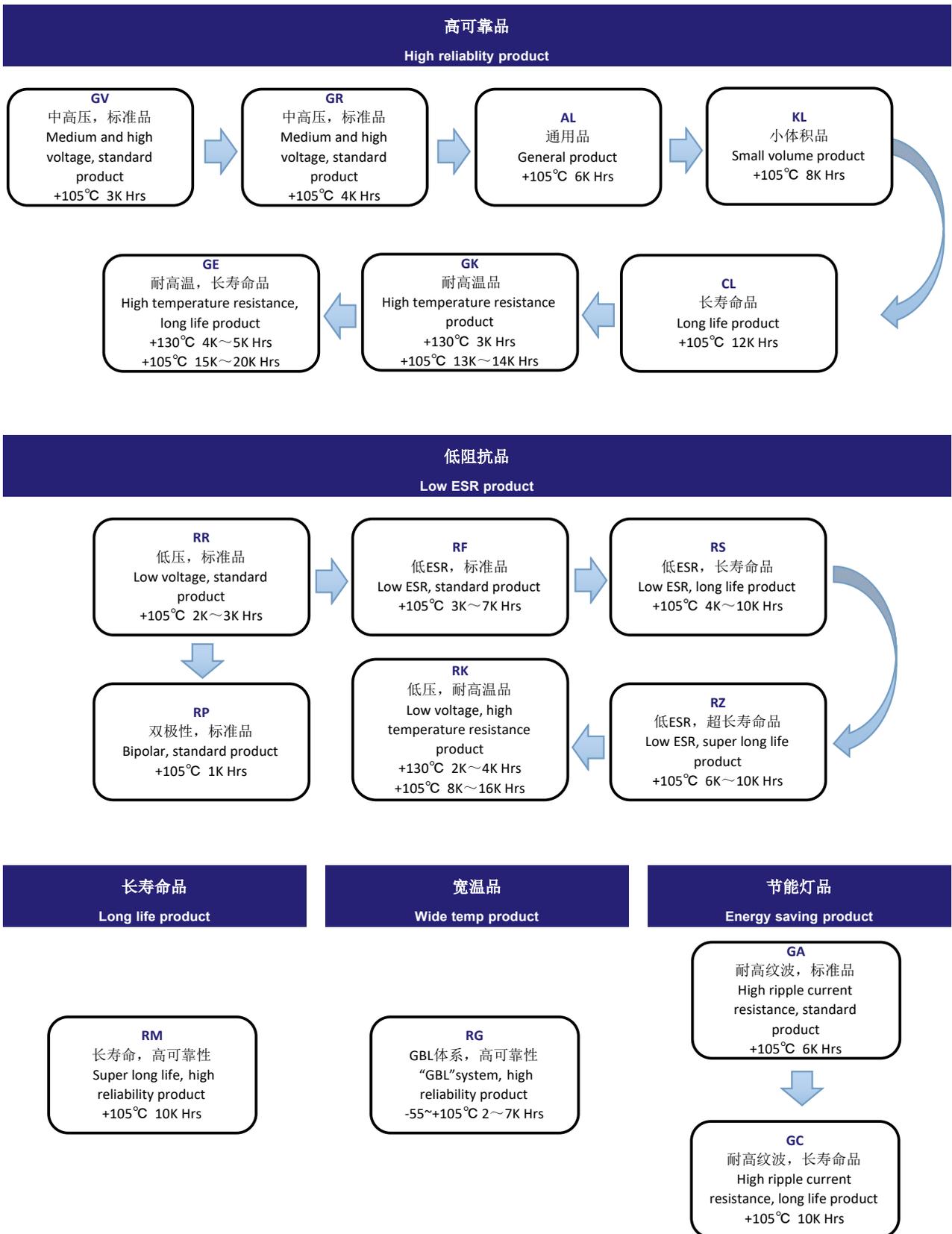
Variety List of Aluminium Electrolytic Capacitor

类别 Category	品种 Variety	系列 Series	特点 Features	温度(°C) Temperature	电压(V _{dc}) Voltage	容量(μF) Capacitance	寿命(Hrs) Life	页码 Page
Liquid aluminium electrolytic capacitors 液态铝电解电容器	Power supply product 电源品	DY	电源标准品 Power supply standard product	-40~105	10~500	1~6800	2K	60
		DE	电源标准品 Power supply standard product	-40~105	160~500	1~560	4K	62
		DT	电源长寿命品 Long life power supply product	-40~105	160~500	2.2~330	6K	64
		DS	电源超长寿命品 Super long life power supply product	-40~105	160~500	1~330	8K~10K	66
	Resistant to large ripple current 耐高纹波品	DL	耐高纹波, 标准品 Resistant to large ripple current, standard product	-40~105	250~450	0.68~10	6K	68
		DZ	耐高纹波, 长寿命 Resistant to large ripple current, long life	-40~105	250~450	0.68~10	10K	70
		DK	耐高纹波, 耐高温 Resistant to large ripple current, high temperature resistance	-40~130	250~450	0.68~10	3K	72
	High speed charging and discharging 高速充放电品	FH	连续充放电可靠性高 High reliability of continuous charging and discharging	-40~105	330	60~180	5000次	74
	SMD Product 贴片品	RDL	贴片, 耐高纹波 SMD, resistant to large ripple current	-40~105	400~450	0.68~6.8	6K	75
		RDK	贴片, 耐高纹波, 耐高温 SMD, resistant to large ripple current and high temperature	-40~130	400~450	0.68~6.8	3K	77
		RVT	贴片, 标准品 SMD, standard product	-40~105	10~450	1~820	2K~3K	79
		RVL	贴片, 长寿命品 SMD, long life product	-40~105	10~450	1~470	5K~6K	81
		RVH	贴片, 超长寿命品 SMD, super long life product	-40~105	16~450	1~470	8K~10K	83
		RVK	贴片, 高温品 SMD, high temperature product	-40~130	16~450	1~470	1K~5K	85
	Snap-in type product 焊针品	LM	焊针式, 标准品 Snap-in type, standard product	-40~85	10~450	68~47000	2K	87
		LH	焊针式, 宽温品 Snap-in type, wide temperature product	-40~105	10~450	56~39000	2K	92
		LP	焊针式, 高纹波电流 Snap-in type, high ripple current	-40~105	10~500	82~47000	5K	97

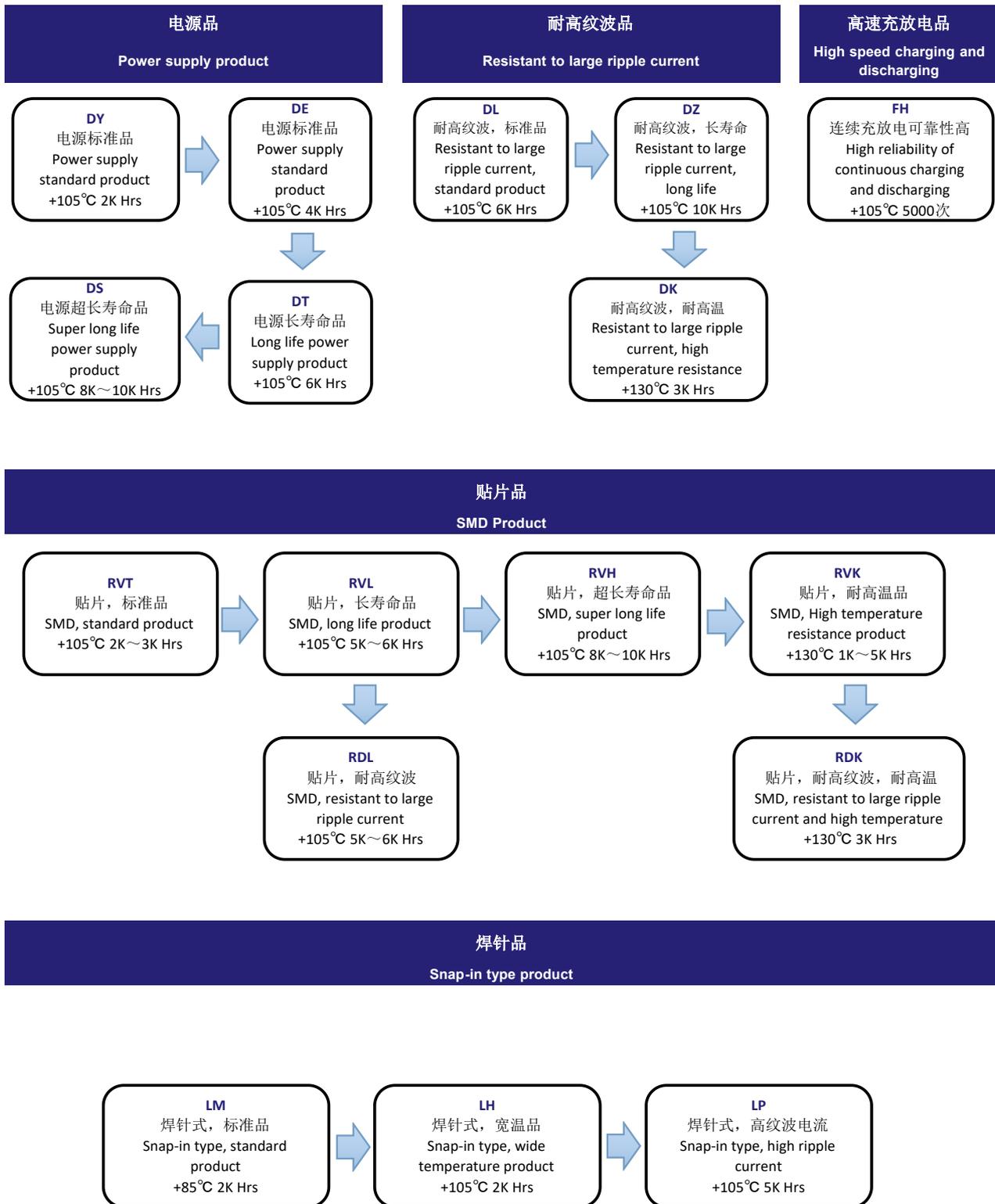
铝电解电容器产品一览表
Variety List of Aluminium Electrolytic Capacitor

类别 Category	品种 Variety	系列 Series	特点 Features	温度(°C) Temperature	电压(V _{dc}) Voltage	容量(μF) Capacitance	寿命(Hrs) Life	页码 Page
导电高分子固态铝电解电容器 Conductive polymer aluminum solid electrolytic capacitors	插件型 Radial type (DIP)	PZ	标准品 Standard product	-55~105	2.5~80	22~2200	2K	100
		PS	低阻抗品 Low ESR product	-55~105	6.3~25	22~2200	2K	105
		PR	125°C高耐温品 125 °C high-temperature resistance product	-55~125	6.3~35	22~2200	2K	108
		PF	长寿命品 Long life product	-55~105	6.3~63	22~2200	3K~5K	111
	贴片型 Surface mount type (SMD)	VZ	标准品 Standard product	-55~105	2.5~63	22~2200	2K	113
		VS	低阻抗品 Low ESR product	-55~105	2.5~25	22~2200	2K	116
		VR	125°C高耐温品 125 °C high-temperature resistance product	-55~125	2.5~35	22~2200	2K	118
		VF	长寿命品 Long life product	-55~105	2.5~35	22~2200	3K~5K	120
导电高分子固液混合铝电解电容器 Conductive polymer hybrid aluminum electrolytic capacitors	插件型 DIP	EA	低ESR、125°C高耐温品 Low ESR, 125°C high-temperature resistance product	-55~125	25~63	15~560	4K	122
	贴片型 SMD	SA	低ESR、125°C高耐温品 Low ESR, 125°C high-temperature resistance product	-55~125	25~63	22~560	4K	124

产品体系图 Product System Chart



产品体系图 Product System Chart

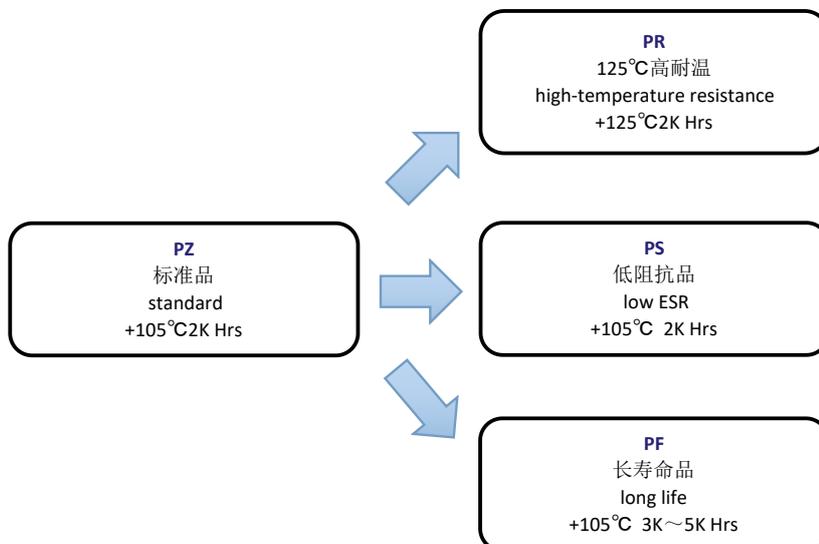


产品体系图

Product System Chart

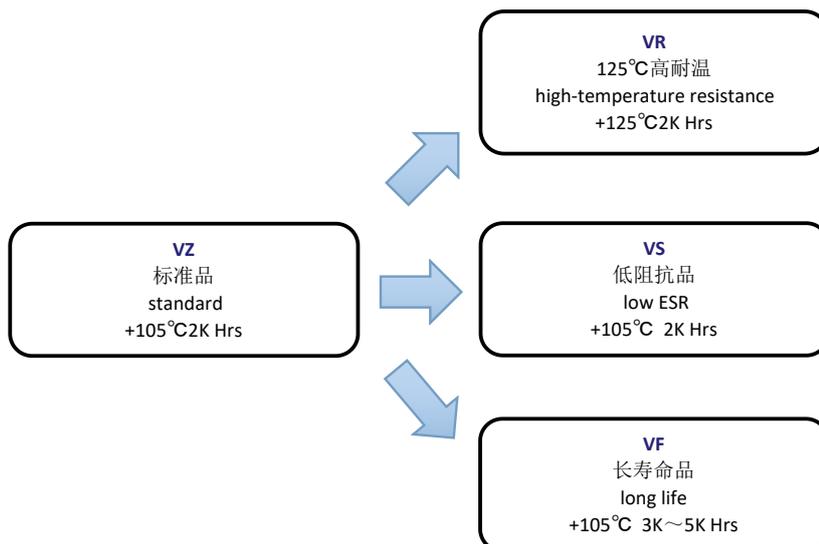
导电高分子固态铝电解电容器（插件型）

Conductive polymer aluminum solid electrolytic capacitors radial type



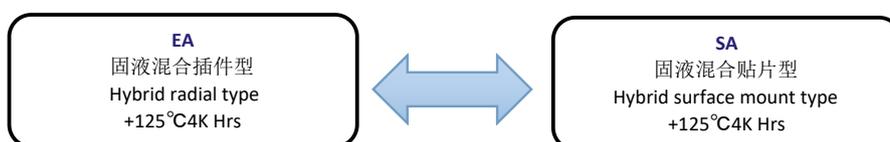
导电高分子固态铝电解电容器（贴片型）

Conductive polymer aluminum solid electrolytic capacitors surface mount type



导电高分子固液混合铝电解电容器

Conductive polymer hybrid aluminum electrolytic capacitors



产品编码规则

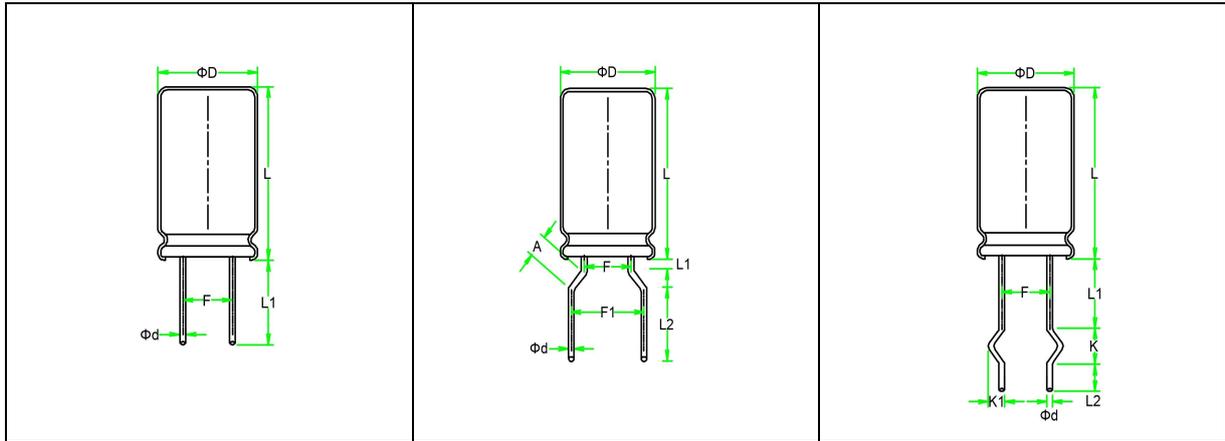
Product Code Rule

1	2 3	4 5	6 7 8	9 10	11	12 13	14	15	16	17	18 19
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
表示成品 "C"	产品 系列	产品 电压	产品 容量	产品 直径	容量 范围	产品 高度	产品 套管颜色	产品 印字颜色	产品 套管材质	产品 脚型	序号
Indicates the finished product "C"	Product Series	Product voltage	Product capacity	Product case diameter	Capacity range	Product height	Product Sleeve color	Product printing color	Product Sleeve material	Product leg type	Serial number

(2)		(3)		(4)		(5)		(6)		(7)		(8)	
系列	代码	电压	代码	容量	代码	直径	代码	容量范围	代码	高度	代码	套管颜色	代码
Series	Code	Voltage	Code	Capacity	Code	Case diameter	Code	Capacity range	Code	Case height	Code	Sleeve color	Code
RR	RR	6.3	0J	0.1	R10	5	05	±20%	M	7	07	常蓝色	C
RP	RP	10	1A	0.22	R22	6.3	06	±10%	K	9	09	墨绿色	M
GV	GV	16	1C	1	1R0	8	08	0~+10%	R	11	11	紫蓝色	Z
AL	AL	25	1E	2.2	2R2	10	10	-10~+20%	V	12	12	大绿色	D
KL	KL	35	1V	4	4R0	12	12	-20~+5%	L	14	14	咖啡色	K
CL	CL	50	1H	10	100	13	13	-10~+5%	G	17	17	橘黄色	J
GK	GK	63	1J	22	220	18	18	-10~+15%	H	20	20	透明色	T
GE	GE	80	1B	100	101	22	22	0~+40%	I	25	25	黑色	H
RF	RF	100	2A	220	221	25	25	±15%	J	30	30	乳白色	R
RS	RS	120	2R	1000	102	30	30	0~+20%	A	32	32		
RZ	RZ	140	2S	2200	222	35	35	-10~+30%	Q	36	36		
RK	RK	160	2C					-5~+20%	C	40	40		
GA	GA	200	2D					±5%	D	50	50		
GC	GC	250	2E										
LM	LM	350	2V										
LH	LH	400	2G										
RVT	VT	450	2W										
RVL	VL	500	2H										
RVH	VH	550	2N										

(9)		(10)		(11)	
印字颜色	代码	套管材质	代码	产品脚型	代码
Printing color	Code	Sleeve material	Code	Product leg type	Code
白色	B	PET	T	短脚	C
金色	J	PVC	C	编带	P
黑色	H			折弯切脚	Q
银色	Y			折弯K脚	K
				K脚成型	F
				扩脚切脚	Y
				两次折弯	Z
				常规直脚	O
				贴片C型	M
				贴片T型	T
				贴片L型	L
				贴片座板型	B

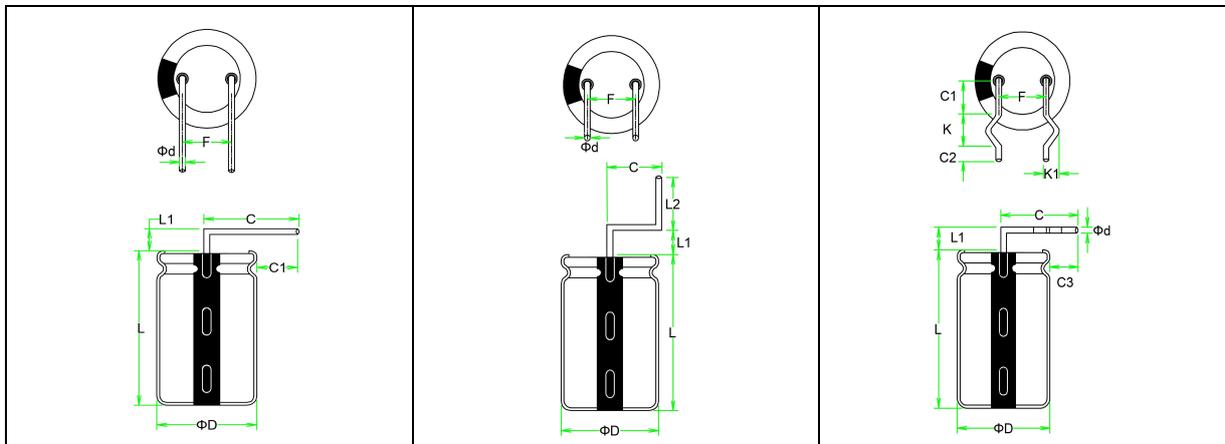
引线产品成型图 LEAD Product Forming Diagram



代码(Code): C

代码(Code): YY

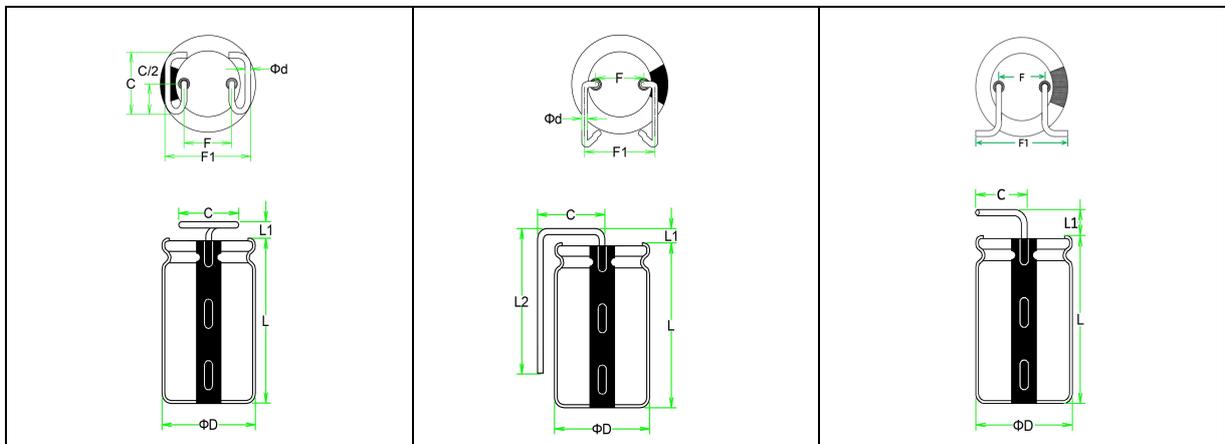
代码(Code): FA



代码(Code): QR

代码(Code): ZR

代码(Code): KR



代码(Code): MC

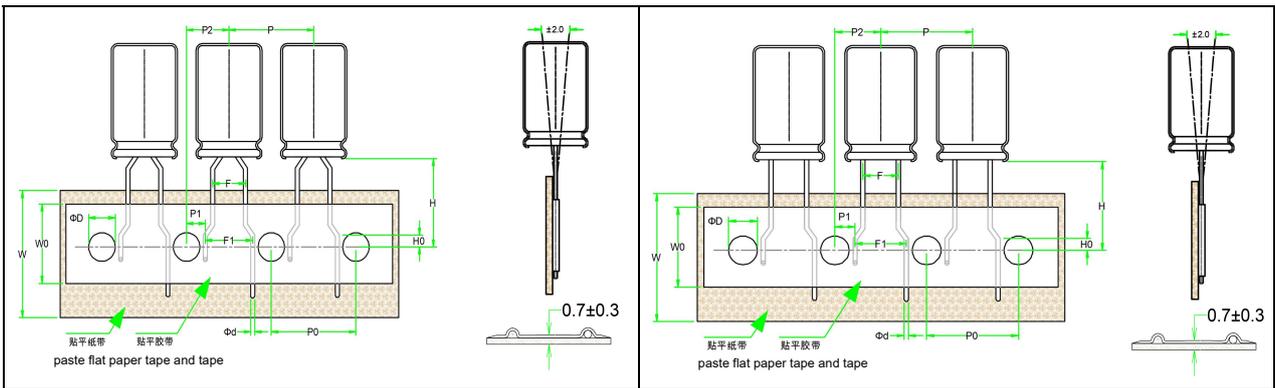
代码(Code): LL

代码(Code): TL

注：辨别左右折弯，面对电解电容本体负极，引线朝上。

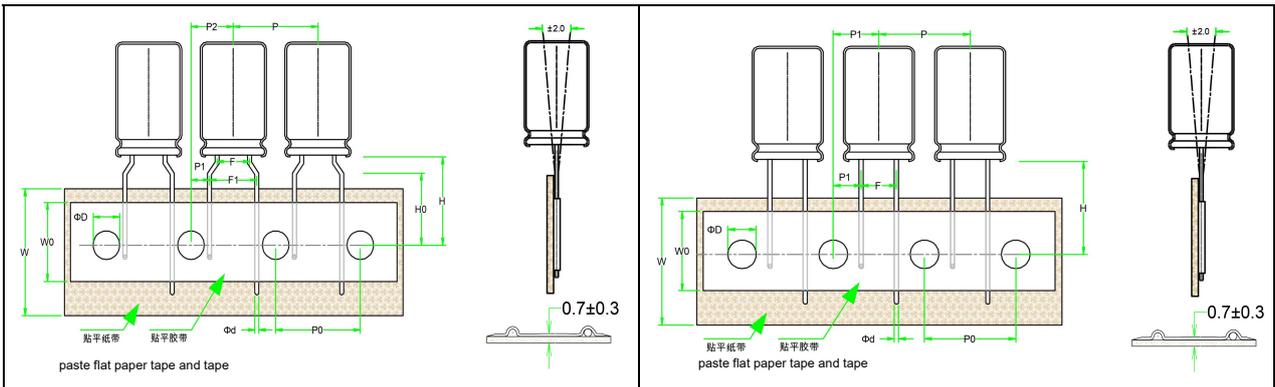
Note: Identify the left and right bends, facing the negative electrode of the electrolytic capacitor body, with the leads facing up.

引线产品编带尺寸图 LEAD Product Taping Dimensions



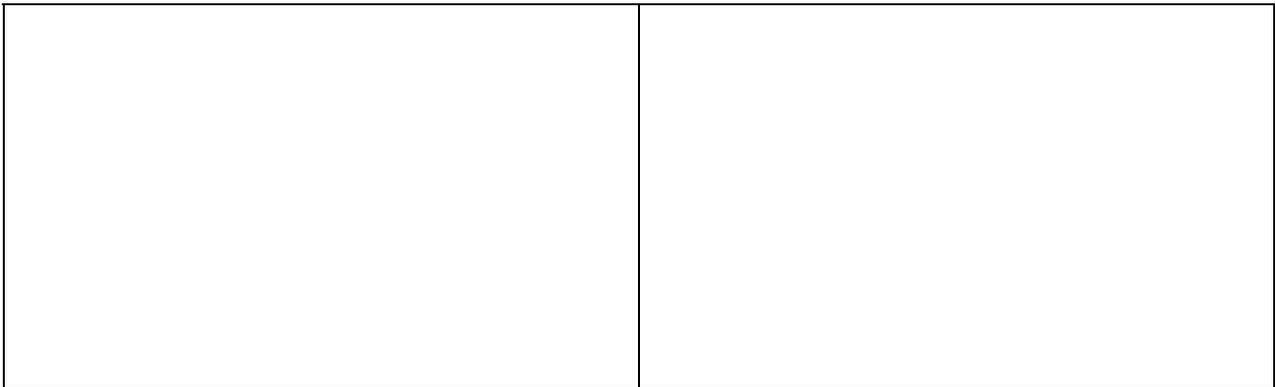
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代码: PZ05 (Code: PZ05)



代码: PY06 (Code: PY06)

代码: PZ06 (Code: PZ06)



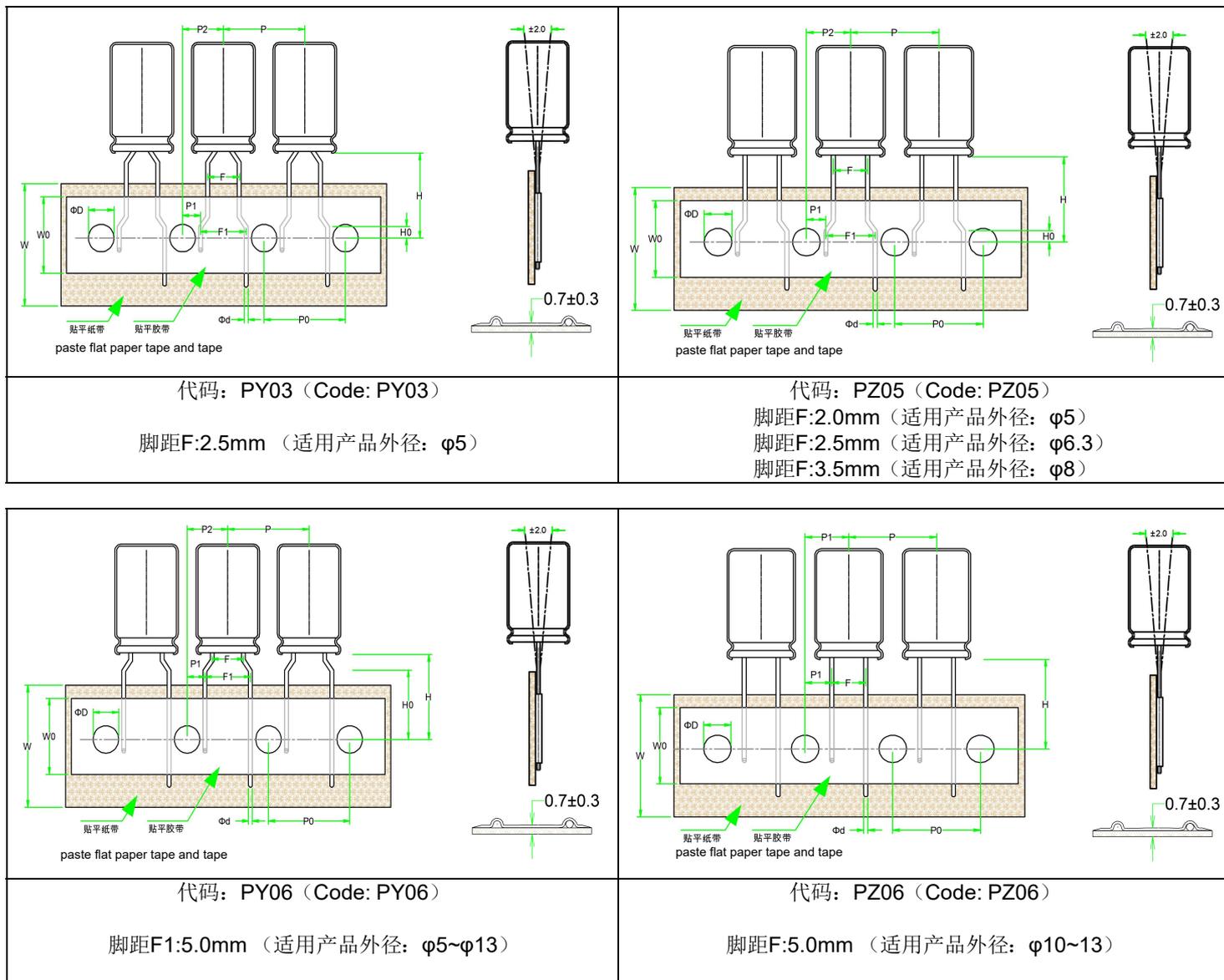
代码: PZ04 (Code: PZ04)

代码: PY04 (Code: PY04)

单位Unit: mm

项目Item	Φ5 产品 Products	Φ5 产品Products 扩脚2.5mm Expand foot 2.5mm	Φ6.3 产品 Products	Φ8 产品 Products	Φ10 产品 Products	Φ12 产品 Products	Φ13 产品 Products	公差 tolerance
代码Code	PZ04 05 PY07	PY04	PZ04 05 PY07	PZ04 05 PY07	PZ03 06	PZ03 06	PZ03 06	-
Φd	0.50	0.50	0.50	0.50	0.60	0.60	0.60	±0.05
P	12.70	12.70	12.70	12.70	12.70	15.00	15.00	±1.0
P1	5.10	5.10	5.10	4.60	3.85	5.00	5.00	±0.7
P2	6.35	6.35	6.35	6.35	6.35	7.50	7.50	±1.0
F	2.00	2.50	2.50	3.50	5.00	5.00	5.00	±0.5
F1	5.00	5.00	5.00	5.00	-	-	-	±0.5
H	18.50	18.50	18.50	18.50	18.50	18.50	18.50	±0.75
W	18.00	18.00	18.00	18.00	18.00	18.00	18.00	±0.5
W0	11.00	11.00	11.00	11.00	11.00	11.00	11.00	Min
D	4.00	4.00	4.00	4.00	4.00	4.00	4.00	±0.3

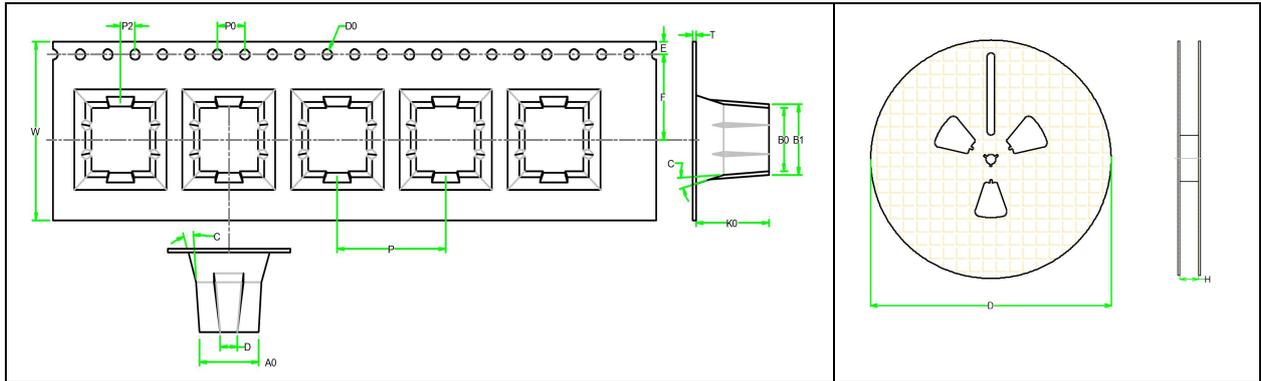
引线产品编带尺寸图 Lead Product Taping Dimensions



单位Unit: mm

项目Item 代码Code	$\phi 5$ 产品 Products	$\phi 5$ 产品Products 扩脚2.5mm Expand foot 2.5mm	$\phi 6.3$ 产品 Products	$\phi 8$ 产品 Products	$\phi 10$ 产品 Products	$\phi 12$ 产品 Products	$\phi 13$ 产品 Products	公差 tolerance
	PZ05//PY06	PY03	PZ05//PY06	PZ05//PY06	PZ06	PZ06	PZ06	
ϕd	0.50	0.50	0.50	0.50	0.60	0.60	0.60	± 0.05
P	12.70	12.70	12.70	12.70	12.70	15.00	15.00	± 1.0
P1	5.10	5.10	5.10	4.60	3.85	5.00	5.00	± 0.7
P2	6.35	6.35	6.35	6.35	6.35	7.50	7.50	± 1.0
F	2.00	2.50	2.50	3.50	5.00	5.00	5.00	± 0.5
F1	5.00	5.00	5.00	5.00	-	-	-	± 0.5
H	18.50	18.50	18.50	18.50	18.50	18.50	18.50	± 0.75
W	18.00	18.00	18.00	18.00	18.00	18.00	18.00	± 0.5
W0	11.00	11.00	11.00	11.00	11.00	11.00	11.00	Min
D	4.00	4.00	4.00	4.00	4.00	4.00	4.00	± 0.3

贴片产品编带尺寸图 SMD Product Taping Dimensions



载带尺寸
Carrier tape size

包装盘尺寸
Packing plate size

单位Unit: mm

代码Code 尺寸Size	载带尺寸 Carrier tape size						包装盘尺寸 Packing plate size	
	W	A0	B0	F	P	K0	D	H
	±0.3	±0.2	±0.2	±0.1	±0.1	±0.2	±1.0	±1.0
6.3×5.4	16	7	7	7.5	12	6.2	382	18
6.3×7.7	16	7	7	7.5	12	8.2	382	18
6.3×10.5	16	7	7	7.5	12	11	382	18
8×10.5	24	8.7	8.7	11.5	16	11	382	26
8×12.5	24	8.7	8.7	11.5	16	13	382	26
8×13.5	24	8.7	8.7	11.5	16	14	382	26
8×15.5	24	8.7	8.7	11.5	16	16	382	26
10×10.5	24	10.7	10.7	11.5	16	11	382	26
10×12.5	24	10.7	10.7	11.5	16	13	382	26
10×13.5	24	10.7	10.7	11.5	16	14	382	26
10×16.5	24	10.7	10.7	11.5	16	17	382	26
12.5×13.5	32	13.4	13.4	14.2	24	14	382	34
12.5×16	32	13.4	13.4	14.2	24	16.5	382	34
16×16.5	44	17.5	17.5	20.2	28	16.8	382	46
16×21.5	44	17.5	17.5	20.2	28	22.1	382	46
18×16.5	44	19.5	19.5	20.2	32	17.1	382	46
18×21.5	44	19.5	19.5	20.2	32	22.1	382	46

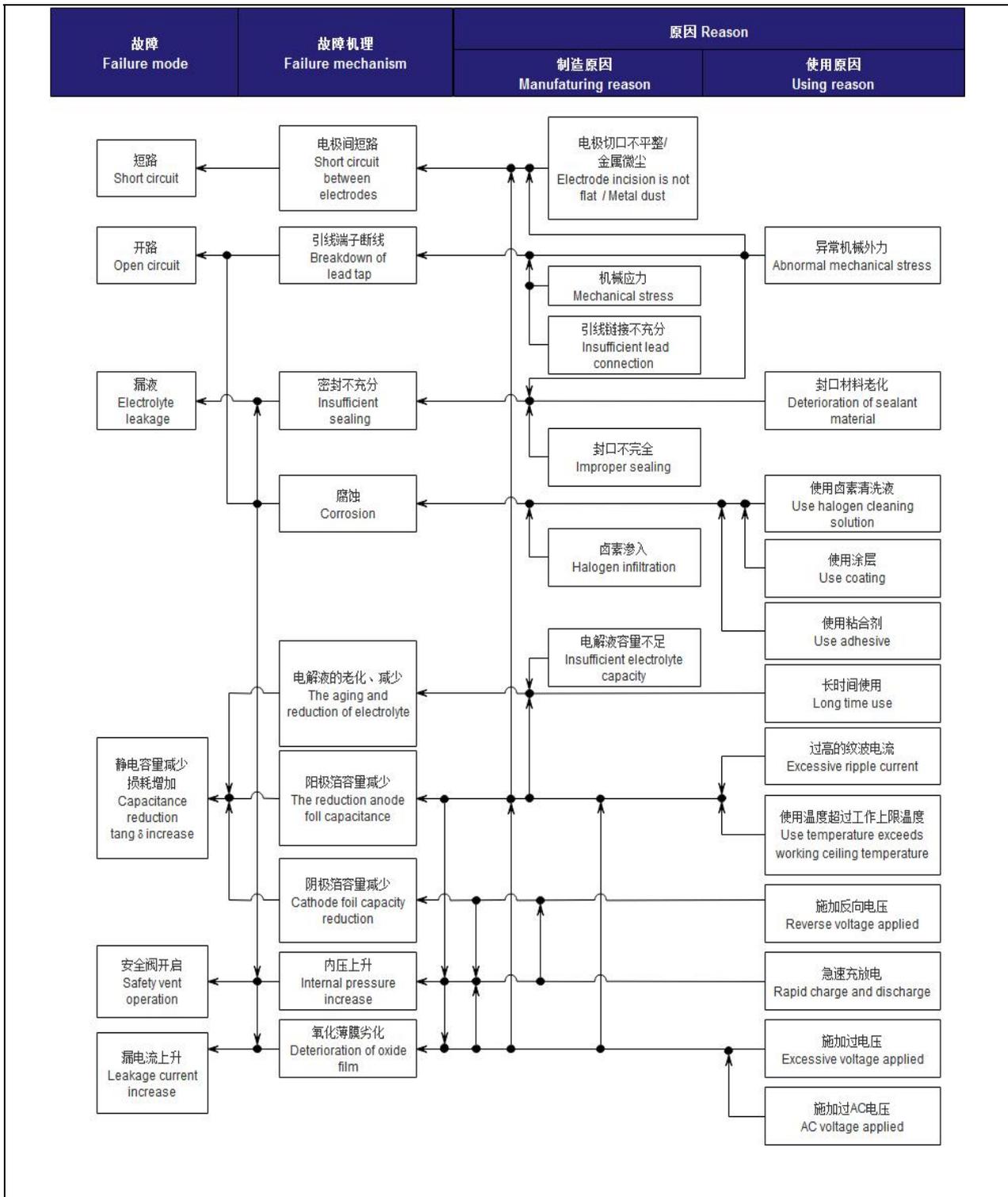
焊针产品尺寸图

Solder Pin Product Dimensions

尺寸&代码 Size & Code				焊针产品外形图 Welding pin product outline drawing
$\Phi D \pm 1.5$	$F \pm 0.5$	$L1 \pm 0.5$	$P \pm 0.2$	
$\Phi 20 \sim 35$	10	4.5	2.5	
		5.8	3.5	
$\Phi 30 \sim 40$	14.3	4.5	-	
	14.7	5.8	-	
$\Phi 20$	8	5.5	-	
$\Phi 22$	10	3.0	-	
$\Phi 22$	10	4.0	-	
$\Phi 25.4$	10	4	-	

铝电解电容器在不同应用条件下的故障模式

Failure Mode of Aluminum Electrolytic Capacitor Under Different Application Conditions



电容器使用注意事项 Capacitor Use Precautions

一、设计方面的注意事项

The design considerations

注: 产品的使用环境及装配环境, 请在产品目录书及承认书中规定的电容器额定性能的范围范围内使用。

Note: The environment in which the product is used and the environment in which it is assembled should be used within the range of the rated performance of the capacitor specified in the catalog and the acknowledgement.

1.1极性: 铝电解电容器具有极性, 请不要加载反向电压或交流电压, 如果安装时极性相反, 有可能导致电路在初始状态短路, 导致铝电解电容器安全防爆阀动作等失效现象, 当铝电解电容器适用于极性交替的电路中时, 请选择双极性产品, 但双极性产品不可使用于交流电路。

Polarity: Aluminium electrolytic capacitors have polarity. Please do not load reverse voltage or AC voltage. If the polarity is opposite when installed, it may cause the circuit to be short-circuited in the initial state, resulting in the failure of the aluminium electrolytic capacitor safety explosion-proof valve, etc. When electrolytic capacitors are used in circuits with alternating polarity, please choose a bipolar product, but bipolar products cannot be used in AC circuits.

1.2电压: 请不要对产品加载超过额定电压的电压, 产品上标注了额定电压, 同时请将和直流电压叠加的纹波电压的峰值控制在额定电压以下, 虽然规定了超过额定电压的浪涌电压, 但有限制条件, 不能保证长时间使用。

Voltage: Please do not load the product with the voltage exceeding the rated voltage. The rated voltage is marked on the product. Please also control the peak value of the ripple voltage superimposed with the DC voltage below the rated voltage. Although the surge voltage exceeding the rated voltage is specified, However, there are restrictions and cannot be guaranteed for a long time.

1.3纹波电流: 请不要加载超过额定纹波电流的电流, 施加过大的纹波电流时, 会有内部发热, 寿命缩短, 安全防爆阀动作, 引起短路故障及失效等现象发生, 额定纹波电流的频率是有限制条件的, 在规定外的频率下使用时, 要控制在乘以各系列规定的频率修正系数的值以内, 铝电解电容器在纹波电流叠加时由于自身发热、温度上升而老化, 每升10°C寿命减少一半(参考值), 要想保持产品长寿命, 请在设计电路时, 降低纹波电流。

Ripple current: Please do not load current exceeding the rated ripple current. When excessive ripple current is applied, internal heat will be generated, life will be shortened, safety explosion-proof valve will operate, short-circuit fault and failure will occur, and rated ripple current will occur. The frequency is limited. When used at a frequency other than the specified frequency, it is controlled to be multiplied by the value of the frequency correction coefficient specified in each series. The aluminium electrolytic capacitor ages due to self-heating and temperature rise when the ripple current is superimposed. Reduce the life of 10 °C per liter by half (reference value). To maintain the long life of the product, reduce the ripple current when designing the circuit.

1.4使用温度: 请不要在超过工作上限温度的温度下使用, 如果超过工作上限温度的温度中使用, 电容器的寿命会缩短, 并导致安全防爆阀动作等失效现象。

Operating temperature: Do not use at a temperature exceeding the upper limit of the working temperature. If it is used in a temperature exceeding the upper limit of the working temperature, the life of the capacitor will be shortened, resulting in failure of the safety explosion-proof valve.

1.5寿命: 设计电路时, 要选用与产品寿命符合的电容器, 利用推算寿命公式计算得到的结果并非保证值, 在进行产品的寿命设计时, 请选择相对于推算值具有充足余量的电容器, 此外, 利用推算寿命公式计算得到的结果如果超过15年时, 以15年为上限。

Life time: When designing a circuit, it is necessary to select a capacitor that matches the life of the product. The result calculated by using the calculated life formula is not a guaranteed value. When designing the life of the product, please select a capacitor with sufficient margin relative to the estimated value. If the result calculated by the estimated life formula is more than 15 years, the upper limit is 15 years.

1.6充放电: 通用电容器请勿使用于急速充放电的电路中, 如果使用于电压差大的充放电电路, 或短周期且反复急速充放电的电路中, 可能导致静电容量减少, 内部发热等损坏现象, 这样的电路, 须选择符合充放电周期、充放电次数、放电电阻、使用温度等条件的急速充放电产品。

Charging and discharging: Do not use a general-purpose capacitor in a circuit that is rapidly charged and discharged. If it is used in a charging/discharging circuit with a large voltage difference or in a circuit with a short cycle and repeated rapid charging and discharging, it may cause a decrease in electrostatic capacitance and internal heating. In such a circuit, it is necessary to select a rapid charge and discharge product that meets the conditions of charge and discharge cycle, number of charge and discharge, discharge resistance, and use temperature.

1.7失效模式: 铝电解电容器是有使用寿命的元器件, 在一般情况下会发生开路型寿终方式, 产品及使用条件的不同时, 会引发安全防爆阀动作等现象。

Failure mode: Aluminium electrolytic capacitors are components with a service life. Under normal circumstances, an open-circuit end-of-life mode will occur. When the product and the operating conditions are different, the safety explosion-proof valve will be triggered.

电容器使用注意事项 Capacitor Use Precautions

1.8 电容器的套管：铝电解电容器的外包装套管不保证绝缘，当电容器套管的绝缘不能保证时，在有绝缘性能特定要求的地方，请不要使用，同时PET套管的特点耐热、环保，但其遇水及水蒸气有气胀之特性，会有像灯笼状（起鼓）、气胀爆破及起皱现象。

Casing of capacitor: The outer casing of aluminium electrolytic capacitor does not guarantee insulation. When the insulation of capacitor casing is not guaranteed, please do not use where there is specific requirement for insulation performance. At the same time, the characteristics of PET casing are heat-resistant and environmentally friendly. However, its water and water vapor have the characteristics of bloating, and it will be like a lantern (drum), blasting and wrinkling.

1.9 电容器的绝缘：铝电解电容器的外壳、负极端子、正极端子与电路板上的线路要完全隔离，铝电解电容器接触到其他电位，会出现安全防爆阀动作等现象。

Capacitor insulation: The outer casing, the negative terminal, and the positive terminal of the aluminium electrolytic capacitor are completely isolated from the circuit on the circuit board. When the aluminium electrolytic capacitor contacts other potentials, the safety explosion-proof valve may appear.

1.10 使用环境：请不要在如下环境中使用铝电解电容器，如直接与水、盐水及油类相接触，或结露的环境，阳光直接照射，充满有害气体的环境（硫化物、 H_2SO_3 、 HNO_3 、 CL_2 、氨水等），紫外线及有效放射性物质的环境，振动及冲击条件超过了样本及承认书的规定范围的恶劣环境等。

Use environment: Please do not use aluminium electrolytic capacitors in the following environments, such as direct contact with water, salt water and oil, or condensation environment, direct sunlight, and environment full of harmful gases (sulfide, H_2SO_3 , HNO_3 , CL_2), ammonia, etc.). The environment of ultraviolet light and effective radioactive materials, vibration and shock conditions exceed the harsh environment of the scope of the sample and the acknowledgment.

1.11 电容器的配置：铝电解电容器使用了以可燃性有机溶剂为主要溶媒的导电性电解液和可燃性电解纸，当电解液万一漏出到印刷电路板上时，会腐蚀电路板，导致电路板间短路，甚至冒烟，起火等，因此请确认以下情况后设计：①请对准电容器的端子间距和印刷配线板的孔间距，②电容器的防爆阀的上面，请留出以下空间：

产品尺寸(ΦD)	6.3~16	18~35	≥40
空间间隔(mm)	>2	>3	>5

注：不要将配线或电路延伸到电容器的防爆阀上方，如果电容器的防爆阀部接触印刷配线板边时，根据防爆阀的位置，设置防爆阀的排气孔，不要在电容器的封口部下面进行电路配线，如果电容器附近有配线，请确认线路间隔在2mm以上，勿在电容器周边及印刷配线板的背面（电容器下面）放置发热的部件，两面印刷配线板上安装电容器时，设计时注意电容器下方不可有多余的基板孔或连接用贯通孔，两面印刷配线板上安装电容器时，电容器主体的安装部位不可有配线线路。

Capacitor configuration: Aluminium electrolytic capacitors use a conductive electrolyte with flammable organic solvent as the main solvent and flammable electrolytic paper. When the electrolyte leaks out onto the printed circuit board, it will corrode the circuit board, resulting in a circuit board. Short circuit, even smoke, fire, etc., so please confirm the following design: ① Align the terminal spacing of the capacitor with the hole spacing of the printed wiring board. ② For the top of the explosion-proof valve of the capacitor, please leave the following space:

Item size(ΦD)	6.3~16	18~35	≥40
Space separation(mm)	>2	>3	>5

Note: Do not extend the wiring or circuit above the explosion-proof valve of the capacitor. If the explosion-proof valve part of the capacitor contacts the edge of the printed wiring board, set the vent hole of the explosion-proof valve according to the position of the explosion-proof valve, not in the sealing part of the capacitor. Next, perform circuit wiring. If there is wiring near the capacitor, check that the line spacing is 2 mm or more. Do not place hot parts on the periphery of the capacitor and on the back side of the printed wiring board (below the capacitor). When installing capacitors on the printed wiring board on both sides When designing, pay attention to the fact that there are no unnecessary substrate holes or connection through holes under the capacitor. When a capacitor is mounted on the printed circuit board on both sides, there is no wiring line at the mounting portion of the capacitor body.

1.12 其他：随着温度，频率及应用所需寿命的变动，电容器的电气特性会发生变化，请在确认这种变化量后设计电路：①两个电容器并联连接时，电路设计请考虑电流的平衡，②两个电容器串联连接时，要考虑电压的平衡，可插入与电容器并联的分压电阻。

Others: As the temperature, frequency and application life change, the electrical characteristics of the capacitor will change. Please design the circuit after confirming the change: ① When the two capacitors are connected in parallel, please consider the current balance in the circuit design. ② When two capacitors are connected in series, the voltage balance should be considered, and a voltage dividing resistor connected in parallel with the capacitor can be inserted.

电容器使用注意事项 Capacitor Use Precautions

二、安装方面的注意事项 Installation considerations

2.1 组装时: 已经成套组装并通过电的电容器请勿再次使用, 除了定时检查电气性能时拆下的电容器除外, 其他不能再次使用, 电容器可能产生再生电压, 此时, 请通过1KΩ左右的电阻放电, 如果将电容器放置在室温超过35℃、湿度75%RH的条件下存贮时, 电容器的漏电流有可能增大, 此时可通过1kΩ左右的电阻进行老化处理, 安装前请确认电容器的额定容量与额定电压, 安装前请确认电容器的极性, 请勿使用跌落到地板的电容器, 安装时请勿使用已变形的电容器, 请确认电容器的端子间距和印刷电路板孔间距是否匹配后, 再进行安装, 引线型可采用加工成型品, 在印刷电路板上安装引线型或基板自立型铝电解电容器时, 要按压使其与电路板紧贴, 不可使其处于浮起状态, 不可对电容器施加产品目录或承认书规定的机械强度以上的力, 自动装配机在吸附、装配及位置对准时, 或者切割端子时有可能产生冲击力, 请注意它的冲击力。

When assembling: Do not use the capacitor that has been assembled and passed through the power pack. Except for the capacitor that is removed when the electrical performance is checked regularly, the capacitor cannot be re-used. The capacitor may generate a regenerative voltage. In this case, discharge it through a resistor of about 1KΩ. If the capacitor is stored under the condition that the room temperature exceeds 35 ° C and the humidity is 75% RH, the leakage current of the capacitor may increase. At this time, the aging treatment can be performed by a resistance of about 1 kΩ. Please confirm the rated capacity of the capacitor before installation. Check the polarity of the capacitor before installation. Do not use the capacitor that has fallen to the floor. Do not use the deformed capacitor during installation. Please confirm that the terminal spacing of the capacitor matches the hole spacing of the printed circuit board. For mounting, the lead type can be processed and molded. When a lead type or substrate self-supporting aluminium electrolytic capacitor is mounted on a printed circuit board, it should be pressed so as to be in close contact with the circuit board, and the product cannot be applied to the capacitor. The force above the mechanical strength specified in the catalog or the acknowledgment, the automatic assembly machine is in the adsorption, loading And have aligned position, or cutting terminals may cause an impact, be aware of its impact.

2.2 进行烙铁焊接时: 焊接条件(温度、时间)产品目录或承认书规定的范围, 因端子间距和印刷电路板的孔间距不对应, 需要对引线端子加工时, 请注意不要对电容器主体施加压力, 勿让烙铁的尖端接触电容器主体, 焊料完全熔化后, 将电容器从电路板上移开, 再用烙铁焊接。注意不要对电容器施加压力。

When soldering iron soldering: The welding conditions (temperature, time) product catalog or the scope specified in the acknowledgment, the terminal spacing does not correspond to the hole pitch of the printed circuit board. When processing the lead terminals, be careful not to apply pressure to the capacitor body. Do not allow the tip of the soldering iron to contact the capacitor body. After the solder is completely melted, remove the capacitor from the board and solder it with a soldering iron. Be careful not to apply pressure to the capacitor.

2.3 进行波峰焊时: 勿将铝电解电容器主体浸入到熔融的焊料中, 插入印刷电路板作为阻隔, 只对放置电容器侧反面的基板表面进行焊接, 焊接条件(预热、焊接温度、浸入时间)不可超出产品目录或承认书中规定的范围, 除引线端子以外, 不可附着有焊料, 同时进行焊接时, 要注意避免其他部件接触到电容器。

When performing wave soldering: Do not immerse the main body of the aluminium electrolytic capacitor into the molten solder, insert it into the printed circuit board as a barrier, and only weld the surface of the substrate on the reverse side of the capacitor side. The soldering conditions (preheating, soldering temperature, immersion time) are not available. Except for the range specified in the catalogue or the acknowledgment, solder must not be attached except for the lead terminals. When soldering, care should be taken to prevent other components from coming into contact with the capacitor.

2.4 进行回流焊时: 焊接条件(预热、焊接温度、浸入时间)不可超出产品目录或承认书中规定的范围, 使用红外线加热器时, 因电容器的颜色与材质不同会导致红外线的吸收率不同, 请注意加热的程度, 注意不要进行两次回流焊接, 如果需进行两次, 请务必先咨询我司, 同时进行回流焊时, 请注意避免其他部件接触到电容器。

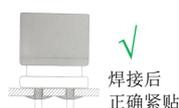
When reflow soldering: The soldering conditions (preheating, soldering temperature, immersion time) must not exceed the range specified in the catalog or the approval document. When the infrared heater is used, the absorption rate of infrared rays will be different depending on the color and material of the capacitor. Please pay attention to the degree of heating, please do not perform reflow soldering twice. If you need to do it twice, please consult our company first, and when reflow soldering, please be careful not to touch other capacitors.

注1: 被安装过的贴片型电容器在拆下来之后请勿再次使用, 另外, 将新的电容器安装在印刷电路板上工作时, 请将印刷电路板上遗留下的焊料去掉, 再按要求的条件进行焊接, 同时焊接前请确认是否适用回流焊。

Note1: Do not use the mounted chip capacitor after it has been removed. Also, when installing a new capacitor on the printed circuit board, remove the solder left on the printed circuit board and press the required one. Conditions are to be welded, and please confirm whether reflow is suitable before welding.

注2: 在焊接后的电路板上, 有不适当的外力施加于电容器本体或其引线, 会损坏电容器内部结构, 导致短路、高泄漏电流发生, 焊接后不可折曲或扭转电容器本体, 建议参照下列图。

Note2: On the circuit board after welding, improper external force is applied to the capacitor body or its leads, which will damage the internal structure of the capacitor, resulting in short circuit and high leakage current. Do not bend or twist the capacitor body after welding. It is recommended to refer to the following picture.



电容器使用注意事项 Capacitor Use Precautions

2.5焊接后的处理：印刷电路板焊接后的处理注意不可施加以下机械应力：①电容器主体不可倾斜、倒地或扭曲，②不可抓住电容器的主体搬运电路板，③不可让其他物体碰撞到电容器，此外，当重叠放置印刷电路板时，不可使印刷电路板或其他零件碰到电容器，④安装好电容器的印刷电路板不可掉落。

Post-welding treatment: Treatment after soldering of printed circuit board Note that the following mechanical stresses should not be applied: ① The capacitor body should not be tilted, grounded or twisted. ② Do not grasp the main body of the capacitor to carry the circuit board. ③ Do not allow other objects to collide with the capacitor. In addition, when the printed circuit board is placed in an overlapping manner, the printed circuit board or other parts are not allowed to hit the capacitor. ④ and the printed circuit board on which the capacitor is mounted cannot be dropped.

2.6基板清洗：电容器不可用以下清洗剂进行清洗：①卤素类溶剂，因腐蚀导致电容器失效，②碱性类溶剂，导致铝壳腐蚀（溶解），③萜烯类，石油类溶剂与二甲苯，导致封口橡胶老化，④丙酮，导致标识消失，⑤如果有必要进行清洗时，请务必使用对清洗有保证的电容器，并保持在产品目录和承认书中规定的范围内，请特别注意超声波清洗条件。

Substrate cleaning: Capacitors can not be cleaned with the following cleaning agents: ① halogen-based solvent, capacitor failure due to corrosion, ② alkaline solvents, causing corrosion (dissolution) of aluminium shells, ③ terpenes, petroleum solvents and xylene, leading to aging of sealing rubber, ④ acetone, leading to disappearance of labels, ⑤ if necessary cleaning, please use Clean the guaranteed capacitors and keep them within the range specified in the catalogue and the acknowledgment. Please pay special attention to the ultrasonic cleaning conditions.

2.7电容器清洗：如果有必要清洗铝电解电容器，请确认以下内容：①请进行清洗剂的污染管理：导电性、PH、比重、含水量等，②清洗后，请不要将电容器存贮在清洗液或密封的容器中，此外，请用热风（工作上线温度以下）吹十分钟以上进行充分干燥，避免印刷电路板及电解电容器上残留有清洗液，③一般情况下铝电解电容器很容易和卤素离子发生反应（特别是氯离子），因使用的电解液和封装材料等的不同，反应程度有所差异，但是，当一定量的卤素离子侵入到内部，会导致使用过程中发生腐蚀反应，并引起漏电流大幅增加，发热，安全防爆阀异常打开，开路等破坏性失效现象。

Capacitor cleaning: If it is necessary to clean the aluminium electrolytic capacitor, please confirm the following: ① Please carry out the pollution management of the cleaning agent: conductivity, PH, specific gravity, water content, etc. ② After cleaning, please do not store the capacitor in the cleaning solution or in the sealed container, please use hot air (below the working upper temperature) for more than ten minutes to fully dry to avoid the cleaning liquid remaining on the printed circuit board and electrolytic capacitor. ③ Generally, the aluminium electrolytic capacitor is easy to react with halogen ions. The reaction (especially chloride ion) varies depending on the electrolyte used and the encapsulating material. However, when a certain amount of halogen ions intrude into the interior, it may cause a corrosion reaction during use and cause leakage. The current is greatly increased, the heat is generated, the safety explosion-proof valve is abnormally opened, and the open circuit and other destructive failure phenomena.

2.8固定剂、涂层剂：请不要使用含卤素类溶剂等的固定剂和涂层剂，同时铝电解电容器上使用固定剂和涂层剂时，请确认一下内容：①在涂固定剂和涂层剂之前，请先干燥电路板，且封口处不可全部被堵住，②有关固定剂和涂层剂的热硬化条件，请遵守产品目录或承认书中的规定，③铝电解电容器的封口部完全被树脂堵住时，因电容器内部的内压无法释放，将会引发险情，此外，当固定剂和涂层剂中的卤素离子过多时，该成分会通过封口橡胶侵入电容器内部，会导致异常发生，有关事项请咨询我司，④固定剂和涂层剂中使用的有些种类的溶剂，会造成套管表面的光泽消退或白化等外观变化现象，请务必注意。

Fixing agent, coating agent: Please do not use fixing agent and coating agent containing halogen-based solvent, etc., and when using fixing agent and coating agent on aluminium electrolytic capacitor, please confirm the following: ① Applying fixing agent and coating Dry the board before using the agent, and the sealing part should not be completely blocked. ② For the heat curing conditions of the fixing agent and the coating agent, please observe the provisions in the catalogue or the acknowledgment. ③ When the sealing part of the aluminium electrolytic capacitor is completely blocked by the resin, the inside of the capacitor If the internal pressure cannot be released, it will cause danger. In addition, when there are too many halogen ions in the fixative and the coating agent, the component will invade the inside of the capacitor through the sealing rubber, which may cause abnormality. Please consult our company for related matters. ④ Some types of solvents used in fixatives and coatings may cause changes in the appearance of gloss or whitening of the surface of the casing.

2.9熏蒸处理：在电子设备进出口时，如电容器因为需用木制的包装，所以要采用熏蒸处理，有时需要有溴化甲烷等卤素化合物进行处理，此时，如果铝电解电容器接触到溴化甲烷等卤素化合物，有产生卤素离子而发生腐蚀反应的危险。

Fumigation treatment: When importing and exporting electronic equipment, such as capacitors, because of the need to use wooden packaging, fumigation treatment is required, sometimes halogen compounds such as brominated methane are needed for treatment. At this time, if the aluminium electrolytic capacitor is exposed to methyl bromide. A halogen compound has a risk of causing a halogen ion to cause a corrosion reaction.

电容器使用注意事项 Capacitor Use Precautions

三、保养检查注意事项

Maintenance check precautions

3.1请定期检查使用于工业设备上的电容器，对电容器进行保养检查的时候，请先切断设备的电源，放掉电容器内部的存储电荷，当用万能表检查时，请先确认万能表的极性后再使用，此时请注意不要让引线端子等受到压力的影响。

Please check the capacitors used in industrial equipment regularly. When checking the maintenance of the capacitors, please cut off the power supply of the equipment and discharge the stored charge inside the capacitor. When checking with the universal meter, please confirm the polarity of the universal meter. When using it again, please be careful not to let the lead terminals and other pressures be affected.

3.2请对以下内容进行定期检查：①外观（安全防爆阀动作、漏液等）有无明显异常，②电气性能（漏电流、静电容量、损耗角的正切角及产品目录或承认书中规定项目），当以上内容有异常时，请确认电容器的规格，并进行替换等恰当的处理。

Please check the contents regularly: ① Appearance (safety explosion-proof valve action, leakage, etc.) is there any obvious abnormality, ② electrical performance (leakage current, electrostatic capacity, tangent angle of loss angle, and items specified in the product catalog or acknowledgment), When there is an abnormality in the above contents, check the specifications of the capacitor and perform appropriate processing such as replacement.

四、紧急情况

Emergencies

4.1一定尺寸以上的电容器，为了降低异常的压力通常装配有安全防爆阀，如果发现配套设备中使用的电容器的安全防爆阀动作过程中有气体溢出，请切断设备的电源或从插座上拔掉电源线的插头，如果任其自然而不切断电源，电路会因电容器的短路而损坏，同时从电容器的安全防爆阀出来的气体，是电解液的气化物，不是烟，当电容器的安全防爆阀动作时，会喷出超过约100℃的高温气体，请不要将脸部靠近，万一喷出的气体不慎进入眼睛，或吸入的时候，请马上用清水洗眼，漱口，当粘附在皮肤上时，请用肥皂冲洗。

Capacitors above a certain size are usually equipped with safety explosion-proof valves to reduce abnormal pressure. If gas leaks during the operation of the safety explosion-proof valve of the capacitor used in the accessory equipment, please cut off the power of the equipment or pull it out from the socket. If the plug of the power cord is disconnected, if it is left without cutting off the power supply, the circuit will be damaged by the short circuit of the capacitor. At the same time, the gas coming out of the safety explosion-proof valve of the capacitor is the vapor of the electrolyte, not the smoke, when the capacitor is safely explosion-proof. When the valve is operating, it will eject high-temperature gas of more than about 100 °C. Please do not bring your face close. If the gas that is ejected accidentally enters the eyes, or when inhaling, please wash your eyes with water immediately, gargle, when sticking. When washing on the skin, rinse with soap.

五、保管

Storage

5.1不可将电容器保存在高温高湿的环境，请保管在室温5~35摄氏度，湿度75%以下的环境，请尽量以包装方式保管，同时避免在以下环境保管：溅水，高温高湿及结露，溅油，或者充满气体油成分，充满酸性有毒气体（硫化氢、亚硫酸、亚硝酸、氯、溴、溴化甲烷等），直射阳光，臭氧，紫外线及放射线照射等环境，若电容长期存放，漏电流可能回升增大（本体特性导致），低压产品储存时间超过6个月，中高压产品储存时间超过12个月，此时，需通过加电压老化处理，老化方式请事先与我司联系。

Do not store the capacitor in a high temperature or high humidity environment. Store it at room temperature of 5 to 35 degrees Celsius and humidity of 75% or less. Please store it in a package and avoid storage in the following environments: splashing water, high temperature and humidity. Condensation, splashing oil, or filled with gas oil, filled with acidic and toxic gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, bromine, methyl bromide, etc.), direct sunlight, ozone, ultraviolet and radiation, etc. Long-term storage, leakage current may increase and increase (main body characteristics), low-voltage products storage time of more than 6 months, medium and high-voltage products storage time of more than 12 months, at this time, need to add voltage aging treatment, aging method, please contact me in advance Contact the company.

六、废弃处理

Disposal

6.1废弃电容器时，请交给专业的工业废弃物处理厂进行焚烧或填埋等处理，焚烧的时候，请用高温焚烧（800℃以上），低温焚烧的时候，会产生卤素气体等有害气体，此外，为了防止电容器爆炸，请在电容器上开孔或者充分碾碎之后焚烧。

When disposing of the capacitor, please hand it over to a professional industrial waste treatment plant for incineration or landfill. When incinerating, please use high-temperature incineration (800 °C or higher). When burning at low temperature, it will produce harmful gases such as halogen gas. Gas, in addition, in order to prevent the capacitor from exploding, please inject holes in the capacitor or fully crush and incinerate.

七、产品目录内容

Product catalogue content

7.1本产品目录中的内容有可能未经提示而变更，在对性能，尺寸等其他特殊参数值有要求时，请事先与我司联系，对于本目录书所规定产品特性参数及其注意事项，最终解释权归我司所有。

The contents of this catalogue may be changed without prompting. When there are requirements for performance, size and other special parameter values, please contact us in advance for the product characteristic parameters specified in this catalogue. Attention, the final interpretation right belongs to our company.

贴片产品无铅回流焊允许条件

Lead-Free Reflow Soldering Allowable Conditions For SMD Products

一、电容器尺寸：Φ6.3~Φ10mm

Capacitor size: Φ6.3~Φ10mm

1.1 电容器表面温度在T℃以下。

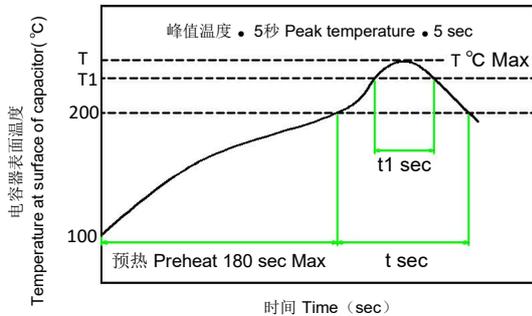
Capacitor surface temperature below T °C.

1.2 电容器表面温度在200℃以上的时间不能超过 t 秒，T1℃以上的时间不可超过 t1 秒。

The surface temperature of the capacitor should not exceed t seconds for more than 200 °C 's time, and the time above T1 °C should not exceed t1 seconds.

1.3 预热控制在100℃~200℃，180秒以内。

Preheating should be controlled in the range of 100 °C ~ 200 °C, within 180 seconds.



尺寸mm Size	T(°C)①	T1(°C)	t(sec)②	t1(sec)③	Reflow cycle
Φ6.3	250	230	90	40	1
Φ8	250	230	90	30	1
Φ10	235	230	60	30	1

注(Note):

① 峰值温度

Peak temperature

② 超过200℃的时间 (Max)

More than 200 °C 's time (Max)

③ 超过T1的时间

More than T1 's time

● 出现超过允许条件的情况，请联系我司

If there is more than the allowable condition, please contact us.

二、电容器尺寸：Φ12~Φ18mm

Capacitor size: Φ12~Φ18mm

1.1 电容器表面温度在T℃以下。

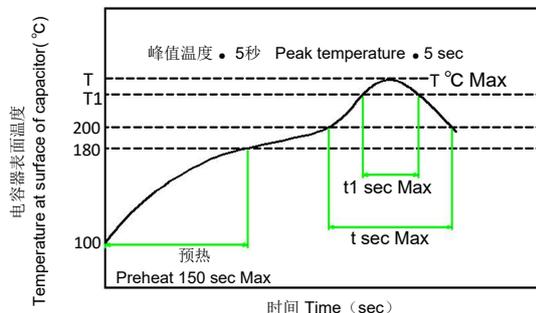
Capacitor surface temperature below T °C.

1.2 电容器表面温度在200℃以上的时间不能超过 t 秒，T1℃以上的时间不可超过 t1 秒。

The surface temperature of the capacitor should not exceed t seconds for more than 200 °C 's time, and the time above T1 °C should not exceed t1 seconds.

1.3 预热控制在100℃~180℃，150秒以内。

Preheating should be controlled in the range of 100 °C ~ 180 °C, within 150 seconds.



尺寸mm Size	T(°C)①	T1(°C)	t(sec)②	t1(sec)③	Reflow cycle
Φ12~18	240	230	60	30	1

注(Note):

① 峰值温度

Peak temperature

② 超过200℃的时间 (Max)

More than 200 °C 's time (Max)

③ 超过T1的时间 (Max)

More than T1 's time (Max)

● 出现超过允许条件的情况，请联系我司

If there is more than the allowable condition, please contact us.

RR SERIES



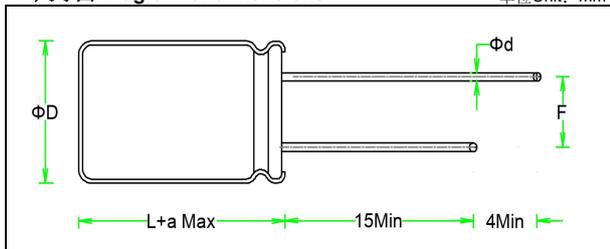
- 低压、标准品
Low voltage, standard product 105°C 2000~3000Hrs.
- 适用于LED驱动电源，开关电源等电子线路
Suitable for LED drive power supply, switching power supply and other electronic circuits.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics												
工作温度范围 Operating temperature range	-40~+105°C												
额定电压范围 Rated voltage range	6.3~120V _{dc}												
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)												
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz					25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance					V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 25°C 120Hz	
	tanδ(Max)	0.26	0.20	0.16	0.14	0.12	0.10	0.10	0.10	0.10	0.12		
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value													
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	6	5	4	4	4	4	4	4	3		
		Z(-40°C)/Z(+20°C)	12	10	8	5	5	5	5	5	6		
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:												
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value									Φ D (mm)	Life(Hrs)	
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									ΦD≤8	2000	
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									ΦD>8	3000	
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:												
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value											
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value											
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value											

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	12	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
Cap<220	0.40	0.75	0.90	1.00
220≤Cap<680	0.50	0.85	0.94	1.00
680≤Cap<2200	0.60	0.87	0.95	1.00
2200≤Cap<4700	0.75	0.90	0.95	1.00
Cap≥4700	0.85	0.95	0.98	1.00

RR SERIES

■ 标准品一览表 List of standard products

(ESR: Ω/25℃ 100kHz Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
6.3	33	5*11	1.00	120
	47	5*11	0.95	150
	100	5*11	0.550	165
	220	6.3*12	0.450	275
	330	6.3*12	0.260	335
	470	6.3*12	0.250	400
	680	8*12	0.150	500
	1000	8*12	0.090	730
	2200	10*16	0.045	1455
	3300	12*20	0.038	1650
	4700	13*20	0.030	2310
10	33	5*11	1.00	120
	47	5*11	0.95	150
	100	5*11	0.550	165
	220	6.3*12	0.450	275
	330	6.3*12	0.260	340
	470	6.3*12	0.180	400
	680	8*12	0.130	800
	1000	8*12	0.090	960
	2200	10*16	0.045	1455
	3300	12*20	0.038	1800
	4700	13*20	0.030	2310
6800	16*25	0.017	2880	
16	10	5*11	2.00	125
	22	5*11	1.00	140
	33	5*11	0.95	150
	47	5*11	0.500	175
	100	5*11	0.250	295
	220	6.3*12	0.180	410
	330	6.3*12	0.120	510
	470	8*12	0.090	740
	680	8*14	0.065	770
	1000	8*16	0.052	1200
	2200	12*20	0.032	1910
	3300	13*20	0.022	2550
	4700	16*25	0.019	3020
	6800	18*32	0.015	3720
25	4.7	5*11	2.50	100
	10	5*11	1.50	130
	22	5*11	0.900	160
	33	5*11	0.850	170
	47	5*11	0.500	180
	100	6.3*12	0.250	290
	220	8*12	0.100	560
	330	8*12	0.090	740
	470	8*12	0.068	1010
	680	8*20	0.063	1120
	1000	10*16	0.037	1670
	2200	13*20	0.022	2520
	3300	16*25	0.019	3020
	4700	16*32	0.015	3720
6800	18*32	0.013	4250	

电压 VV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
35	4.7	5*11	1.90	110
	10	5*11	1.20	145
	22	5*11	0.800	170
	33	5*11	0.500	175
	47	5*11	0.300	220
	68	6.3*12	0.280	300
	100	8*12	0.180	360
	220	8*12	0.090	730
	330	10*13	0.068	1040
	470	10*16	0.052	1300
	680	10*20	0.045	1600
	1000	12*20	0.031	1900
	2200	16*25	0.019	2800
	3300	16*35	0.016	3400
50	1	5*11	5.00	30
	2.2	5*11	4.00	70
	3.3	5*11	3.20	80
	4.7	5*11	2.70	90
	6.8	5*11	2.40	120
	10	5*11	1.30	140
	22	5*11	0.900	155
	33	6.3*11	0.600	250
	47	6.3*11	0.450	260
	68	6.3*12	0.400	380
	100	8*12	0.200	490
	220	10*13	0.088	1010
	330	10*16	0.073	1100
	470	10*20	0.065	1130
680	13*20	0.040	1630	
820	13*20	0.034	2050	
1000	13*25	0.023	2900	
2200	16*32	0.023	3110	
63	4.7	5*11	3.00	80
	10	5*11	2.00	130
	22	5*11	1.00	240
	33	6.3*12	0.900	280
	47	6.3*12	0.560	290
	100	8*12	0.270	500
	220	10*13	0.130	1035
	330	10*20	0.090	1150
	470	13*20	0.055	1210
	680	13*25	0.048	2090
1000	16*25	0.036	2160	
80	68	10*13	0.280	400
	100	10*13	0.250	540
	120	10*16	0.220	700
	150	10*16	0.180	780
	220	10*20	0.085	1020
	330	13*20	0.068	1220
	390	13*25	0.060	1300
	470	16*20	0.052	1500
	680	16*32	0.045	1660
	820	16*32	0.042	1800

RR SERIES

■ 标准品一览表 List of standard products

(ESR: $\Omega/25^{\circ}\text{C}$ 100kHz Max, Rated ripple current: mA rms/105 $^{\circ}\text{C}$ 100kHz)

电压 WV (V_{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
100	2.2	5*11	5.500	60
	3.3	5*11	4.500	75
	4.7	5*11	4.000	90
	10	6.3*12	1.200	140
	22	8*12	0.660	210
	33	8*12	0.500	230
	47	8*12	0.320	350
	68	8*16	0.280	380
	100	8*20	0.160	460
	150	10*20	0.130	740
	220	13*20	0.090	850
	330	13*25	0.080	1010
	470	16*25	0.060	1250
	680	18*25	0.050	1650

电压 WV (V_{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
120	10	6.3*12	5.500	72
	15	6.3*12	4.500	90
	22	8*12	3.500	120
	33	8*12	3.000	200
	47	8*16	2.500	245
	56	10*16	2.200	340
	68	10*16	2.000	350
	82	10*20	1.800	380
	100	10*20	1.500	420
	150	13*20	1.000	620
	180	13*20	0.950	680
	220	13*25	0.750	760
	330	16*25	0.420	930
	470	16*32	0.300	1030

RP SERIES



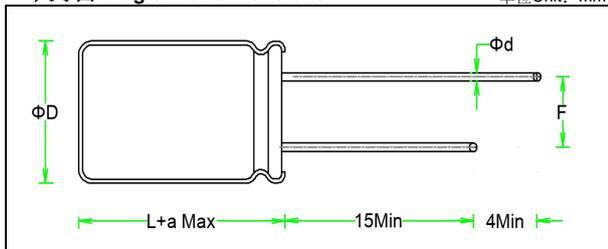
- 双极性、标准品
Bipolar, standard product 105°C 1000Hrs.
- 适用于极性翻转或极性交换的电路中
Suitable for circuits with polarity reversal or polarity switching.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics											
工作温度范围 Operating temperature range	-40~+105°C											
额定电压范围 Rated voltage range	6.3~100V _{dc}											
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)											
漏电流 Leakage current	I=0.06CV或10μA取大者 I=0.06CV or 10μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz				25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance				V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	at 25°C 120Hz	
	tanδ(Max)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.12	0.10		
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value												
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2		
		Z(-40°C)/Z(+20°C)	10	8	6	4	3	3	3	3		
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value										
	损耗角正切值 Dissipation factor	≤初始规格值的150% ≤150% of the initial specification value										
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value										
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value										
	损耗角正切值 Dissipation factor	≤初始规格值的150% ≤150% of the initial specification value										
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value										

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V) \ Freq(Hz)	50/60	120	1k	10k	100k
6.3~16	0.80	1.00	1.10	1.20	1.20
25~35	0.80	1.00	1.50	1.70	1.70
50~100	0.80	1.00	1.60	1.90	1.90

RP SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
6.3	33	5*11	0.24	40
	47	5*11	0.24	50
	100	6.3*12	0.24	85
	220	8*12	0.24	140
	330	8*12	0.24	170
	470	10*13	0.24	250
	1000	10*20	0.24	430
	2200	13*25	0.26	800
	3300	16*25	0.28	1100
10	22	5*11	0.24	32
	33	5*11	0.24	45
	47	5*11	0.24	50
	100	6.3*12	0.24	90
	220	8*12	0.24	150
	330	10*16	0.24	230
	470	10*16	0.24	270
	1000	13*22	0.24	480
16	2200	16*25	0.26	880
	10	5*11	0.20	25
	22	5*11	0.20	40
	33	5*11	0.20	45
	47	6.3*12	0.20	65
	100	8*12	0.20	100
	220	10*13	0.20	180
	330	10*16	0.20	250
	470	10*20	0.20	330
25	1000	16*25	0.20	250
	2200	16*32	0.22	1000
	10	5*11	0.20	25
	22	6.3*12	0.20	42
	33	6.3*12	0.20	55
	47	6.3*12	0.20	60
	100	8*12	0.20	105
	220	10*16	0.20	210
35	330	13*22	0.20	300
	470	13*22	0.20	350
	1000	16*25	0.20	650
	4.7	5*11	0.16	20
	10	5*11	0.16	30
	22	6.3*12	0.16	48
	33	8*12	0.16	70
	47	8*12	0.16	80
100	100	10*16	0.16	150
	220	13*20	0.16	280
	330	13*20	0.16	340
	470	13*25	0.16	450
	1000	16*32	0.16	780

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
50	1	5*11	0.14	10
	2.2	5*11	0.14	15
	3.3	5*11	0.14	18
	4.7	5*11	0.14	20
	10	6.3*12	0.14	35
	22	8*12	0.14	60
	33	8*12	0.14	75
	47	10*13	0.14	100
	100	10*20	0.14	180
	220	13*25	0.14	320
	330	16*25	0.14	450
63	470	16*32	0.14	580
	3.3	5*11	0.12	20
	4.7	6.3*12	0.12	25
	10	6.3*12	0.12	40
	22	8*12	0.12	65
	33	10*13	0.12	90
	47	10*16	0.12	120
	100	13*22	0.12	220
80	220	16*25	0.12	400
	330	16*32	0.12	520
	2.2	5*11	0.12	15
	3.3	6.3*12	0.12	20
	4.7	6.3*12	0.12	25
	10	8*12	0.12	45
	22	10*16	0.12	85
	33	10*16	0.12	100
	47	10*20	0.12	140
	100	13*25	0.12	240
100	220	16*32	0.12	420
	2.2	6.3*12	0.10	20
	3.3	6.3*12	0.10	25
	4.7	6.3*12	0.10	28
	10	8*12	0.10	50
	22	10*20	0.10	90
	33	13*22	0.10	130
	47	13*22	0.10	160
	100	16*25	0.10	280

GV SERIES



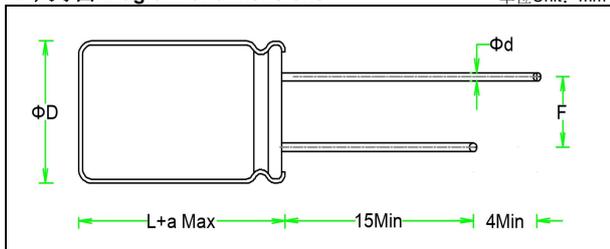
- 中高压、标准品
Medium and high voltage, standard product 105°C 3000Hrs.
- 适用于电源适配器等一般电子线路
Suitable for the power adapter and other general electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)					25°C, 120Hz		25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.20	0.20	0.20	0.24	0.24	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)		3	3	3	6	6			
		Z(-40°C)/Z(+20°C)		6	6	6	7	7	9	15	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

Cap(μF)	Freq(Hz)				
	50/60	120	1k	10k	100k
Cap<10	0.65	1.00	1.75	2.30	2.50
10≤Cap<100	0.75	1.00	1.50	1.75	1.80
100≤Cap<1000	0.80	1.00	1.30	1.40	1.50

GV SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	4.7	6.3*12	0.20	35
	10	8*12	0.20	60
	22	10*12	0.20	90
	33	10*15	0.20	140
	47	10*17	0.20	165
	68	10*20	0.20	250
	100	13*20	0.20	300
200	1	5*11	0.20	12
	2.2	6.3*12	0.20	18
	3.3	6.3*12	0.20	27
	4.7	8*9	0.20	36
	8.2	8*12	0.20	40
	10	8*17	0.20	60
	22	10*17	0.20	110
	33	10*17	0.20	130
	47	10*20	0.20	170
	68	13*20	0.20	210
	100	13*20	0.20	280
	120	13*25	0.20	320
	150	16*32	0.20	400
	220	18*32	0.20	550
330	18*32	0.20	650	
250	1	6.3*12	0.20	10
	2.2	6.3*9	0.20	20
	2.2	6.3*12	0.20	22
	3.3	8*12	0.20	30
	4.7	8*12	0.20	40
	6.8	8*12	0.20	50
	8.2	8*17	0.20	60
	10	10*13	0.20	70
350	1	5*11	0.24	12
	1	6.3*12	0.24	14
	2.2	6.3*12	0.24	23
	3.3	8*12	0.24	31
	4.7	8*12	0.24	37
	10	10*17	0.24	60
	15	10*17	0.24	95
	22	10*20	0.24	120
	33	13*20	0.24	140
	47	16*22	0.24	190
	68	18*25	0.24	260
	82	18*27	0.24	330
	100	18*32	0.24	370
120	18*32	0.24	400	
150	18*34	0.24	470	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	1	5*11	0.24	12
	1	6.3*12	0.24	14
	2.2	6.3*12	0.24	22
	3.3	6.3*12	0.24	33
	4.7	8*9	0.24	43
	5.6	8*12	0.24	50
	6.8	8*12	0.24	62
	8.2	8*12	0.24	78
	10	10*14	0.24	105
	15	10*17	0.24	120
	22	12*20	0.24	150
	33	13*20	0.24	240
	39	13*25	0.24	250
	47	16*20	0.24	270
	56	16*25	0.24	300
	68	16*25	0.24	390
	82	18*27	0.24	450
100	18*32	0.24	510	
120	18*32	0.24	560	
150	18*34	0.24	600	
450	1	6.3*12	0.24	12
	2.2	8*12	0.24	20
	3.3	8*12	0.24	28
	4.7	10*13	0.24	45
	5.6	8*12	0.24	55
	6.8	10*13	0.24	62
	10	10*17	0.24	75
	15	10*20	0.24	105
	22	13*20	0.24	140
	33	16*20	0.24	190
	47	16*25	0.24	310
68	18*27	0.24	390	
82	18*30	0.24	450	
100	18*34	0.24	500	
500	4.7	10*13	0.24	45
	10	10*20	0.24	105
	15	13*17	0.24	130
	22	13*20	0.24	170
	33	16*25	0.24	200
	47	18*27	0.24	320
	68	18*32	0.24	380

GR SERIES



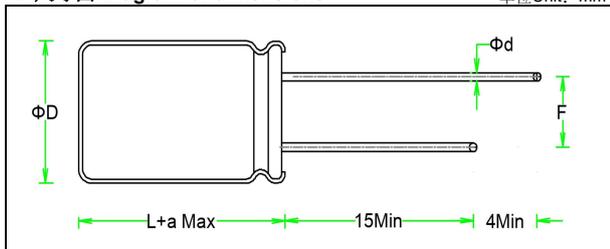
- 中高压、标准品
Medium and high voltage, standard product 105°C 4000Hrs.
- 适用于电源适配器等一般电子线路
Suitable for the power adapter and other general electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)					25°C, 120Hz		25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.20	0.20	0.20	0.24	0.24	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)		3	3	3	6	6	6	8	
		Z(-40°C)/Z(+20°C)		6	6	6	7	7	9	15	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

GR SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	10	8*12	0.20	130
	22	10*12	0.20	210
	33	10*15	0.20	295
	47	10*17	0.20	368
	68	10*20	0.20	490
	100	13*20	0.20	615
200	4.7	8*12	0.20	90
	10	8*17	0.20	145
	22	10*17	0.20	220
	33	10*17	0.20	268
	47	10*20	0.20	324
	68	13*20	0.20	462
	100	13*20	0.20	525
	150	16*32	0.20	630
	220	18*32	0.20	850
330	18*32	0.20	985	
250	2.2	6.3*12	0.20	40
	3.3	8*12	0.20	72
	4.7	8*12	0.20	83
	6.8	8*12	0.20	96
	10	10*13	0.20	130
350	2.2	6.3*12	0.24	50
	3.3	8*12	0.24	75
	4.7	8*12	0.24	85
	10	10*17	0.24	148
	22	10*20	0.24	260
	33	13*20	0.24	320
	47	16*22	0.24	480
	68	18*25	0.24	516
	100	18*32	0.24	625
150	18*34	0.24	750	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	2.2	6.3*12	0.24	60
	3.3	6.3*12	0.24	85
	4.7	8*9	0.24	110
	6.8	8*12	0.24	140
	10	10*14	0.24	220
	15	10*17	0.24	260
	22	12*20	0.24	370
	33	13*20	0.24	450
	47	16*20	0.24	640
	68	16*25	0.24	805
	82	18*27	0.24	900
	100	18*32	0.24	1050
	120	18*32	0.24	1240
	150	18*34	0.24	1350
	450	1	6.3*12	0.24
2.2		8*12	0.24	75
3.3		8*12	0.24	85
4.7		10*13	0.24	142
6.8		10*13	0.24	165
10		10*17	0.24	245
15		10*20	0.24	271
22		13*20	0.24	360
33		16*20	0.24	495
47		16*25	0.24	655
500	68	18*27	0.24	850
	82	18*30	0.24	1020
	100	18*34	0.24	1285
	4.7	10*13	0.24	125
	10	10*20	0.24	205
	22	13*20	0.24	322
	33	16*25	0.24	505
	47	18*27	0.24	680
	68	18*32	0.24	810

AL SERIES



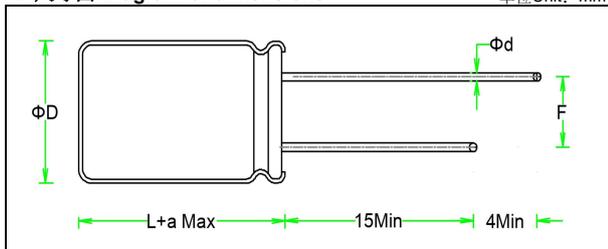
- 通用品
General product 105°C 6000Hrs.
- 适用于标准型驱动电源
Suitable for standard power supply.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics									
工作温度范围 Operating temperature range	-40~+105°C									
额定电压范围 Rated voltage range	160~500V _{dc}									
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)									
漏电流 Leakage current	160~400V	450~500V	25°C, 2分钟(25°C, 2min)				25°C, 120Hz		25°C	
	I=0.02CV+10μA	I=0.03CV+10μA	I: 漏电流 I: Leakage current				C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz	
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24	0.24		
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value										
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	3	3	3	6	6	6	
		Z(-40°C)/Z(+20°C)	6	6	6	6	6	9	15	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value								
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value								

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

AL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	1	5*11	0.15	20
	1.5	5*11	0.15	32
	1.8	5*11	0.15	40
	2.2	6.3*12	0.15	50
	2.8	6.3*12	0.15	55
	3.3	6.3*12	0.15	60
	4.7	6.3*12	0.15	68
	5.6	6.3*12	0.15	75
	6.8	6.3*12	0.15	82
	8.2	6.3*12	0.15	110
	10	6.3*12	0.15	130
	10	8*12	0.15	180
	15	8*17	0.15	225
	22	8*17	0.15	350
	22	10*13	0.15	348
	33	10*13	0.15	432
	33	10*17	0.15	435
	47	10*17	0.15	470
	47	10*20	0.15	500
	200	56	10*20	0.15
68		10*20	0.15	600
82		13*20	0.15	650
100		13*20	0.15	700
120		13*20	0.15	750
200		18*20	0.15	880
220		13*30	0.15	1000
220		18*20	0.15	920
330		18*34	0.15	1100
1		5*9	0.15	18
1		5*11	0.15	20
1.5		6.3*9	0.15	27
1.5		8*9	0.15	27
1.8		6.3*9	0.15	32
2.2		6.3*9	0.15	40
2.8		6.3*9	0.15	50
3.3		6.3*9	0.15	70
4.7		6.3*12	0.15	85
5.6		8*12	0.15	95
6.8		8*12	0.15	100
8.2	8*12	0.15	130	
10	8*17	0.15	180	
15	8*17	0.15	210	
22	10*17	0.15	280	
33	10*20	0.15	420	
47	10*20	0.15	570	
56	13*20	0.15	635	
68	16*20	0.15	675	
100	16*25	0.15	760	
180	13*30	0.15	850	
220	18*32	0.15	930	
330	18*32	0.15	1050	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
250	1	5*9	0.15	19
	1	5*11	0.15	20
	1.5	6.3*12	0.15	29
	1.8	6.3*12	0.15	35
	2.2	5*11	0.15	30
	2.2	6.3*9	0.15	42
	2.2	6.3*12	0.15	45
	2.8	6.3*12	0.15	65
	3.3	6.3*12	0.15	78
	4.7	6.3*12	0.15	95
	4.7	8*9	0.15	80
	5.6	8*9	0.15	100
	6.8	8*12	0.15	105
	8.2	8*17	0.15	118
	10	8*12	0.15	140
	10	8*17	0.15	160
	12	10*13	0.15	190
	15	10*13	0.15	230
	22	10*17	0.15	350
	33	10*20	0.15	450
350	47	13*20	0.15	540
	47	12*25	0.15	540
	56	12*25	0.15	660
	68	13*25	0.15	685
	82	16*25	0.15	780
	100	16*25	0.15	800
	1	6.3*12	0.20	30
	1.5	6.3*12	0.20	42
	1.8	6.3*12	0.20	50
	2.2	6.3*12	0.20	55
400	3.3	8*12	0.20	72
	4.7	8*12	0.20	85
	5.6	8*17	0.20	103
	8.2	10*17	0.20	144
	10	10*17	0.20	205
	15	10*17	0.20	270
	22	12*20	0.20	410
	33	12*25	0.20	480
	47	16*25	0.20	580
	1	6.3*9	0.20	32
400	1.5	6.3*9	0.20	42
	2.2	6.3*9	0.20	55
	2.2	6.3*12	0.20	65
	3.3	6.3*12	0.20	82
	3.3	8*9	0.20	85
	3.9	8*12	0.20	100
	4.7	8*12	0.20	105
	5.6	8*17	0.20	130
	6.8	10*13	0.20	140

AL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	8.2	8*16	0.20	215
	8.2	10*13	0.20	220
	10	8*16	0.20	220
	10	10*13	0.20	220
	12	10*17	0.20	240
	15	10*17	0.20	260
	22	12*20	0.20	370
	33	13*20	0.20	550
	47	16*25	0.20	645
	56	16*32	0.20	670
	68	18*25	0.20	700
	82	18*32	0.20	850
	100	18*32	0.20	1050
	120	18*36	0.20	1170
	150	18*36	0.20	1300
450	1	6.3*12	0.24	35
	1.5	8*12	0.24	50
	1.8	8*12	0.24	65
	2.2	8*12	0.24	70
	3.3	8*12	0.24	80
	4.7	8*12	0.24	90
	4.7	8*17	0.24	95
	5.6	10*13	0.24	105
	6.8	10*13	0.24	110
	6.8	10*17	0.24	160
	8.2	10*17	0.24	200
	10	10*17	0.24	210
	10	10*20	0.24	220
	15	10*20	0.24	280
	15	13*18	0.24	320
	22	13*20	0.24	395
	33	13*25	0.24	530
	47	16*25	0.24	650
	47	16*32	0.24	680
68	16*32	0.24	750	
100	18*32	0.24	880	
150	18*42	0.24	1350	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
500	4.7	10*17	0.24	148
	6.8	10*20	0.24	185
	10	13*25	0.24	251
	15	16*20	0.24	328
	22	16*25	0.24	417
	33	18*25	0.24	522
	47	18*30	0.24	656
	68	22*35	0.24	920

KL SERIES



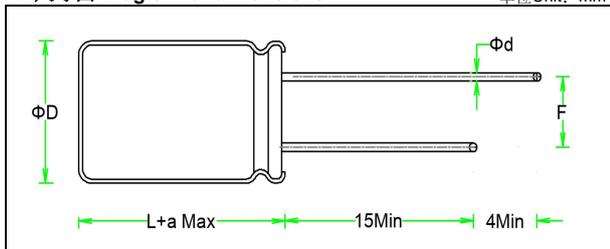
- 小体积品
Small volume product 105°C 8000Hrs.
- 适用于高品质驱动电源
Suitable for high quality power supply.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	160~400V	450~500V				25°C, 2分钟(25°C, 2min)		25°C, 120Hz		25°C	
	I=0.02CV+10μA	I=0.03CV+10μA				I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6	6		
Z(-40°C)/Z(+20°C)											
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

KL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	1	5*9	0.15	32
	1.5	5*9	0.15	42
	2.2	5*9	0.15	50
	3.3	5*11	0.15	65
	3.9	5*11	0.15	78
	4.7	6.3*9	0.15	80
	5.6	6.3*9	0.15	88
	6.8	6.3*9	0.15	103
	8.2	6.3*9	0.15	110
	10	8*9	0.15	140
	15	8*12	0.15	230
	18	8*12	0.15	270
	22	8*12	0.15	380
	47	10*17	0.15	620
	68	10*20	0.15	950
	80	10*20	0.15	1000
82	13*20	0.15	1100	
100	13*20	0.15	1300	
200	1	5*9	0.15	35
	1	6.3*12	0.15	40
	1.2	5*9	0.15	38
	1.5	5*11	0.15	45
	1.8	5*11	0.15	55
	2.2	5*11	0.15	74
	3.3	6.3*9	0.15	93
	3.9	6.3*9	0.15	102
	4.7	6.3*9	0.15	112
	5.6	8*9	0.15	130
	6.8	8*9	0.15	135
	8.2	8*9	0.15	230
	10	8*11	0.15	250
	15	8*13	0.15	320
	20	10*15	0.15	380
	22	10*17	0.15	430
33	10*20	0.15	610	
47	12*20	0.15	820	
250	1	5*9	0.15	35
	1.5	5*9	0.15	50
	1.8	6.3*9	0.15	60
	2.2	6.3*9	0.15	70
	2.7	6.3*9	0.15	75
	3.3	6.3*9	0.15	100
	3.9	6.3*9	0.15	115
	4.7	8*9	0.15	132
	5.6	8*9	0.15	135
	6.8	8*9	0.15	150

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current	
250	8.2	8*12	0.15	190	
	10	8*12	0.15	230	
	12	10*12	0.15	270	
	15	8*12	0.15	330	
	20	10*15	0.15	420	
	22	10*17	0.15	470	
	33	10*16	0.15	560	
	47	13*20	0.15	780	
	350	2.8	8*9	0.20	70
		3.3	6.3*12	0.20	82
3.3		8*9	0.20	85	
4.7		8*9	0.20	95	
5.6		8*12	0.20	130	
6.8		8*12	0.20	180	
6.8		10*9	0.20	180	
8.2		8*16	0.20	210	
10		10*13	0.20	240	
10		8*20	0.20	240	
15	10*17	0.20	340		
22	12*20	0.20	490		
33	12*20	0.20	590		
400	1	5*9	0.20	40	
	1	6.3*9	0.20	40	
	1.5	5*11	0.20	55	
	1.5	6.3*9	0.20	55	
	1.8	6.39*	0.20	67	
	2.2	6.3*9	0.20	85	
	2.2	8*9	0.20	85	
	2.7	6.3*9	0.20	90	
	3.3	6.3*12	0.20	110	
	3.3	8*9	0.20	120	
	3.9	8*9	0.20	126	
	4.7	8*9	0.20	130	
	5.6	8*9	0.20	140	
	6.8	8*12	0.20	180	
	8.2	10*14	0.20	205	
	10	10*14	0.20	250	
15	10*17	0.20	370		
18	10*20	0.20	400		
22	12*20	0.20	500		
33	13*20	0.20	600		
450	1	6.3*9	0.24	40	
	1.2	6.3*9	0.24	48	
	1.5	6.3*9	0.24	60	
	1.8	6.3*12	0.24	65	
	1.8	8*9	0.24	65	

KL SERIES

■ 标准品一览表 List of standard products
(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
450	2.2	8*9	0.24	88
	2.7	8*9	0.24	90
	3.3	8*12	0.24	100
	3.9	8*9	0.24	110
	4.7	8*12	0.24	120
	5.6	8*17	0.24	145
	6.8	8*20	0.24	190
	6.8	10*13	0.24	190
	8.2	8*20	0.24	210
	8.2	10*14	0.24	210
	10	10*15	0.24	270
	15	10*20	0.24	330
	22	13*20	0.24	440
	33	13*25	0.24	580

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
500	5.6	10*17	0.24	135
	10	13*17	0.24	240
	15	13*17	0.24	300
	33	16*21	0.24	560
	47	18*22	0.24	720
	100	22*34	0.24	1200
	120	22*41	0.24	1400
	150	22*41	0.24	1550

CL SERIES



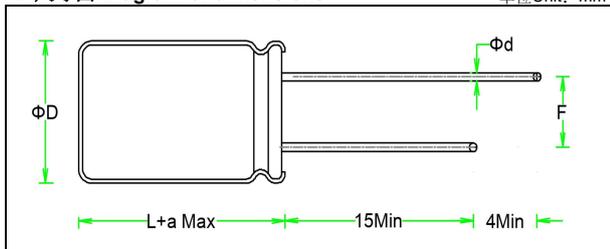
- 长寿命品
Long life product 105°C 12000Hrs.
- 适用于高品质驱动电源
Suitable for high quality power supply.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	160~400V	450~500V	25°C, 2分钟(25°C, 2min)					25°C, 120Hz		25°C	
	I=0.02CV+10μA	I=0.03CV+10μA	I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6	6		
		Z(-40°C)/Z(+20°C)	6	6	6	6	6	9	15		
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

CL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	1	6.3*12	0.15	38
	1.5	6.3*12	0.15	45
	1.8	6.3*12	0.15	52
	2.2	6.3*9	0.15	58
	2.8	6.3*12	0.15	65
	3.3	6.3*12	0.15	80
	4.7	6.3*12	0.15	85
	5.6	6.3*12	0.15	98
	6.8	6.3*12	0.15	110
	8.2	8*12	0.15	130
	10	6.3*12	0.15	210
	10	8*12	0.15	230
	15	8*17	0.15	255
	22	10*13	0.15	450
	33	10*20	0.15	530
	47	10*20	0.15	580
	68	10*20	0.15	750
	100	13*20	0.15	1050
150	16*27	0.15	1170	
180	16*27	0.15	1300	
220	16*25	0.15	1521	
220	18*32	0.15	1665	
680	22*34	0.15	2132	
200	1	5*11	0.15	40
	1.5	6.3*12	0.15	50
	1.8	6.3*12	0.15	58
	2.2	6.3*12	0.15	68
	2.8	6.3*12	0.15	75
	3.3	6.3*12	0.15	95
	4.7	6.3*12	0.15	110
	5.6	8*12	0.15	140
	6.8	8*12	0.15	155
	8.2	8*17	0.15	170
	10	10*17	0.15	220
	15	10*17	0.15	350
	22	10*17	0.15	420
	33	10*20	0.15	550
	47	10*20	0.15	630
	68	13*25	0.15	830
	100	13*25	0.15	920
	100	16*25	0.15	980
220	18*27	0.15	1212	
250	1	5*11	0.15	40
	1	6.3*12	0.15	43
	1.5	6.3*12	0.15	55
	1.8	6.3*12	0.15	60
	2.2	6.3*12	0.15	70
	2.8	6.3*12	0.15	80
	3.3	6.3*12	0.15	90
	4.7	6.3*12	0.15	120
	5.6	6.3*12	0.15	140
	6.8	8*9	0.15	160

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current	
250	8.2	8*12	0.15	210	
	10	8*12	0.15	245	
	10	10*13	0.15	250	
	12	10*17	0.15	285	
	15	10*17	0.15	350	
	22	10*17	0.15	450	
	33	10*20	0.15	550	
	47	12*25	0.15	600	
	68	16*25	0.15	820	
	100	16*25	0.15	950	
	350	1	6.3*12	0.20	45
		1.5	6.3*12	0.20	60
1.8		6.3*12	0.20	70	
2.2		6.3*12	0.20	75	
3.3		6.3*12	0.20	95	
4.7		6.3*12	0.20	120	
5.6		8*17	0.20	130	
6.8		10*17	0.20	160	
8.2		10*17	0.20	230	
10		10*20	0.20	270	
15		10*20	0.20	270	
22		12*20	0.20	450	
33		16*25	0.20	580	
400		1	6.3*9	0.20	40
		1.2	6.3*9	0.20	46
	1.5	6.3*9	0.20	52	
	1.8	6.3*12	0.20	70	
	2.2	6.3*12	0.20	87	
	2.8	8*12	0.20	95	
	3.3	8*12	0.20	100	
	3.9	8*12	0.20	100	
	4.7	8*12	0.20	140	
	5.6	8*12	0.20	155	
	6.8	10*13	0.20	200	
	8.2	10*13	0.20	230	
	10	10*17	0.20	290	
	15	10*17	0.20	350	
	18	10*20	0.20	450	
	22	10*25	0.20	520	
	22	12*20	0.20	520	
	33	13*20	0.20	630	
	47	16*25	0.20	690	
	68	18*25	0.20	870	
82	18*27	0.20	920		
100	18*32	0.20	1020		
120	22*34	0.20	1153		
450	1	8*12	0.24	45	
	1.5	8*12	0.24	70	
	1.8	8*12	0.24	80	
	2.2	8*17	0.24	92	
	3.3	8*12	0.24	100	
	4.7	8*12	0.24	115	

CL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
450	4.7	10*13	0.24	130
	5.6	10*17	0.24	160
	6.8	8*20	0.24	200
	6.8	10*20	0.24	205
	8.2	10*20	0.24	230
	10	10*20	0.24	290
	15	10*20	0.24	380
	22	13*20	0.24	480
	33	13*25	0.24	520
	33	16*21	0.24	580
	47	16*25	0.24	700
	56	18*32	0.24	760
	68	18*25	0.24	880
	82	18*36	0.24	920
	100	18*40	0.24	1050
	120	22*34	0.24	1150
150	22*40	0.24	1250	
220	22*40	0.24	1400	
500	10	12*20	0.24	260
	12	12*20	0.24	352
	15	13*25	0.24	370
	22	18*21	0.24	450
	33	18*25	0.24	590
	47	18*32	0.24	750
100	22*34	0.24	1360	

GK SERIES



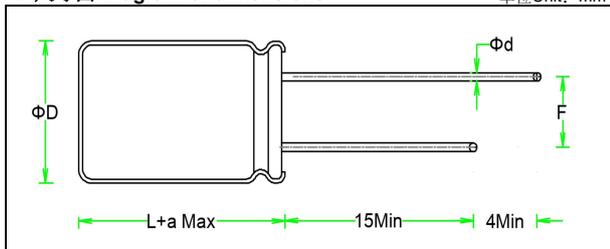
- 耐高温品
High temperature resistance product 130℃ 3000Hrs(105℃ 13000~14000Hrs).
- 适用于高端LED驱动电源、电子镇流器、节能灯等
Suitable to high-end LED driving power, electronic ballast, energy saving lamp, etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+130℃										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25℃ 120Hz)										
漏电流 Leakage current	160~400V	450~500V				25℃, 2分钟(25℃, 2min)			25℃, 120Hz		25℃
	I=0.02CV+10μA	I=0.03CV+10μA				I: 漏电流 I: Leakage current			C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	at 25℃ 120Hz			
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24				
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	at 120Hz			
	阻抗比 Max Impedance ratio	Z(-25℃)/Z(+20℃)	3	3	3	5	5	6			
耐久性 Load life	在130℃环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25℃进行测量时, 应满足以下要求: In the environment of 130℃, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25℃, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value					Φ D(Hrs)		Life 105℃(Hrs)		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value					Φ D≤6.3		13000		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					Φ D>6.3		14000		
高温贮存 Shelf life	在105℃环境中, 无负载放置1000小时后, 待产品温度恢复到25℃进行测量时, 应满足以下要求: In the environment of 105℃ with 1000 hours of no load, the product shall be tested after its temperature back to 25℃, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Cap(μF)	Freq(Hz)	120	1k	10k	100k
<33		0.40	0.70	0.90	1.00
≥33		0.50	0.80	0.90	1.00

GK SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	3.3	8*12	0.15	45
	4.7	8*12	0.15	52
	5.6	8*12	0.15	60
	6.8	8*17	0.15	65
	8.2	10*17	0.15	80
	10	10*17	0.15	120
	15	10*17	0.15	150
	22	10*20	0.15	250
	33	10*20	0.15	320
	47	13*25	0.15	350
	68	16*25	0.15	460
	82	16*25	0.15	550
	100	13*25	0.15	680
	150	18*32	0.15	750
220	18*36	0.15	950	
200	2.8	8*12	0.15	55
	3.3	8*12	0.15	62
	4.7	10*13	0.15	100
	5.6	10*13	0.15	110
	6.8	10*12	0.15	130
	8.2	10*17	0.15	145
	10	10*17	0.15	160
	15	10*20	0.15	220
	22	13*20	0.15	250
	33	13*20	0.15	300
	47	16*20	0.15	380
	68	16*25	0.15	500
	82	18*25	0.15	550
	100	18*25	0.15	620
250	1	5*11	0.15	32
	2.2	6.3*9	0.15	40
	2.8	8*12	0.15	65
	4.7	8*12	0.15	90
	5.6	8*12	0.15	120
	6.8	8*12	0.15	130
	8.2	8*12	0.15	170
	10	8*12	0.15	170
	10	8*17	0.15	185
	15	10*17	0.15	230
	22	10*20	0.15	280
	33	13*20	0.15	340
	47	13*25	0.15	380
	68	16*20	0.15	550
82	16*20	0.15	600	
100	16*30	0.15	660	
350	1.8	8*12	0.20	50
	2.2	8*12	0.20	60
	2.8	8*12	0.20	65
	3.3	8*12	0.20	70
	4.7	8*12	0.20	85
	5.6	8*17	0.20	110
	6.8	10*17	0.20	125

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
350	8.2	8*20	0.20	150
	10	10*20	0.20	170
	15	10*20	0.20	220
	22	13*20	0.20	270
	33	13*20	0.20	360
	47	18*36	0.20	450
	68	18*25	0.20	550
	400	1	6.3*12	0.20
1.5		8*12	0.20	52
1.8		8*12	0.20	63
2.2		6.3*12	0.20	60
2.2		8*12	0.20	70
2.8		8*14	0.20	80
3.3		8*12	0.20	85
4.7		8*12	0.20	90
5.6		8*17	0.20	110
6.8		10*13	0.20	150
8.2		10*13	0.20	165
10		10*17	0.20	180
15		10*20	0.20	210
22		13*20	0.20	300
33	13*20	0.20	360	
47	16*30	0.20	450	
68	18*30	0.20	550	
450	1.8	8*12	0.24	45
	2.2	10*17	0.24	70
	2.8	10*17	0.24	75
	3.3	10*20	0.24	80
	4.7	10*20	0.24	100
	5.6	10*20	0.24	137
	6.8	10*14	0.24	150
	8.2	10*20	0.24	160
	10	12*20	0.24	185
	15	12*20	0.24	255
	22	13*20	0.24	310
33	13*25	0.24	400	
47	18*36	0.24	460	
68	18*40	0.24	580	

GE SERIES



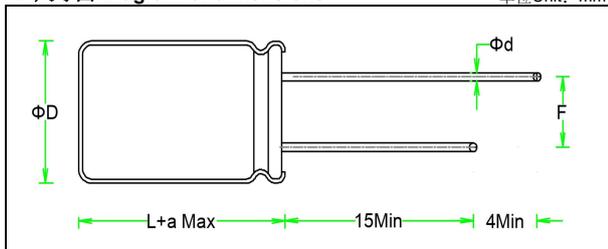
- 耐高温,长寿命品
High temperature resistance, long life product 130°C 4000~5000Hrs(105°C 15000~20000Hrs).
- 适用于高端LED驱动电源或其它高温环境电子线路
Suitable to high-end driving power and electronic circuit in high temperature environment.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+130°C										
额定电压范围 Rated voltage range	160~450V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	160~400V	450~500V				25°C, 2分钟(25°C, 2min)			25°C, 120Hz		25°C
	I=0.02CV+10μA	I=0.03CV+10μA				I: 漏电流 I: Leakage current			C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	at 25°C 120Hz			
	tanδ(Max)	0.15	0.15	0.15	0.20	0.24	0.24				
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	at 120Hz			
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	3	3	5	5	6			
Z(-40°C)/Z(+20°C)											
耐久性 Load life	在130°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					L(mm)	Life(Hrs)			
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					L≤10	4000	15000		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					L>10	5000	20000		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Cap(μF)	Freq(Hz)	120	1k	10k	100k
<33		0.40	0.70	0.90	1.00
≥33		0.50	0.80	0.90	1.00

GE SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	3.3	8*12	0.15	62
	4.7	8*12	0.15	70
	5.6	8*16	0.15	74
	6.8	8*16	0.15	80
	8.2	10*16	0.15	165
	10	10*16	0.15	200
	15	10*16	0.15	270
	22	10*20	0.15	370
	33	13*20	0.15	430
	47	13*25	0.15	530
	68	16*25	0.15	670
	82	16*25	0.15	740
	100	16*25	0.15	870
200	2.8	8*12	0.15	58
	3.3	8*12	0.15	66
	4.7	8*16	0.15	110
	5.6	8*16	0.15	135
	6.8	8*16	0.15	145
	8.2	8*16	0.15	185
	10	10*16	0.15	195
	15	10*20	0.15	295
	22	13*20	0.15	385
	33	13*20	0.15	450
	47	13*25	0.15	590
	68	16*25	0.15	680
	82	18*25	0.15	820
100	18*30	0.15	980	
250	2.2	8*12	0.15	58
	3.3	8*12	0.15	75
	4.7	8*12	0.15	120
	5.6	8*12	0.15	110
	6.8	10*16	0.15	155
	8.2	10*16	0.15	170
	10	10*16	0.15	215
	15	10*20	0.15	300
	22	10*20	0.15	390
	33	12*25	0.15	480
	47	16*25	0.15	620
	68	16*30	0.15	700
	82	18*25	0.15	820
350	1.5	8*16	0.20	55
	1.8	8*16	0.20	60
	2.2	8*16	0.20	70
	2.8	10*16	0.20	85
	3.3	10*16	0.20	92
	4.7	10*20	0.20	125
	5.6	10*20	0.20	135
	6.8	10*20	0.20	170
	8.2	12*20	0.20	185
	10	12*20	0.20	200
	15	12*25	0.20	300
	22	12*25	0.20	410

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
350	33	16*30	0.20	480
	47	18*30	0.20	630
	68	18*40	0.20	810
400	1.5	8*12	0.24	60
	1.8	8*12	0.24	65
	2.2	8*12	0.24	72
	2.8	8*12	0.24	92
	3.3	10*13	0.24	100
	4.7	10*20	0.24	125
	5.6	10*20	0.24	145
	6.8	10*20	0.24	200
	8.2	13*20	0.24	210
	10	13*25	0.24	250
	15	13*25	0.24	300
	22	16*25	0.24	420
	33	18*30	0.24	600
47	18*35	0.24	700	
68	18*40	0.24	850	
450	1.5	8*16	0.24	58
	1.8	8*16	0.24	65
	2.2	10*16	0.24	70
	2.8	10*16	0.24	72
	3.3	10*16	0.24	80
	4.7	10*20	0.24	92
	5.6	12*20	0.24	130
	6.8	12*20	0.24	155
	8.2	13*20	0.24	160
	10	13*20	0.24	200
	15	13*25	0.24	250
	22	16*21	0.24	350
	33	18*32	0.24	450
47	18*36	0.24	580	

RF SERIES



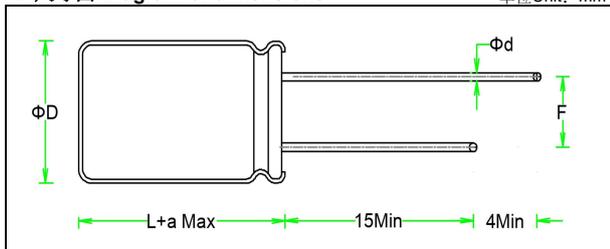
- 低ESR, 标准品
Low ESR, standard product 105°C 3000~7000Hrs.
- 适用于LED驱动电源, 开关电源, 音响等电子线路
Suitable to electronic circuit of LED driving power, switching power supply, audio supply, etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics													
工作温度范围 Operating temperature range	-40~+105°C													
额定电压范围 Rated voltage range	6.3~120V _{dc}													
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)													
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz					25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance					V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 25°C 120Hz		
	tanδ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08	0.12			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value														
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	5	4	3	3	3	3	3	3	3			3
		Z(-40°C)/Z(+20°C)	10	8	5	4	4	4	4	4	4	6		
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:													
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value									Φ D(mm)	Life(Hrs)		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									ΦD=5~6.3	3000		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									ΦD=8	4000		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:													
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value									ΦD=10	5000		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									ΦD≥12	7000		
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value												

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	12~13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Cap(μF)	Freq(Hz)			
	120	1k	10k	100k
Cap < 220	0.40	0.75	0.90	1.00
220 ≤ Cap < 680	0.50	0.85	0.94	1.00
680 ≤ Cap < 2200	0.60	0.87	0.95	1.00
2200 ≤ Cap < 4700	0.75	0.90	0.95	1.00
Cap ≥ 4700	0.85	0.95	0.98	1.00

RF SERIES

■ 标准品一览表 List of standard products

(ESR: Ω/25℃ 100kHz Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
6.3	100	5*11	0.990	180
	220	6.3*12	0.315	300
	330	8*12	0.310	380
	470	6.3*12	0.210	440
	560	8*12	0.105	480
	680	8*12	0.104	510
	820	8*16	0.100	720
	1000	8*16	0.098	850
	1200	8*20	0.090	1050
	1500	8*16	0.061	1300
	2200	10*14	0.058	1850
	2700	10*25	0.050	2000
	10	22	5*11	2.730
47		5*11	0.840	147
100		5*11	0.500	205
220		5*11	0.290	300
220		6.3*12	0.270	330
330		6.3*12	0.168	430
330		8*12	0.165	450
470		6.3*12	0.105	550
470		8*9	0.105	550
680		8*16	0.095	850
1000		8*12	0.060	1100
1200		10*20	0.058	1500
1500		10*20	0.052	1900
2200		10*20	0.042	2200
3300		13*25	0.040	2600
16	10	5*9	4.200	36
	22	5*11	3.670	58
	47	5*11	0.540	185
	56	5*11	0.450	225
	100	5*9	0.330	270
	100	6.3*12	0.315	270
	220	5*11	0.210	550
	220	6.3*12	0.200	570
	330	6.3*12	0.125	680
	330	8*12	0.122	720
	470	8*12	0.096	950
	470	10*12	0.090	1000
	680	8*14	0.077	1100
	820	10*16	0.079	1250
	1000	10*13	0.045	1350
	1200	10*25	0.043	1500
	1500	12*20	0.042	1900
	2200	13*20	0.042	2550
	3300	13*20	0.038	3000
4700	16*28	0.079	3900	
25	1	5*11	6.700	11
	2.2	5*11	5.000	22
	4.7	5*11	4.700	65
	10	5*11	4.200	155
	22	5*11	4.000	175

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
25	33	5*11	1.500	188
	47	5*11	0.840	210
	68	5*11	0.295	300
	100	5*11	0.295	400
	220	6.3*12	0.210	680
	330	8*12	0.105	950
	390	8*20	0.084	1050
	470	8*14	0.075	1200
	470	10*13	0.075	1200
	560	10*16	0.062	1450
	680	10*13	0.055	1600
	820	10*16	0.048	1700
	1000	10*20	0.040	2100
	1500	13*20	0.032	2400
	1800	13*20	0.029	2900
	2200	13*20	0.032	3100
	2700	16*25	0.022	3200
	3300	16*25	0.021	3350
	4700	16*27	0.020	4100
35	10	5*11	4.500	95
	22	5*11	4.000	115
	22	6.3*12	4.000	118
	33	5*11	0.840	225
	47	5*11	0.580	270
	56	6.3*12	0.560	320
	68	6.3*12	0.550	340
	100	6.3*9	0.420	440
	150	8*12	0.300	630
	220	8*12	0.110	750
	270	8*12	0.088	1000
	330	10*13	0.079	1200
	390	10*13	0.078	1320
	470	10*16	0.072	1450
	560	10*20	0.070	1850
	680	10*16	0.058	2000
	1000	13*20	0.045	2400
	1500	13*20	0.043	2850
	1500	16*20	0.043	2850
2200	16*25	0.029	3000	
3300	16*32	0.028	3900	
50	1	5*11	6.300	9
	2.2	5*11	6.000	20
	3.3	5*11	5.800	55
	4.7	5*11	5.500	88
	6.8	5*11	4.700	105
	8.2	5*11	3.800	110
	10	5*11	3.000	115
	10	6.3*9	3.000	120
	15	5*11	2.800	140
	22	5*11	2.600	185
33	6.3*12	1.600	245	

RF SERIES

■ 标准品一览表 List of standard products

(ESR: $\Omega/25^{\circ}\text{C}$ 100kHz Max, Rated ripple current: mA rms/105 $^{\circ}\text{C}$ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
50	47	6.3*12	0.800	285
	56	6.3*12	0.480	300
	68	8*12	0.320	380
	100	8*12	0.260	600
	150	8*12	0.250	950
	220	10*13	0.180	1200
	330	10*14	0.160	1500
	470	10*20	0.095	1850
	560	12*20	0.074	2200
	680	13*20	0.073	2400
	820	13*20	0.072	2650
	1000	13*25	0.051	2850
	1000	16*20	0.048	2900
	1200	13*25	0.041	3085
	1500	16*25	0.039	3152
	2200	18*32	0.035	3500
63	1	5*11	5.400	10
	2.2	5*11	5.300	22
	3.3	5*11	5.200	45
	4.7	5*11	5.000	60
	10	5*11	4.500	105
	15	5*11	3.500	125
	22	6.3*12	3.300	235
	33	8*12	2.800	265
	47	6.3*12	2.300	290
	68	8*9	0.810	510
	100	8*12	0.255	670
	100	10*13	0.250	700
	120	8*16	0.200	750
	150	8*16	0.180	900
	180	10*13	0.098	1000
	220	10*16	0.095	1150
	270	10*16	0.092	1400
	330	10*20	0.105	1550
	390	13*20	0.078	1700
	470	10*25	0.074	1950
470	13*20	0.074	1950	
560	13*25	0.090	2300	
680	13*25	0.058	2400	
680	16*20	0.058	2400	
820	16*30	0.032	2622	
1500	18*35	0.025	3128	
80	10	6.3*12	0.550	70
	47	8*12	0.028	298
	68	8*12	0.170	450
	82	8*14	0.160	520
	100	8*16	0.110	540
	100	10*13	0.110	540
	120	8*20	0.100	610
	150	10*16	0.095	700
	220	10*20	0.065	1020
	330	13*20	0.060	1200

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
80	470	13*20	0.058	1520
	470	16*21	0.058	1520
	680	16*25	0.055	1705
	820	16*30	0.050	1800
	1000	18*27	0.045	1950
	1500	18*36	0.042	2500
	2200	22*40	0.040	3200
	100	2.2	5*11	5.650
3.3		5*11	5.300	25
4.7		5*11	5.100	35
6.8		5*11	3.700	85
10		5*11	2.520	87
10		6.3*9	2.500	93
15		6.3*12	1.350	190
22		6.3*12	0.900	220
22		8*12	0.850	240
33		8*12	0.490	310
33		10*13	0.490	310
39		8*16	0.450	400
47		8*12	0.420	340
47		10*13	0.400	450
56		10*13	0.310	530
68		8*16	0.300	580
82		10*13	0.240	750
100		8*20	0.220	820
100		10*16	0.220	820
120		10*14	0.190	880
150		13*18	0.175	1000
150		10*20	0.175	1000
180	10*20	0.167	1100	
220	13*20	0.110	1200	
270	13*20	0.105	1350	
330	13*25	0.093	1450	
330	16*25	0.085	1450	
390	13*30	0.072	1660	
470	16*25	0.065	1600	
560	13*30	0.050	1800	
680	18*25	0.030	2050	
820	18*30	0.028	2450	
1000	18*36	0.027	2850	
120	10	6.3*12	5.400	75
	18	8*9	4.000	115
	22	8*12	3.400	120
	33	8*16	3.000	210
	47	10*13	2.800	230
	56	10*13	2.100	270
	68	10*16	2.000	230
	82	10*20	1.700	290
	100	10*20	1.500	355
	120	12*20	1.300	490
150	13*20	1.100	545	
220	16*20	0.800	665	
470	16*31	0.460	885	

RS SERIES



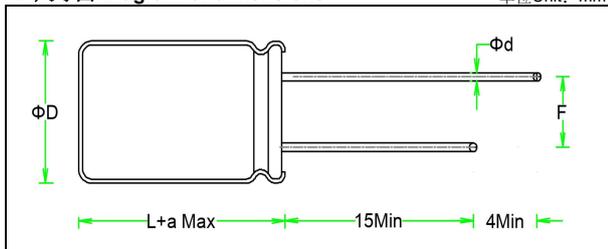
- 低ESR, 长寿命品
Low ESR, long life product 105°C 4000~10000Hrs.
- 适用于LED驱动电源, 通信设备、开关电源, 测量仪器等
Suitable to LED driving power, communication device, switching power supply, measuring instruments, etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics												
工作温度范围 Operating temperature range	-40~+105°C												
额定电压范围 Rated voltage range	6.3~120V _{dc}												
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)												
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz					25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance					V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 25°C 120Hz	
	tanδ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08	0.12		
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value													
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	120	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	3		
		Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	6		
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:												
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value									Φ D (mm)	Life(Hrs)	
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									ΦD≤6.3	4000	5000
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									ΦD≥12.5	8000	10000
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:												
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value											
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value											
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value											

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	12~13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
Cap<220	0.40	0.75	0.90	1.00
220≤Cap<680	0.50	0.85	0.94	1.00
680≤Cap<2200	0.60	0.87	0.95	1.00
2200≤Cap<4700	0.75	0.90	0.95	1.00
Cap≥4700	0.85	0.95	0.98	1.00

RS SERIES

■ 标准品一览表 List of standard products

(ESR: $\Omega/25^{\circ}\text{C}$ 100kHz Max, Rated ripple current: mA rms/105 $^{\circ}\text{C}$ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
6.3	150	5*11	0.600	195
	220	6.3*12	0.550	230
	330	6.3*12	0.220	340
	680	8*12	0.135	645
	820	10*13	0.094	750
	1000	8*12	0.090	830
	1200	8*20	0.074	1030
	1500	10*20	0.048	1370
10	68	5*9	0.750	110
	100	5*11	0.590	195
	100	6.3*12	0.580	200
	220	6.3*12	0.220	340
	330	6.3*12	0.200	480
	470	8*12	0.138	645
	680	8*12	0.090	830
	820	8*12	0.078	960
	1000	8*17	0.073	1020
	1200	10*20	0.048	1350
1500	10*20	0.051	1420	
2200	12*20	0.037	1870	
16	4.7	5*11	4.700	45
	47	5*11	0.850	150
	56	5*11	0.600	195
	100	5*11	0.300	325
	220	6.3*12	0.150	370
	330	6.3*12	0.137	640
	330	8*12	0.135	650
	470	8*12	0.092	810
	680	10*13	0.063	1100
	1000	10*16	0.048	1370
	3300	13*25	0.040	2550
	6800	18*32	0.038	3500
8200	18*36	0.037	3680	
10000	18*40	0.035	3870	
25	1	5*11	5.700	10
	2.2	5*11	4.500	18
	22	5*11	0.985	90
	47	5*11	0.600	195
	47	6.3*9	0.600	198
	68	5*11	0.590	220
	100	6.3*12	0.220	340
	150	6.3*12	0.205	430
	220	6.3*12	0.145	620
	220	8*12	0.137	620
	330	8*12	0.095	810
	470	8*17	0.078	1000
	470	10*13	0.072	1030
	680	10*16	0.065	1360
	820	10*20	0.044	1610
	1000	10*20	0.040	1750
	1000	13*20	0.037	1750
	1500	13*20	0.028	2180
1800	13*20	0.027	2200	
2200	13*25	0.026	2300	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
35	10	5*11	4.500	90
	33	5*11	0.600	195
	47	5*11	0.580	255
	56	6.3*12	0.220	340
	68	6.3*12	0.210	360
	100	6.3*9	0.210	410
	100	6.3*12	0.200	420
	150	8*12	0.137	640
	220	8*12	0.090	830
	330	8*17	0.063	1150
	330	10*13	0.063	1200
	470	10*16	0.046	1350
	560	10*20	0.044	1600
	680	12*20	0.032	1880
1000	13*20	0.028	2180	
2200	16*25	0.024	3150	
3300	18*32	0.022	4000	
50	1	5*11	6.500	8
	2.2	5*11	6.000	15
	3.3	5*11	5.600	28
	4.7	5*9	5.400	35
	4.7	5*11	5.200	40
	6.8	5*11	4.500	95
	10	5*11	2.800	105
	22	5*11	0.720	185
	33	6.3*12	0.450	195
	47	6.3*12	0.400	240
	56	6.3*12	0.320	295
	68	8*9	0.310	365
	100	8*12	0.180	520
	120	8*12	0.130	720
	150	8*12	0.130	730
	150	10*13	0.120	750
	180	8*20	0.095	890
	220	10*13	0.098	1020
	270	10*20	0.061	1200
	330	10*16	0.058	1380
	390	10*16	0.057	1450
	470	10*20	0.047	1620
560	10*20	0.036	1920	
680	13*18	0.032	2130	
820	13*25	0.031	2200	
820	16*21	0.031	2200	
1000	13*25	0.027	2380	
1000	16*21	0.026	2500	
1500	13*30	0.025	2950	
2200	18*25	0.024	3150	
63	2.2	5*11	4.000	28
	10	5*11	3.500	70
	15	5*11	3.300	100
	22	5*11	2.600	130
	22	6.3*12	2.500	135
	33	6.3*12	1.050	190
	39	8*9	0.850	270

RS SERIES

■ 标准品一览表 List of standard products

(ESR: $\Omega/25^{\circ}\text{C}$ 100kHz Max, Rated ripple current: mA rms/105 $^{\circ}\text{C}$ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
63	47	6.3*12	0.060	340
	47	8*12	0.550	350
	56	8*12	0.530	400
	68	8*12	0.450	500
	82	8*16	0.380	650
	100	8*12	0.350	670
	100	10*13	0.290	700
	120	8*16	0.290	790
	150	8*13	0.265	840
	180	10*20	0.180	1000
	220	10*16	0.170	1150
	270	10*20	0.137	1200
	330	10*20	0.130	1275
	390	13*20	0.095	1600
	470	13*20	0.084	1950
	560	13*20	0.082	2250
	680	13*25	0.075	2400
1000	16*25	0.066	2600	
80	22	6.3*9	2.350	110
	47	8*9	0.162	240
	68	8*12	0.150	400
	100	8*14	0.110	520
	100	10*13	0.141	520
	120	10*16	0.087	670
	150	10*16	0.086	800
	220	10*20	0.079	1000
	470	13*25	0.065	1400
	680	16*25	0.054	1650
	820	16*32	0.052	1780
	1000	16*35	0.042	2000
1000	18*27	0.042	2000	
100	1	5*11	5.750	10
	2.2	5*11	5.220	28
	4.7	5*11	4.820	42
	6.8	5*11	1.950	60
	10	6.3*12	1.520	80
	15	6.3*12	1.050	120
	22	8*12	0.850	200
	27	8*12	0.520	250
	33	8*12	0.360	300
	39	8*17	0.380	390
	47	8*12	0.350	320
47	10*13	0.340	450	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current	
100	56	10*13	0.280	500	
	68	10*13	0.265	550	
	82	10*13	0.180	720	
	100	10*16	0.160	770	
	150	10*20	0.132	900	
	180	10*25	0.120	1000	
	180	13*20	0.140	960	
	220	13*20	0.120	1000	
	270	16*25	0.065	1300	
	330	13*25	0.100	1150	
	330	16*21	0.062	1450	
	470	16*25	0.059	1750	
	120	10	6.3*12	6.000	75
		33	8*12	3.500	240
47		8*16	2.800	290	
47		10*13	2.800	290	
68		10*16	2.200	310	
82		10*16	2.000	330	
100		10*20	1.700	400	
150		13*20	1.000	600	
180		13*20	1.000	650	
220		13*20	0.850	740	
220		16*20	0.850	740	
270	16*25	0.600	830		
330	18*25	0.480	900		

RZ SERIES



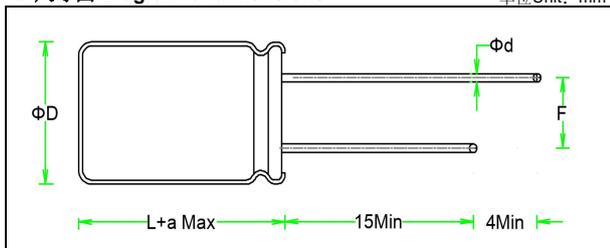
- 低ESR，超长寿命品
Low ESR, super long life product 105°C 6000~10000Hrs.
- 适用于LED驱动电源，通信设备、开关电源，工控设备等
Suitable for LED drive power supply, communication equipment, switching power supply, Industrial control equipment etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics											
工作温度范围 Operating temperature range	-40~+105°C											
额定电压范围 Rated voltage range	6.3~100V _{dc}											
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)											
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz			25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance			V: 额定电压 V: Rated voltage		
损失角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	at 25°C 120Hz	
	tanδ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09		
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value												
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	80	100	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2		
		Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3		
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value								ΦD (mm)	Life(Hrs)	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value								ΦD=6.3	6000	
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value								ΦD=8	8000	
										ΦD=10	10000	
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±25% (6.3V & 10V±30%) ≤±25% of the initial value										
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value										
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value										

■ 尺寸图 Diagram of dimensions

单位Unit: mm



ΦD+0.5Max	5	6.3	8	10	12~13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Cap(μF) \ Freq(Hz)	120	1k	10k	100k
Cap < 220	0.40	0.75	0.90	1.00
220 ≤ Cap < 680	0.50	0.85	0.94	1.00
680 ≤ Cap < 2200	0.60	0.87	0.95	1.00
2200 ≤ Cap < 4700	0.75	0.90	0.95	1.00
Cap ≥ 4700	0.85	0.95	0.98	1.00

RZ SERIES

■ 标准品一览表 List of standard products

(ESR: $\Omega/25^{\circ}\text{C}$ 100kHz Max, Rated ripple current: mA rms/105 $^{\circ}\text{C}$ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
6.3	220	5*11	0.250	300
	470	6.3*12	0.130	475
	820	8*12	0.075	830
	1200	8*16	0.048	1100
	1200	10*13	0.043	1170
	1500	8*20	0.032	1320
	1800	10*16	0.030	1540
	2200	10*16	0.025	1720
	2700	10*25	0.022	1980
10	150	5*11	0.250	300
	330	6.3*12	0.110	475
	680	8*12	0.067	830
	1000	8*12	0.052	1100
	1000	10*13	0.043	1170
	1500	8*20	0.035	1320
	1500	10*16	0.032	1540
	1800	10*20	0.025	1770
	2200	10*25	0.022	1980
3300	13*20	0.020	2180	
16	100	5*11	0.280	300
	220	6.3*12	0.150	475
	470	8*12	0.072	832
	680	8*16	0.055	1100
	680	10*13	0.050	1170
	1000	8*20	0.035	1320
	1000	10*16	0.032	1540
	1500	10*20	0.028	1725
	1800	10*25	0.024	1980
	2200	12*20	0.021	2280
	3300	13*25	0.018	2991
25	68	5*11	0.270	300
	150	6.3*12	0.150	470
	330	8*12	0.110	830
	390	8*16	0.065	1100
	470	10*13	0.045	1170
	560	10*13	0.038	1320
	680	10*16	0.035	1540
	820	10*20	0.028	1720
	1000	10*20	0.022	1980
	1500	12*20	0.021	2180
	1800	13*25	0.019	2550
35	47	5*11	0.300	300
	100	6.3*12	0.150	470
	220	8*12	0.070	830
	270	8*16	0.065	1100
	330	10*13	0.050	1170
	390	8*20	0.039	1320
	470	10*16	0.035	1540
	560	10*20	0.028	1725
	680	10*25	0.025	1980
	1000	12*20	0.020	2182
	1200	12*25	0.018	2552

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
50	10	5*11	0.450	
	22	5*11	0.390	200
	56	6.3*12	0.180	330
	100	8*12	0.100	630
	120	8*16	0.080	830
	150	10*13	0.075	860
	180	8*20	0.062	1040
	220	10*16	0.055	1200
	270	10*20	0.042	1399
	330	10*20	0.038	1640
	470	10*20	0.035	1800
63	560	12*20	0.030	2120
	680	13*30	0.028	2510
	15	5*11	0.950	150
	33	6.3*12	0.450	240
	56	8*12	0.340	460
	82	8*12	0.200	610
	82	10*13	0.200	630
	120	8*16	0.130	750
	120	10*16	0.130	750
	180	10*16	0.059	1050
	220	10*20	0.065	1010
80	330	13*20	0.055	1150
	390	13*20	0.052	1380
	470	13*25	0.038	1510
	470	16*25	0.037	1550
	68	10*13	0.200	440
	100	10*16	0.130	550
	120	10*16	0.095	730
	150	10*16	0.073	800
	180	10*16	0.069	880
	220	10*20	0.065	1010
	330	13*20	0.055	1150
100	390	13*20	0.052	1380
	470	13*35	0.038	1510
	470	16*25	0.038	1550
	6.8	5*11	1.420	110
	15	6.3*12	0.620	180
	27	8*12	0.430	320
	39	8*16	0.280	410
	47	10*13	0.210	440
	56	8*20	0.500	520
	68	10*16	0.130	560
	82	10*16	0.092	600
100	100	10*16	0.090	800
	120	10*20	0.075	930
	150	12*18	0.068	1000
	220	13*20	0.052	1150
	270	13*20	0.048	1380
	330	13*25	0.042	1550
	470	16*25	0.038	1700
	470	18*25	0.036	1750
	560	13*30	0.030	1820
	680	18*25	0.028	2020

RK SERIES



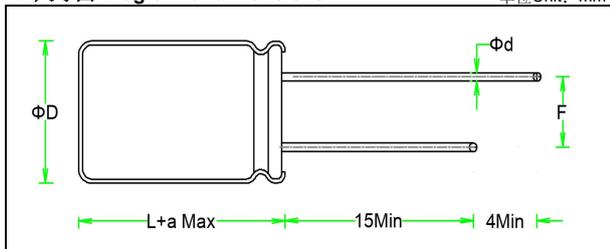
- 低压, 耐高温
Low voltage, high temperature resistance product 130°C 2000~4000Hrs(105°C 8000~16000Hrs).
- 适用于耐高温、高可靠性电子线路
Suitable for high temperature, high reliability electronic circuit.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics											
工作温度范围 Operating temperature range	-40~+130°C											
额定电压范围 Rated voltage range	10~120V _{dc}											
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)											
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz			25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance			V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	120	at 25°C 120Hz		
	tanδ(Max)	0.26	0.24	0.16	0.16	0.16	0.14	0.12	0.14			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value												
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	120	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	2	2	2	2	2	2	3		
		Z(-40°C)/Z(+20°C)	6	4	3	3	3	3	3	6		
耐久性 Load life	在130°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value						Φ D (mm)	Life(Hrs)			
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value						ΦD≤8	2000	8000		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value						ΦD=10	3000	12000		
								ΦD≥12	4000	16000		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value										
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value										
	漏电流 Leakage current	≤初始规格值500% ≤500% of the initial specification value										

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	12~13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
Cap<220	0.40	0.75	0.90	1.00
220≤Cap<680	0.50	0.85	0.94	1.00
680≤Cap<2200	0.60	0.87	0.95	1.00
2200≤Cap<4700	0.75	0.90	0.95	1.00
Cap≥4700	0.85	0.95	0.98	1.00

RK SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
10	330	8*12	0.26	330
	470	10*14	0.26	570
	1000	10*20	0.26	885
	2200	12*25	0.28	1360
	3300	16*25	0.30	1800
16	220	6.3*12	0.24	190
	330	8*12	0.24	320
	470	10*13	0.24	560
	1000	10*20	0.24	880
	2200	13*20	0.26	1200
	2200	13*25	0.26	1250
	3300	16*32	0.28	2100
25	220	6.3*12	0.16	300
	220	8*12	0.16	310
	330	10*13	0.16	495
	470	10*16	0.16	610
	560	8*17	0.16	770
	1000	12*20	0.16	900
	2200	13*25	0.18	1650
35	47	6.3*12	0.16	125
	100	6.3*12	0.16	280
	220	10*13	0.16	480
	330	10*16	0.16	600
	470	10*20	0.16	780
	1000	13*20	0.16	1050
	1000	13*25	0.16	1080
	2200	16*25	0.18	1800
	3300	18*25	0.20	2200
50	1	5*11	0.16	15
	2.2	5*9	0.16	32
	2.2	5*11	0.16	40
	3.3	5*11	0.16	62
	4.7	5*11	0.16	82
	10	5*11	0.16	150
	22	5*11	0.16	220
	33	6.3*12	0.16	250
	47	6.3*12	0.16	270
	68	8*12	0.16	350
	100	8*12	0.16	450
	220	10*16	0.16	740
	330	10*16	0.16	865
	330	13*20	0.16	880
	470	10*20	0.16	1050
	680	13*20	0.16	1380
	820	13*20	0.16	1550
	1000	16*21	0.16	1850
1500	16*25	0.16	2250	
2200	18*25	0.18	2400	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
63	33	8*12	0.14	220
	47	8*12	0.14	270
	47	10*13	0.14	300
	68	8*12	0.14	360
	100	8*12	0.14	370
	100	10*13	0.14	380
	220	10*16	0.14	740
	220	10*20	0.14	750
	330	13*20	0.14	895
	390	13*20	0.14	950
	470	13*20	0.14	1100
	680	13*25	0.14	1340
	1000	16*25	0.14	1620
	1500	18*25	0.14	1880
	100	4.7	5*9	0.12
10		6.3*12	0.12	160
22		8*12	0.12	190
33		8*12	0.12	220
33		10*13	0.12	225
47		10*13	0.12	300
47		10*16	0.12	310
100		10*16	0.12	410
100		10*20	0.12	420
220		13*20	0.12	820
330		16*22	0.12	990
470	18*25	0.12	1300	
120	22	6.3*12	0.14	110
	33	8*12	0.14	180
	47	8*16	0.14	230
	47	10*16	0.14	235
	56	10*16	0.14	240
	68	10*16	0.14	255
	82	10*20	0.14	260
	100	10*20	0.14	320
	120	12*20	0.14	440
	150	12*25	0.14	500
	220	16*21	0.14	610
	270	16*25	0.14	700
	330	18*25	0.14	750
470	18*32	0.14	830	

RM SERIES



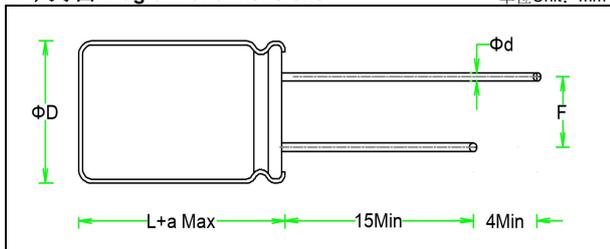
- 超长寿命, 高信赖性
super long life, high reliability product 105°C 10000Hrs.
- 适用于耐高温、高可靠性电子线路
Suitable for high temperature, high reliability electronic circuit.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics									
工作温度范围 Operating temperature range	-40~+105°C									
额定电压范围 Rated voltage range	10~100V _{dc}									
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)									
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)				25°C, 120Hz		25°C		
		I: 漏电流 I: Leakage current				C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	at 25°C 120Hz	
	tanδ(Max)	0.45	0.35	0.30	0.22	0.19	0.17	0.15		
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value										
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	8	6	4	4	3	3		3
		Z(-40°C)/Z(+20°C)	13	10	8	8	7	7		7
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(10000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time(10000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value								
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value								
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value								
	漏电流 Leakage current	≤初始规格值300% ≤300% of the initial specification value								

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10
F ±0.5	2.0	2.5	3.5	5.0
Φd ±0.05	0.5	0.5	0.5	0.6
a	≤2.0			

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
Cap<22	0.42	0.60	0.80	1.00
22≤Cap<47	0.55	0.75	0.90	1.00
Cap≥47	0.70	0.85	0.95	1.00

RM SERIES

■ 标准品一览表 List of standard products
(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
10	100	5*11	0.45	135
	220	6.3*12	0.45	220
	330	6.3*12	0.45	240
	470	8*12	0.45	300
16	47	5*11	0.35	135
	100	6.3*12	0.35	220
	220	6.3*12	0.35	240
	330	8*12	0.35	300
25	33	5*11	0.30	135
	47	5*11	0.30	145
	68	5*11	0.30	150
	100	6.3*12	0.30	240
35	33	5*11	0.22	135
	47	5*11	0.22	145
	100	6.3*12	0.22	240
	220	8*12	0.22	300
50	1	5*11	0.19	25
	2.2	5*11	0.19	35
	3.3	5*11	0.19	60
	4.7	5*11	0.19	80
	10	5*11	0.19	90
	22	5*11	0.19	110
	33	6.3*12	0.19	220
	47	6.3*12	0.19	240
100	8*12	0.19	300	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
63	10	5*11	0.17	90
	22	6.3*12	0.17	180
	33	6.3*12	0.17	220
	47	8*12	0.17	260
	100	10*13	0.17	300
100	1	5*11	0.15	35
	2.2	5*11	0.15	60
	3.3	5*11	0.15	80
	4.7	5*11	0.15	90
	10	5*11	0.15	110
22	8*12	0.15	240	

RG SERIES



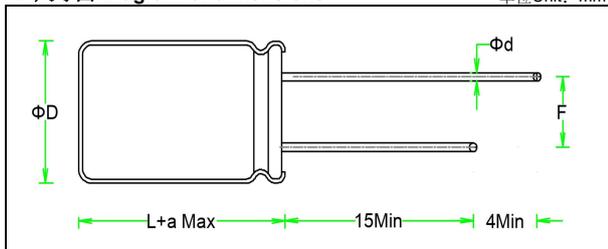
- “GBL”体系，高信赖性
“GBL” system, high reliability product 105°C 2000~8000Hrs.
- 适用于低温-55°C、高可靠性电子线路
Suitable for low temperature -55°C, high reliability electronic circuit.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-55~+105°C										
额定电压范围 Rated voltage range	6.3~100V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater	25°C, 2分钟(25°C, 2min)					25°C, 120Hz			25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance			V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	100	at 25°C 120Hz	
	tanδ(Max)	0.32	0.30	0.26	0.16	0.14	0.14	0.14	0.12		
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50	63	100	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2		
Z(-55°C)/Z(+20°C)											
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time(10000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±25% ≤±25% of the initial value							ΦD	Load life(hours)	
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value							ΦD=6.3	2000	
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value							ΦD=8	3000	
									ΦD=10	5000	
								ΦD=13	7000		
								ΦD≥16	8000		
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±25% ≤±25% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



ΦD+0.5Max	5	6.3	8	10	12~13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
Cap<220	0.40	0.75	0.90	1.00
220≤Cap<680	0.50	0.85	0.94	1.00
680≤Cap<2200	0.60	0.87	0.95	1.00
2200≤Cap<4700	0.75	0.90	0.95	1.00
Cap≥4700	0.85	0.95	0.98	1.00

RG SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
6.3	100	5*11	0.32	125
	220	6.3*12	0.32	205
	330	6.3*12	0.32	235
	470	8*12	0.32	330
	560	8*12	0.32	380
	680	8*12	0.32	450
	820	8*16	0.32	605
	1000	8*16	0.32	605
	1200	8*20	0.32	670
	1500	10*20	0.32	1015
	2200	10*20	0.34	1195
	2700	10*30	0.34	1405
	3300	13*20	0.36	1380
	3900	13*25	0.36	1620
	4700	13*30	0.38	1920
	5600	13*35	0.40	2085
	6800	13*40	0.42	2385
	8200	16*30	0.46	2500
10000	16*35	0.50	2620	
10	100	5*11	0.30	140
	220	6.3*12	0.30	235
	330	8*12	0.30	340
	470	8*12	0.30	455
	560	8*16	0.30	560
	680	8*16	0.30	605
	820	8*20	0.30	725
	1000	10*16	0.30	870
	1200	10*20	0.30	1015
	1500	10*20	0.30	1195
	2200	13*20	0.32	1380
	2700	13*25	0.32	1615
	3300	13*25	0.34	1620
	3900	13*30	0.34	1920
	4700	13*35	0.36	2085
	5600	13*40	0.38	2385
	6800	16*30	0.40	2500
	8200	16*35	0.44	2620
10000	16*40	0.48	3085	
16	47	5*11	0.26	95
	68	6.3*12	0.26	180
	100	6.3*12	0.26	205
	150	8*12	0.26	285
	220	8*12	0.26	335
	330	8*12	0.26	455
	470	8*16	0.26	605
	560	8*20	0.26	670
	680	8*20	0.26	870
	820	10*20	0.26	1015
	1000	10*20	0.26	1015
	1200	10*25	0.26	1195
	1500	13*20	0.26	1380
	2200	13*25	0.28	1620
	2700	13*30	0.28	1920
	3300	13*35	0.30	2085
	3900	13*40	0.30	2385
	4700	16*30	0.32	2500
5600	16*35	0.34	2620	
6800	16*40	0.36	3085	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
25	47	5*11	0.16	140
	68	6.3*12	0.16	190
	100	6.3*12	0.16	235
	150	8*12	0.16	335
	220	8*12	0.16	455
	330	8*16	0.16	605
	470	10*16	0.16	870
	560	10*20	0.16	1015
	680	10*20	0.16	1015
	820	10*25	0.16	1195
	1000	13*20	0.16	1380
	1200	13*25	0.16	1610
	1500	13*25	0.16	1620
	2200	13*35	0.18	2085
	2700	13*40	0.18	2385
	3300	16*30	0.20	2500
	3900	16*35	0.20	2620
	4700	16*40	0.22	3085
35	10	5*11	0.14	80
	22	5*11	0.14	130
	33	5*11	0.14	170
	47	6.3*12	0.14	175
	68	8*12	0.14	285
	100	8*12	0.14	335
	150	8*12	0.14	455
	220	8*16	0.14	605
	330	10*16	0.14	870
	470	10*20	0.14	1015
	560	10*25	0.14	1195
	680	10*30	0.14	1405
	820	13*25	0.14	1610
	1000	13*25	0.14	1620
	1200	13*30	0.14	1920
	1500	13*35	0.14	2085
	2200	16*30	0.16	2500
	2700	16*35	0.16	2620
3300	16*40	0.18	3085	
3900	18*40	0.18	3160	
50	10	5*11	0.14	85
	22	5*11	0.14	125
	33	6.3*12	0.14	175
	47	6.3*12	0.14	180
	68	8*12	0.14	290
	100	8*12	0.14	400
	150	8*16	0.14	525
	220	10*16	0.14	870
	330	10*25	0.14	1040
	470	13*20	0.14	1230
	560	13*25	0.14	1530
	680	13*30	0.14	1845
	820	13*35	0.14	1900
	1000	16*25	0.14	1865
	1200	16*30	0.14	2245
	1500	16*35	0.14	2325
	2200	18*35	0.16	2575
	2700	18*40	0.16	2830

RG SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
63	12	5*11	0.14	110
	22	6.3*12	0.14	195
	39	6.3*14	0.14	265
	68	8*12	0.14	325
	100	8*16	0.14	430
	100	10*13	0.14	435
	120	10*16	0.14	485
	150	8*20	0.14	560
	180	10*20	0.14	720
	220	10*25	0.14	850
	330	10*30	0.14	1055
	330	12.5*20	0.14	1045
	390	12.5*25	0.14	1400
	470	12.5*30	0.14	1700
	470	16*20	0.14	1440
	680	13*35	0.14	1845
	680	16*25	0.14	1755
	680	18*20	0.14	1865
	820	13*40	0.14	2085
	820	16*30	0.14	2175
	820	18*25	0.14	2110
	1000	16*35	0.14	2255
	1200	16*40	0.14	2320
	1200	18*30	0.14	2405
1500	18*35	0.14	2525	
1800	18*40	0.14	2615	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
100	10	6.3*12	0.12	125
	22	8*12	0.12	210
	33	8*12	0.12	260
	47	10*13	0.12	365
	68	10*16	0.12	480
	100	10*20	0.12	640
	150	13*20	0.12	915
	220	13*25	0.12	975
	330	16*25	0.12	1345
	470	18*25	0.12	1715
	680	18*30	0.12	1860

GA SERIES



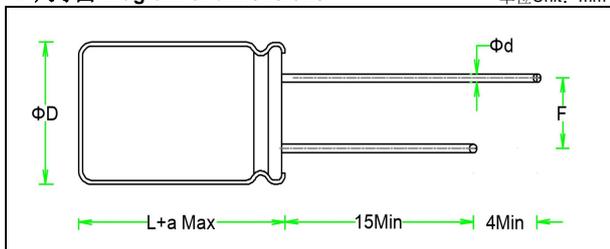
- 耐高纹波，标准品
High ripple current resistance, standard product 105°C 6000Hrs.
- 适用于节能灯，电子镇流器等电子线路
Suitable for energy-saving lamps, electronic ballasts electronic circuit.
- 符合RoHS
RoHS compliance

主要技术性能 Specifications

项目 Item	特性 Characteristics							
工作温度范围 Operating temperature range	-40~+105°C (160~250V _{dc}) -25~+105°C (350~450V _{dc})							
额定电压范围 Rated voltage range	160~450V _{dc}							
标称容量允许偏差 Nominal capacitance tolerance	-10%~+20% (at 25°C 120Hz)							
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)			25°C, 120Hz	25°C		
		I: 漏电流 I: Leakage current			C: 标称容量 C: Nominal capacitance	V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	at 25°C 120Hz
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24	
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value								
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:							
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value						
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value						
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:							
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value						
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value						

尺寸图 Diagram of dimensions

单位Unit: mm



ΦD+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~450		0.55	0.85	0.90	1.00

GA SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	3.3	6.3*12	0.15	72
	4.7	8*12	0.15	80
	5.6	8*12	0.15	84
	6.8	8*12	0.15	90
	8.2	8*12	0.15	100
	10	8*12	0.15	200
	15	8*17	0.15	235
	22	10*17	0.15	240
	33	10*20	0.15	280
	47	10*20	0.15	375
	68	16*25	0.15	560
	100	16*25	0.15	864
200	3.3	8*12	0.15	75
	3.9	8*17	0.15	87
	4.7	8*17	0.15	95
	5.6	8*17	0.15	98
	6.8	8*17	0.15	100
	6.8	10*13	0.15	100
	8.2	8*17	0.15	105
	8.2	10*13	0.15	110
	10	10*13	0.15	190
	10	10*17	0.15	210
	12	10*17	0.15	230
	15	10*17	0.15	250
	15	10*20	0.15	250
	22	10*20	0.15	285
	33	10*20	0.15	300
	47	12*25	0.15	395
68	16*25	0.15	580	
100	16*25	0.15	850	
250	2.2	6.3*12	0.15	58
	2.8	8*12	0.15	70
	3.3	8*12	0.15	75
	4.7	8*12	0.15	95
	5.6	8*17	0.15	98
	6.8	8*17	0.15	100
	8.2	8*17	0.15	110
	10	10*13	0.15	230
	15	10*17	0.15	250
	18	10*17	0.15	270
	22	12*18	0.15	290
	33	12*20	0.15	330
	47	12*25	0.15	415
	47	13*20	0.15	425
	68	16*25	0.15	630
	82	16*25	0.15	670
100	16*32	0.15	820	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
350	2.2	8*12	0.20	65
	3.3	8*17	0.20	80
	4.7	10*17	0.20	100
	5.6	10*17	0.20	115
	6.8	10*17	0.20	145
	8.2	10*17	0.20	200
	8.2	10*20	0.20	200
	10	10*20	0.20	230
	15	12*20	0.20	240
	22	12*20	0.20	270
	33	13*25	0.20	315
	400	1	8*12	0.20
1.2		8*12	0.20	65
1.5		8*12	0.20	70
1.8		8*12	0.20	72
2.2		8*17	0.20	75
2.8		8*17	0.20	78
3.3		10*17	0.20	90
4.7		10*17	0.20	110
5.6		8*20	0.20	115
5.6		10*17	0.20	115
6.8		10*17	0.20	115
8.2		10*20	0.20	215
10		10*20	0.20	230
15		12*20	0.20	290
22		12*25	0.20	350
33		16*25	0.20	400
47	16*25	0.20	620	
56	18*32	0.20	670	
68	18*32	0.20	730	
100	18*36	0.20	980	
450	1	8*12	0.24	30
	1.5	8*12	0.24	65
	1.8	8*12	0.24	75
	2.2	8*12	0.24	80
	2.7	8*12	0.24	85
	2.8	8*12	0.24	88
	3.3	8*12	0.24	90
	4.7	10*17	0.24	110
	5.6	10*17	0.24	115
	6.8	10*20	0.24	160
	8.2	12*20	0.24	220
	10	12*20	0.24	250
	15	12*25	0.24	310
	22	13*25	0.24	385
	22	16*25	0.24	400
	33	16*25	0.24	435
47	16*32	0.24	580	
68	18*32	0.24	730	
82	18*36	0.24	880	
100	18*40	0.24	1020	

GC SERIES



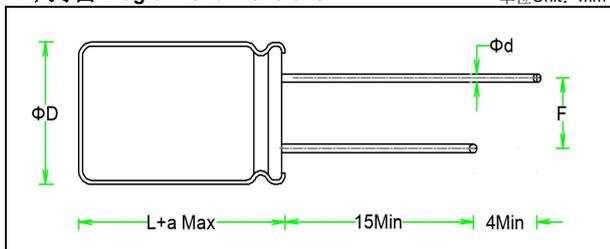
- 耐高纹波，长寿命品
High ripple current resistance, long life product 105°C 10000Hrs.
- 适用于高品质节能灯和电子镇流器等电子线路
Suitable to electronic circuit of high-quality energy saving lamps and electronic ballast.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics							
工作温度范围 Operating temperature range	-40~+105°C (160~250V _{dc}) -25~+105°C (350~450V _{dc})							
额定电压范围 Rated voltage range	160~450V _{dc}							
标称容量允许偏差 Nominal capacitance tolerance	-10%~+20% (at 25°C 120Hz)							
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)		25°C, 120Hz				
		I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance				
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	V: 额定电压 V: Rated voltage
	tanδ(Max)	0.15	0.15	0.15	0.20	0.20	0.24	
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value								
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:							
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value						
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value						
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:							
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value						
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value						

■ 尺寸图 Diagram of dimensions

单位Unit: mm



ΦD+0.5Max	5	6.3	8	10	13	16	18	22
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8
a	≤2.0							

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~450		0.55	0.85	0.90	1.00

GC SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	3.3	8*12	0.15	65
	4.7	8*12	0.15	88
	5.6	8*12	0.15	95
	6.8	8*12	0.15	100
	8.2	8*12	0.15	130
	10	8*12	0.15	205
	15	8*17	0.15	380
	22	10*17	0.15	435
	33	10*20	0.15	500
	47	10*20	0.15	580
	68	16*25	0.15	650
	100	16*25	0.15	1000
200	3.3	8*12	0.15	80
	4.7	8*17	0.15	90
	5.6	8*17	0.15	100
	6.8	8*17	0.15	110
	8.2	8*17	0.15	130
	10	8*17	0.15	225
	15	10*17	0.15	350
	22	10*20	0.15	430
	33	10*20	0.15	540
	47	12*25	0.15	600
	68	16*25	0.15	690
	82	16*25	0.15	870
100	16*25	0.15	920	
250	2.2	6.3*12	0.15	65
	2.8	8*12	0.15	85
	3.3	8*12	0.15	90
	4.7	8*12	0.15	100
	5.6	8*17	0.15	120
	6.8	8*17	0.15	140
	8.2	8*17	0.15	155
	10	8*17	0.15	230
	10	10*17	0.15	250
	15	10*20	0.15	410
	22	10*20	0.15	500
	33	12*20	0.15	540
	47	16*25	0.15	640
	56	16*25	0.15	750
68	16*25	0.15	830	
100	16*25	0.15	980	
350	2.2	8*17	0.20	75
	3.3	8*17	0.20	95
	4.7	10*17	0.20	120
	5.6	10*17	0.20	140
	6.8	10*20	0.20	200
	8.2	10*20	0.20	230
	10	10*20	0.20	260
	15	12*20	0.20	385
	22	12*25	0.20	450
33	16*25	0.20	550	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	1	8*12	0.20	50
	1.5	8*12	0.20	68
	1.8	8*12	0.20	85
	2.2	8*12	0.20	95
	2.7	8*12	0.20	100
	3.3	8*17	0.20	110
	3.3	10*17	0.20	115
	3.9	10*17	0.20	130
	4.7	10*17	0.20	135
	5.6	10*17	0.20	140
	6.8	10*20	0.20	155
	8.2	10*20	0.20	220
	10	10*20	0.20	230
	10	12*20	0.20	240
	15	12*20	0.20	280
	22	16*25	0.20	370
	33	16*25	0.20	450
	47	16*32	0.20	650
56	18*32	0.20	680	
68	18*32	0.20	750	
100	18*36	0.20	980	
450	1	8*12	0.24	30
	1.5	8*17	0.24	70
	1.8	8*17	0.24	75
	2.2	8*17	0.24	80
	3.3	8*17	0.24	90
	4.7	10*20	0.24	110
	5.6	10*20	0.24	120
	6.8	10*20	0.24	160
	8.2	12*20	0.24	225
	10	12*20	0.24	255
	15	12*25	0.24	320
	22	16*25	0.24	380
33	16*32	0.24	425	
47	18*25	0.24	550	

DY SERIES



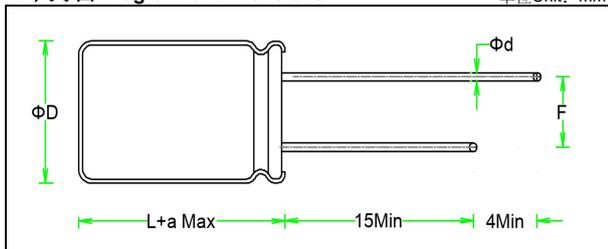
- 电源标准品
Power supply standard product 105°C 2000Hrs.
- 适用于消费类电源型电子线路等
Suitable for the consumer power electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics																
工作温度范围 Operating temperature range	-40~+105°C																
额定电压范围 Rated voltage range	10~500V _{dc}																
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)																
漏电流 Leakage current	10~100Vdc			160~500Vdc				25°C, 2分钟(25°C, 2min)				25°C, 120Hz					
	I=0.01CV或3μA取大者 I=0.01CV or 3μA Whichever is greater			I=0.02CV+10μA				I: 漏电流 I: Leakage current				C: 标称容量 C: Nominal capacitance					
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage			10	16	25	35	50	63	100	160	250	350	400	450	500	at 25°C
	tanδ(Max)			0.26	0.20	0.18	0.16	0.14	0.12	0.12	0.20	0.20	0.24	0.24	0.24	0.24	at 120Hz
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value																	
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage			10	16	25	35	50	63	100	160	250	350	400	450	500	at 120Hz
	阻抗比 Max Impedance ratio			Z(-25°C)/Z(+20°C)		6	5	4	4	4	4	3	3	6	6	8	
			Z(-40°C)/Z(+20°C)		12	10	8	5	5	5	5	6	6	7	7	9	15
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(2000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(2000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:																
	容量变化 Capacitance change		≤初始值的±30% ≤±30% of the initial value														
	损耗角正切值 Dissipation factor		≤初始规格值的300% ≤300% of the initial specification value														
	漏电流 Leakage current		≤初始规格值 ≤the initial specification value														
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:																
	容量变化 Capacitance change		≤初始值的±30% ≤±30% of the initial value														
	损耗角正切值 Dissipation factor		≤初始规格值的300% ≤300% of the initial specification value														
	漏电流 Leakage current		≤初始规格值300% ≤300% of the initial specification value														

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
10~100		0.40	0.75	0.90	1.00
160~500		0.55	0.80	0.90	1.00

DY SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
10	33	5*11	0.26	110
	47	5*11	0.26	130
	100	5*11	0.26	190
	220	5*11	0.26	225
	330	6.3*8	0.26	270
	470	6.3*12	0.26	385
	680	6.3*14	0.26	415
	1000	8*12	0.26	535
	2200	10*16	0.28	785
	3300	10*20	0.30	1025
	4700	13*20	0.32	1210
	6800	16*20	0.36	1545
16	10	5*11	0.20	70
	22	5*11	0.20	100
	33	5*11	0.20	125
	47	5*11	0.20	150
	100	5*11	0.20	215
	220	5*11	0.20	255
	330	6.3*9	0.20	325
	470	6.3*12	0.20	440
	680	8*9	0.20	445
	1000	8*12	0.20	610
	2200	10*16	0.22	885
	3300	10*20	0.24	1145
4700	13*20	0.26	1340	
6800	16*20	0.30	1690	
25	22	5*11	0.18	110
	33	5*11	0.18	130
	47	5*11	0.18	155
	100	5*11	0.18	225
	220	6.3*12	0.18	315
	330	8*9	0.18	395
	470	8*12	0.18	530
	680	8*16	0.18	600
	1000	10*16	0.18	825
	2200	13*20	0.20	1185
	3300	16*20	0.22	1560
	4700	18*20	0.24	1685
6800	18*25	0.28	2060	
35	10	5*11	0.16	80
	22	5*11	0.16	115
	33	5*11	0.16	140
	47	5*11	0.16	165
	68	5*11	0.16	200
	100	6.3*9	0.16	250
	220	6.3*12	0.16	335
	330	8*12	0.16	470
	470	10*13	0.16	660
	680	10*16	0.16	720
	1000	10*20	0.16	965
	2200	13*25	0.18	1375
3300	16*25	0.20	1795	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
50	1	5*11	0.14	30
	2.2	5*11	0.14	40
	3.3	5*11	0.14	50
	4.7	5*11	0.14	60
	6.8	5*11	0.14	70
	10	5*11	0.14	85
	22	5*11	0.14	120
	33	5*11	0.14	150
	47	5*11	0.14	175
	68	6.3*9	0.14	220
	100	6.3*12	0.14	305
	220	8*12	0.14	410
	330	10*13	0.14	590
	470	10*16	0.14	770
	680	10*20	0.14	850
	820	13*20	0.14	1080
1000	13*20	0.14	1195	
2200	16*25	0.16	1640	
63	4.7	5*11	0.12	60
	10	5*11	0.12	90
	22	5*11	0.12	130
	33	6.3*9	0.12	165
	47	6.3*9	0.12	200
	100	8*12	0.12	375
	220	10*13	0.12	520
	330	10*20	0.12	770
	470	13*20	0.12	1060
	680	13*20	0.12	1065
1000	16*20	0.12	1455	
100	2.2	5*11	0.12	45
	3.3	5*11	0.12	50
	4.7	5*11	0.12	60
	10	5*11	0.12	90
	22	6.3*9	0.12	135
	33	6.3*12	0.12	190
	47	8*12	0.12	255
	68	8*14	0.12	330
	100	8*16	0.12	425
	150	10*20	0.12	645
	220	13*16	0.12	660
	330	13*20	0.12	890
	470	16*20	0.12	1195
	680	18*20	0.12	1285

DY SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	4.7	6.3*9	0.20	50
	10	6.3*12	0.20	60
	22	8*12	0.20	100
	33	10*13	0.20	145
	47	10*15	0.20	180
	68	10*17	0.20	230
	100	13*20	0.20	285
200	3.3	5*11	0.20	30
	4.7	6.3*9	0.20	50
	8.2	6.3*12	0.20	75
	10	6.3*12	0.20	80
	22	8*14	0.20	105
	33	10*13	0.20	145
	47	10*17	0.20	190
	68	10*20	0.20	245
	100	13*20	0.20	285
	120	13*25	0.20	345
	150	16*25	0.20	435
	220	18*25	0.20	560
	330	18*30	0.20	740
250	2.2	5*11	0.20	35
	3.3	5*11	0.20	40
	4.7	6.3*9	0.20	50
	6.8	6.3*12	0.20	70
	8.2	8*9	0.20	75
	10	8*12	0.20	80
350	2.2	6.3*9	0.24	25
	3.3	6.3*9	0.24	30
	4.7	6.3*12	0.24	40
	10	8*12	0.24	60
	15	8*17	0.24	90
	22	10*17	0.24	120
	33	10*20	0.24	155
	47	13*20	0.24	215
	68	16*20	0.24	290
	82	18*20	0.24	340
	100	18*25	0.24	350
120	18*25	0.24	380	
150	18*30	0.24	455	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	3.3	6.3*9	0.24	40
	4.7	6.3*12	0.24	50
	5.6	8*9	0.24	60
	6.8	8*9	0.24	65
	8.2	8*12	0.24	80
	10	8*12	0.24	83
	15	8*17	0.24	90
	22	10*17	0.24	120
	33	10*20	0.24	155
	47	13*20	0.24	215
	68	16*20	0.24	290
	82	18*20	0.24	340
	100	18*25	0.24	350
	120	18*25	0.24	380
	150	18*30	0.24	455
450	2.2	6.3*9	0.24	35
	3.3	6.3*12	0.24	45
	4.7	8*12	0.24	60
	5.6	8*12	0.24	65
	6.8	8*14	0.24	75
	10	10*13	0.24	80
	15	10*17	0.24	100
	22	10*20	0.24	130
	33	13*20	0.24	180
	47	16*21	0.24	250
500	68	18*20	0.24	310
	82	18*25	0.24	375
	100	16*35	0.24	400
	4.7	8*12	0.24	60
	10	10*17	0.24	80
	15	10*20	0.24	105
	22	13*20	0.24	150
	33	13*25	0.24	200
	47	16*25	0.24	265
	68	18*25	0.24	340

DE SERIES



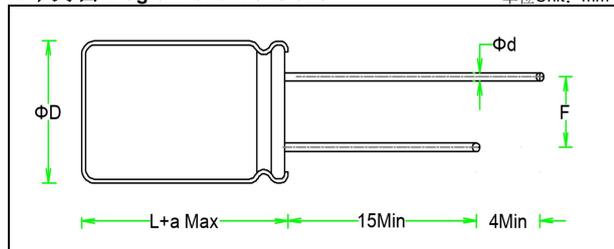
- 电源标准品
Power supply standard product 105°C 4000Hrs.
- 适用于消费类电源型电子线路等
Suitable for the consumer power electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)					25°C, 120Hz		25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.20	0.20	0.20	0.24	0.24	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	8		
Z(-40°C)/Z(+20°C)											
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(4000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(4000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±25% ≤±25% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±25% ≤±25% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.55	0.80	0.90	1.00

DE SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	4.7	6.3*9	0.20	52
	5.6	6.3*9	0.20	60
	6.8	6.3*12	0.20	70
	8.2	6.3*12	0.20	72
	10	8*9	0.20	78
	22	8*12	0.20	125
	27	8*17	0.20	157
	33	10*13	0.20	178
	47	10*15	0.20	200
	68	10*17	0.20	255
	82	13*20	0.20	310
	100	13*20	0.20	365
	150	16*20	0.20	460
	180	16*25	0.20	514
	220	16*25	0.20	550
330	18*25	0.20	660	
200	3.3	5*11	0.20	40
	4.7	6.3*9	0.20	53
	6.8	6.3*9	0.20	70
	8.2	8*9	0.20	80
	10	8*9	0.20	85
	15	8*12	0.20	100
	22	8*17	0.20	140
	33	10*15	0.20	185
	47	10*20	0.20	230
	68	10*25	0.20	305
	100	13*20	0.20	380
	150	16*25	0.20	480
	220	18*25	0.20	720
	330	18*30	0.20	850
	250	2.2	5*11	0.20
3.3		5*11	0.20	45
4.7		6.3*9	0.20	52
6.8		6.3*12	0.20	75
8.2		8*9	0.20	80
10		8*12	0.20	95
350	2.2	6.3*9	0.24	30
	3.3	6.3*9	0.24	40
	4.7	8*9	0.24	50
	10	8*12	0.24	85
	15	10*13	0.24	115
	22	10*20	0.24	160
	33	10*25	0.24	195
	47	13*20	0.24	260
	68	16*20	0.24	360
	82	18*20	0.24	410
	100	18*25	0.20	500
	120	18*25	0.20	520
150	18*30	0.20	610	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current	
400	3.3	6.3*12	0.24	50	
	4.7	8*9	0.24	60	
	6.8	8*12	0.24	80	
	10	8*17	0.24	100	
	15	8*20	0.24	130	
	22	10*20	0.24	165	
	33	13*20	0.24	220	
	47	13*25	0.24	300	
	68	16*25	0.24	480	
	82	18*25	0.24	600	
	100	18*25	0.24	660	
	450	2.2	6.3*12	0.24	40
		3.3	8*9	0.24	50
		4.7	8*12	0.24	70
		5.6	8*12	0.24	75
6.8		8*14	0.24	90	
10		10*17	0.24	120	
15		10*20	0.24	155	
22		13*20	0.24	190	
33		16*20	0.24	280	
47		18*20	0.24	350	
500	68	18*25	0.24	430	
	82	18*30	0.24	580	
	100	18*35	0.24	720	
	4.7	8*17	0.24	75	
	10	10*20	0.24	100	
	15	10*25	0.24	165	
	22	13*25	0.24	230	
	33	16*20	0.24	300	
	47	18*25	0.24	420	
	68	18*30	0.24	550	

DT SERIES



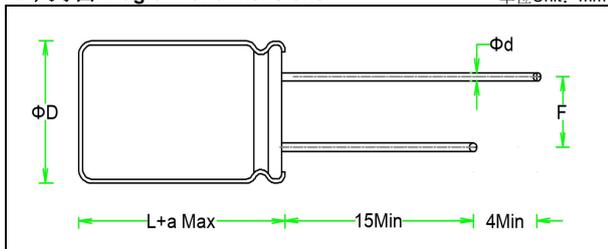
- 电源标准品
Long life power supply product 105°C 6000Hrs.
- 适用于消费类电源型电子线路等
Suitable for the consumer power electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)					25°C, 120Hz		25°C		
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.20	0.20	0.20	0.24	0.24	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)		3	3	3	6	6	6	8	
		Z(-40°C)/Z(+20°C)		6	6	6	7	7	9	15	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(6000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(6000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value									
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

DT SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	4.7	6.3*9	0.20	55
	10	6.3*12	0.20	80
	22	8*12	0.20	150
	33	10*13	0.20	220
	47	10*15	0.20	280
	68	10*17	0.20	350
	100	13*20	0.20	530
200	3.3	5*11	0.20	50
	4.7	6.3*9	0.20	55
	8.2	6.3*12	0.20	85
	10	6.3*12	0.20	90
	22	8*17	0.20	180
	33	10*15	0.20	235
	47	10*20	0.20	315
	68	10*25	0.20	415
	100	13*20	0.20	530
	120	13*25	0.20	640
	150	16*25	0.20	800
250	2.2	5*11	0.20	40
	3.3	5*11	0.20	50
	4.7	6.3*9	0.20	55
	6.8	6.3*12	0.20	80
	8.2	8*9	0.20	85
	10	8*12	0.20	105
	350	2.2	6.3*9	0.24
3.3		6.3*12	0.24	50
4.7		8*9	0.24	55
10		8*17	0.24	105
15		10*15	0.24	140
22		10*20	0.24	190
33		10*25	0.24	255
47		13*20	0.24	315
68		16*20	0.24	430
82		18*20	0.24	500
100		18*25	0.24	610
120		18*25	0.24	660
150		18*30	0.24	800

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	3.3	6.3*12	0.24	65
	4.7	8*9	0.24	75
	6.8	8*12	0.24	110
	10	8*17	0.24	140
	15	8*20	0.24	185
	22	10*20	0.24	245
	33	13*20	0.24	345
	47	13*25	0.24	460
	68	16*25	0.24	615
	82	18*25	0.24	715
	100	18*25	0.24	795
450	2.2	6.3*12	0.24	50
	3.3	8*9	0.24	60
	4.7	8*12	0.24	85
	5.6	8*12	0.24	85
	6.8	8*17	0.24	110
	10	10*17	0.24	145
	15	10*20	0.24	190
	22	13*20	0.24	265
	33	16*20	0.24	360
	47	18*20	0.24	460
500	68	18*25	0.24	595
	82	18*30	0.24	710
	100	18*35	0.24	835
	4.7	8*17	0.24	90
	8.2	10*17	0.24	125
	10	10*20	0.24	150
	15	10*25	0.24	210
	22	13*25	0.24	285
	33	16*20	0.24	360
	47	18*25	0.24	495
68	18*30	0.24	645	

DS SERIES



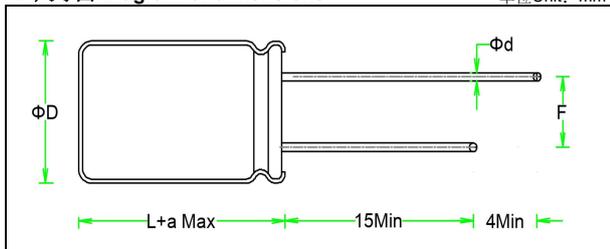
- 电源标准品
Super long life power supply product 105°C 8000~10000Hrs.
- 适用于消费类电源型电子线路等
Suitable for the consumer power electronic circuit etc.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics										
工作温度范围 Operating temperature range	-40~+105°C										
额定电压范围 Rated voltage range	160~500V _{dc}										
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)										
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)					25°C, 120Hz			25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance			V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 25°C 120Hz		
	tanδ(Max)	0.20	0.20	0.20	0.24	0.24	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value											
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	160	200	250	350	400	450	500	at 120Hz		
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)		3	3	3	6	6			
在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:											
耐久性 Load life	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value						Φ D (mm)	Life(Hrs)		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value						Φ D < 10	8000		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value						Φ D ≥ 10	10000		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:										
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
160~500		0.50	0.80	0.90	1.00

DS SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	4.7	6.3*9	0.20	60
	10	8*9	0.20	85
	22	10*13	0.20	155
	33	10*16	0.20	230
	47	10*20	0.20	290
	68	10*25	0.20	365
	100	13*20	0.20	550
200	2.2	5*11	0.20	45
	3.3	6.3*9	0.20	55
	4.7	6.3*12	0.20	60
	8.2	8*9	0.20	90
	10	8*12	0.20	95
	22	10*13	0.20	190
	33	10*17	0.20	245
	47	10*20	0.20	325
	68	13*20	0.20	430
	100	13*25	0.20	550
	120	16*20	0.20	660
	220	18*25	0.20	950
	330	18*35	0.20	1055
250	2.2	5*11	0.20	45
	3.3	6.3*9	0.20	55
	4.7	6.3*12	0.20	60
	6.8	8*9	0.20	85
	8.2	8*12	0.20	90
	10	8*12	0.20	110
350	2.2	6.3*9	0.24	45
	3.3	6.3*12	0.24	55
	4.7	8*9	0.24	60
	10	10*13	0.24	110
	15	10*17	0.24	145
	22	10*20	0.24	200
	33	13*20	0.24	265
	47	16*20	0.24	325
68	18*20	0.24	445	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	1	5*11	0.24	25
	2.2	6.3*12	0.24	45
	3.3	8*9	0.24	70
	4.7	8*12	0.24	80
	5.6	8*12	0.24	95
	6.8	8*16	0.24	115
	8.2	10*13	0.24	130
	10	10*17	0.24	145
	15	10*20	0.24	195
	22	10*25	0.24	255
	33	13*20	0.24	360
	47	16*20	0.24	475
	56	16*25	0.24	570
	68	18*25	0.24	635
	82	18*25	0.24	740
100	18*30	0.24	820	
450	1	6.3*9	0.24	30
	2.2	6.3*12	0.24	55
	3.3	8*12	0.24	65
	4.7	8*12	0.24	90
	5.6	10*13	0.24	90
	6.8	10*13	0.24	115
	10	10*17	0.24	150
	15	10*20	0.24	200
	22	13*20	0.24	275
	33	13*25	0.24	375
	47	16*25	0.24	475
	68	18*25	0.24	615
82	18*30	0.24	735	
100	18*35	0.24	865	
500	4.7	8*16	0.24	95
	10	10*20	0.24	155
	15	13*20	0.24	220
	22	16*20	0.24	295
	33	18*20	0.24	375
	47	18*25	0.24	510
	68	18*30	0.24	665

DL SERIES



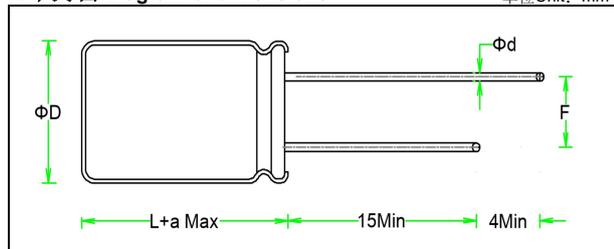
- 耐高纹波、标准品
Resistant to large ripple current, standard product 105°C 6000Hr
- 适用于有谐波要求的电源类电子线路
Suitable for harmonic-resistant power supply
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics			
工作温度范围 Operating temperature range	-40~+105°C			
额定电压范围 Rated voltage range	250~450V _{dc}			
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)			
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)		25°C, 120Hz
		I: 漏电流 I: Leakage current		V: 额定电压 V: Rated voltage
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	250	400	450
	tanδ(Max)	0.20	0.24	0.24
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value				
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	250	400	450
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	6
在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(6000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(6000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:				
耐久性 Load life	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:			
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value		

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
250~450		0.50	0.80	0.90	1.00

DL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
250	2.2	6.3*9	0.20	50
	2.2	6.3*12	0.20	70
	3.3	6.3*12	0.20	85
	4.7	6.3*12	0.20	115
	6.8	8*12	0.20	165
	8.2	8*12	0.20	175
	10	10*13	0.20	195
400	0.68	6.3*9	0.24	20
	1	6.3*9	0.24	35
	2.2	6.3*12	0.24	65
	3.3	8*12	0.24	125
	4.7	10*13	0.24	150
	5.6	10*13	0.24	165
	6.8	10*15	0.24	200
	8.2	10*20	0.24	220
450	10	10*20	0.24	275
	1	6.3*12	0.24	35
	2.2	8*12	0.24	80
	3.3	10*13	0.24	120
	4.7	10*13	0.24	170
	5.6	10*13	0.24	185
	6.8	10*17	0.24	205
10	10*25	0.24	275	

DZ SERIES



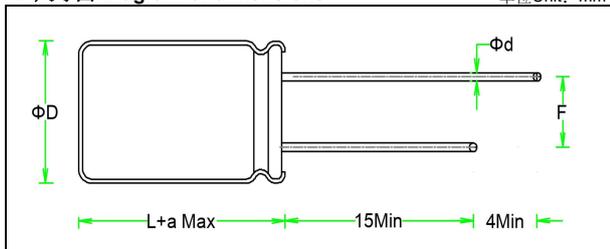
- 耐高纹波、标准品
Resistant to large ripple current, long life product 105°C 10000Hr
- 适用于有谐波要求的电源类电子线路
Suitable for harmonic-resistant power supply
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics			
工作温度范围 Operating temperature range	-40~+105°C			
额定电压范围 Rated voltage range	250~450V _{dc}			
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)			
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)		25°C, 120Hz
		I: 漏电流 I: Leakage current		V: 额定电压 V: Rated voltage
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	250	400	450
	tanδ(Max)	0.20	0.24	0.24
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value				
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	250	400	450
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	6
at 120Hz				
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间(10000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(10000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:			
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value		
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:			
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value		

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
250~450		0.50	0.80	0.90	1.00

DZ SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
250	2.2	6.3*12	0.20	65
	3.3	6.3*12	0.20	75
	4.7	8*12	0.20	90
	6.8	8*12	0.20	170
	8.2	10*12	0.20	180
	10	10*13	0.20	195
400	0.68	8*9	0.24	30
	1	8*9	0.24	40
	2.2	8*12	0.24	70
	3.3	10*13	0.24	100
	4.7	10*17	0.24	170
	5.6	10*17	0.24	190
	6.8	10*20	0.24	260
	8.2	10*20	0.24	350
450	10	13*20	0.24	375
	1	8*9	0.24	45
	2.2	8*12	0.24	85
	3.3	10*13	0.24	160
	4.7	10*17	0.24	180
	5.6	10*20	0.24	220
	6.8	10*20	0.24	275
10	13*20	0.24	395	

DK SERIES



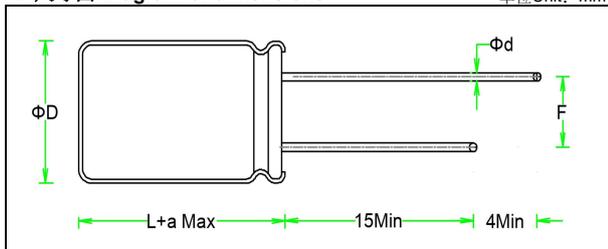
- 耐高纹波、耐高温
Resistant to large ripple current, high temperature resistance product 130°C 3000l
- 适用于有谐波要求的电源类电子线路
Suitable for harmonic-resistant power supply
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics				
工作温度范围 Operating temperature range	-40~+130°C				
额定电压范围 Rated voltage range	250~450V _{dc}				
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)				
漏电流 Leakage current	I=0.02CV+10μA	25°C, 2分钟(25°C, 2min)		25°C, 120Hz	
		I: 漏电流 I: Leakage current		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	250	400	450	
	tanδ(Max)	0.20	0.24	0.24	
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value					
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	250	400	450	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	6	6
		Z(-40°C)/Z(+20°C)	6	7	9
耐久性 Load life	在130°C环境中, 连续加载直流电压与额定纹波电流规定时间(3000H)后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time(3000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:				
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value			
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value			
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value			
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:				
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value			
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value			
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value			

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	5	6.3	8	10	13	16	18
F ±0.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd ±0.05	0.5	0.5	0.5	0.6	0.6	0.8	0.8
a	≤2.0						

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	120	1k	10k	100k
250~450		0.50	0.80	0.90	1.00

DK SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
250	2.2	6.3*12	0.20	55
	3.3	6.3*12	0.20	65
	4.7	8*12	0.20	90
	6.8	8*12	0.20	105
	8.2	10*12	0.20	135
	10	10*13	0.20	155
400	0.68	8*9	0.24	25
	1	8*9	0.24	35
	2.2	8*12	0.24	60
	3.3	10*13	0.24	85
	4.7	10*17	0.24	120
	5.6	10*17	0.24	130
	6.8	10*20	0.24	160
	8.2	10*20	0.24	175
450	10	13*20	0.24	220
	1	8*9	0.24	30
	2.2	8*12	0.24	60
	3.3	10*13	0.24	85
	4.7	10*17	0.24	120
	5.6	10*20	0.24	140
	6.8	10*20	0.24	160
10	13*20	0.24	220	

FH SERIES



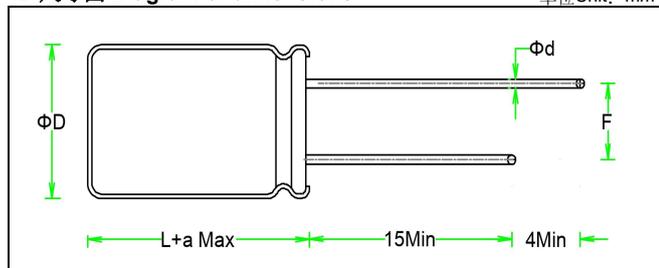
- 具有较低的损耗角和漏电流，同时在连续的冲放电状态下具有较高的可靠性
Low dissipation factor, low leakage current and high stability during the repetition of charge and discharge
- 适用于数字相机，照相器材等闪光灯用
For Photo Flash
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-20~+55℃		
额定电压范围 Rated voltage range	330WV (350SV)		
标称容量允许偏差 Nominal capacitance tolerance	-10~+20% (at 25℃ 120Hz)		
漏电流 Leakage current	I: 漏电流 I: Leakage current	25℃, 5分钟(25℃, 5min)	25℃, 120Hz
		C: 标称容量 C: Nominal capacitance	
			施加额定电压5分钟后测试 After 5 minutes application of rated voltage
损失角正切值(tanδ) Dissipation factor	0.06 max.		at 25℃ 120Hz
充放电特性 Charge and discharge characteristics	在5~35℃环境下施加额定电压连续充放电(30s/次) 5000次后，应满足以下要求： Charge and discharge at rated voltage at 5~35℃ with a switch sequence of 30 seconds for 5000 times		
	容量变化 Capacitance change	≤初始值的±10% ≤±10% of the initial value	
	损失角正切值 Dissipation factor	≤初始规格值的150% ≤150% of the initial specification value	
	漏电流 Leakage current	≤初始规格值的150% ≤150% of the initial specification value	
高温贮存 Shelf life	在55℃环境中，无负载放置1000小时后，待产品温度恢复到25℃进行测量时，应满足以下要求： In the environment of 55℃ with 1000 hours of no load, the product shall be tested after its temperature back to 25℃, and following requirements should be met:		
	容量变化 Capacitance change	≤初始值的±10% ≤±10% of the initial value	
	损失角正切值 Dissipation factor	≤初始规格值的150% ≤150% of the initial specification value	
	漏电流 Leakage current	≤初始规格值的150% ≤150% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D+0.5Max	13	16
F ±0.5	5.0	7.5
Φd ±0.05	0.6	0.8
a	≤2.0	

■ 标准品一览表 List of standard products

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ
330	60	13*25	0.06
	80	13*35	0.06
	100	13*40	0.06
	100	16*25	0.06

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ
330	120	16*32	0.06
	140	16*35	0.06
	160	16*37	0.06
	180	16*40	0.06

RDL SERIES



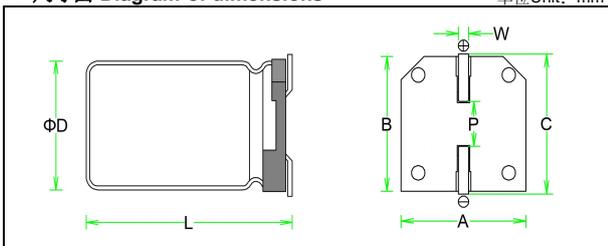
- 贴片, 长寿命品
SMD, long life product 105°C 5000~6000Hrs.
- 适用于有谐波要求的电源类电子线路, 全自动表面贴装, 高温回流焊
Suitable for harmonic-resistant power supply, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics			
工作温度范围 Operating temperature range	-40~+105°C			
额定电压范围 Rated voltage range	400~450V _{dc}			
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)			
漏电流 Leakage current	I=0.04CV+10μA	25°C, 2分钟(25°C, 1min)	25°C, 120Hz	25°C
		I: 漏电流 I: Leakage current	C: 标称容量 C: Nominal capacitance	V: 额定电压 V: Rated voltage
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	400	450	at 25°C 120Hz
	tanδ(Max)	0.24	0.24	
温度特性 Temperature characteristics	当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value			
	额定电压(V _{dc}) Rated voltage	400	450	at 120Hz
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	6	
Z(-40°C)/Z(+20°C)		16	16	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:			
	Rated voltage	400~450V _{dc}	Φ D (mm)	Life(Hrs)
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	ΦD≤6.3	5000
漏电流 Leakage current	≤初始规格值 ≤the initial specification value	ΦD≥8	6000	
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:			
	Rated voltage	400~450V _{dc}		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value		
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value		

■ 尺寸图 Diagram of dimensions

单位Unit: mm



■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(Vdc)	Freq(Hz)	120	1k	10k	100k
16~450		0.50	0.80	0.90	1.00

尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5

RDL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	0.68	6.3*10.5	0.24	25
	1	6.3*10.5	0.24	30
	2.2	6.3*12	0.24	60
	3.3	8*12	0.24	90
	4.7	10*13	0.24	155
	5.6	10*13	0.24	170
	6.8	10*17	0.24	240
	8.2	10*20	0.24	255
450	10	10*20	0.24	280
	1	6.3*12	0.24	38
	2.2	8*12	0.24	70
	3.3	10*13	0.24	150
	4.7	10*13	0.24	170
	5.6	10*13	0.24	200
	6.8	10*17	0.24	240
10	10*20	0.24	300	

RDK SERIES



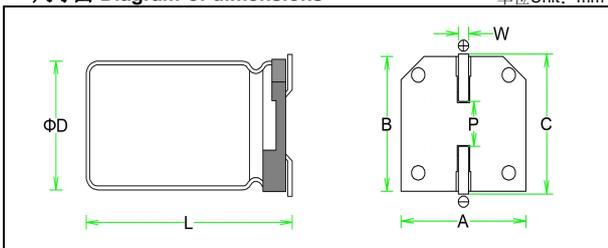
- 贴片, 耐高温品
SMD, High temperature resistance product +130°C 3K Hrs
- 适用于有谐波要求的电源类电子线路, 全自动表面贴装, 高温回流焊
Suitable for harmonic-resistant power supply, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics				
工作温度范围 Operating temperature range	-40~+130°C				
额定电压范围 Rated voltage range	400~450V _{dc}				
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)				
漏电流 Leakage current	I=0.04CV+10μA	25°C, 1分钟(25°C, 1min)	25°C, 120Hz	25°C	
		I: 漏电流 I: Leakage current	C: 标称容量 C: Nominal capacitance	V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	400	450	at 25°C 120Hz	
	tanδ(Max)	0.24	0.24		
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value					
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	400	450	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	6		6
		Z(-40°C)/Z(+20°C)	16		16
耐久性 Load life	在130°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:				
	Rated voltage	400~450V _{dc} (3000Hrs)			
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value			
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value			
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value			
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:				
	Rated voltage	400~450V _{dc}			
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value			
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value			
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value			

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(Vdc)	Freq(Hz)	120	1k	10k	100k
16~450		0.50	0.80	0.90	1.00

RDK SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
400	0.68	6.3*10.5	0.24	20
	1	6.3*12	0.24	25
	2.2	8*12	0.24	80
	3.3	10*13	0.24	120
	4.7	10*17	0.24	150
	5.6	10*17	0.24	180
	6.8	10*20	0.24	220
	8.2	10*20	0.24	240
	10	10*28	0.24	300
450	1	6.3*12	0.24	30
	2.2	8*12	0.24	85
	3.3	10*13	0.24	130
	4.7	10*17	0.24	165
	5.6	10*20	0.24	190
	6.8	10*20	0.24	230
	10	13*20	0.24	320

RVT SERIES



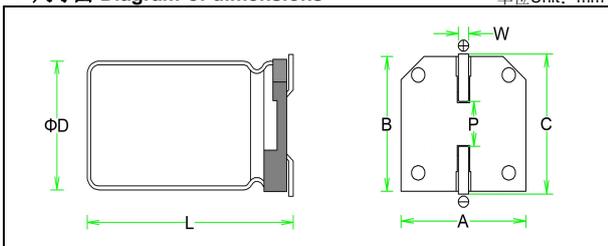
- 贴片, 标准品
SMD, standard product 105°C 2000~3000Hrs.
- 适用于高密度, 全自动表面贴装, 高温回流焊
Suitable for high density, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics														
工作温度范围 Operating temperature range	-40~+105°C														
额定电压范围 Rated voltage range	10~450V _{dc}														
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)														
漏电流 Leakage current	10~100Vdc	160~450Vdc					25°C			25°C, 120Hz				25°C	
	I=0.02CV or 3µA 2min Whichever is greater	I=0.04CV+100µA 1min					I: 漏电流 I: Leakage current			C: 标称容量 C: Nominal capacitance				V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	160	200	250	400	450	at 25°C 120Hz	
	tanδ(Max)	0.30	0.26	0.20	0.16	0.14	0.14	0.12	0.20	0.20	0.20	0.24	0.24		
当容量大于1000µF时, 容量每增加1000µF, tanδ增加0.02 Capacitance > 1000µF: tanδ increases by 0.02 for each 1000µF from below value															
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	160	200	250	400	450	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	3	2	2	2	2	2	6	6	6	6	6		
在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:															
耐久性 Load life	寿命时间 Life time	2000Hrs(10~100Vdc)					3000Hrs(160~450Vdc)								
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					≤初始规格值 ≤the initial specification value								
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:														
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value					≤初始规格值200% ≤200% of the initial specification value								

■ 尺寸图 Diagram of dimensions

单位Unit: mm



■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(Vdc)	Freq(Hz)	120	1k	10k	100k
16~450		0.50	0.80	0.90	1.00

尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*5.4	6.3	5.4	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5

RVE SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
10	33	5*7.7	0.30	100
	100	6.3*7.7	0.30	158
	220	6.3*5.4	0.30	168
	220	6.3*7.7	0.30	175
	330	8*10.5	0.30	310
	470	8*10.5	0.30	340
	820	10*10.5	0.30	820
16	47	5*7.7	0.26	95
	100	6.3*5.4	0.26	110
	100	6.3*7.7	0.26	160
	150	6.3*7.7	0.26	180
	220	8*10.5	0.26	450
	330	8*10.5	0.26	520
	470	10*10.5	0.26	700
25	33	5*7.7	0.20	90
	33	6.3*5.4	0.20	95
	47	6.3*7.7	0.20	150
	68	6.3*5.4	0.20	130
	100	6.3*7.7	0.20	185
	330	10*10.5	0.20	720
35	10	5*7.7	0.16	95
	22	5*7.7	0.16	105
	47	6.3*7.7	0.16	180
	100	6.3*7.7	0.16	470
	100	8*10.5	0.16	530
	220	10*10.5	0.16	785
	330	10*12.5	0.16	855
50	10	5*7.7	0.14	82
	10	6.3*5.4	0.14	90
	22	6.3*7.7	0.14	145
	33	6.3*7.7	0.14	170
	47	8*10.5	0.14	505
	100	10*10.5	0.14	645
	220	12.5*13.5	0.14	850
	330	12.5*16	0.14	1120
63	10	5*7.7	0.14	80
	22	6.3*7.7	0.14	138
	33	8*10.5	0.14	350
	47	8*10.5	0.14	415
	100	10*10.5	0.14	535
	330	12.5*13.5	0.14	830
100	4.7	5*7.7	0.12	65
	10	6.3*7.7	0.12	125
	22	8*10.5	0.12	310
	33	10*10.5	0.12	490
	47	10*10.5	0.12	550
	100	12.5*13.5	0.12	635

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	10	10*10.5	0.20	82
	15	10*10.5	0.20	125
	22	10*13.5	0.20	170
	22	12.5*13.5	0.20	175
	33	10*16.5	0.20	220
	33	12.5*13.5	0.20	255
	47	12.5*16	0.20	390
	200	10	10*10.5	0.20
15		10*10.5	0.20	145
22		10*13.5	0.20	182
22		12.5*16	0.20	195
33		10*16.5	0.20	235
33		12.5*16	0.20	250
47		12.5*21	0.20	390
250		2.2	6.3*10	0.20
	3.3	6.3*10	0.20	64
	4.7	8*10.5	0.20	90
	4.7	10*10.5	0.20	95
	10	12.5*13.5	0.20	170
	400	1	6.3*7.7	0.24
1.5		6.3*10.5	0.24	32
2.2		6.3*10.5	0.24	40
2.2		8*10.5	0.24	42
3.3		8*10.5	0.24	60
3.3		10*10.5	0.24	62
3.9		8*13.5	0.24	68
3.9		10*10.5	0.24	70
4.7		8*10.5	0.24	73
4.7		8*13.5	0.24	75
4.7		10*10.5	0.24	75
5.6		8*13.5	0.24	90
6.8		8*13.5	0.24	100
8.2		8*15.5	0.24	118
10		10*16.5	0.24	135
15	12.5*16	0.24	170	
450	2.2	10*10.5	0.24	45
	3.3	12.5*13.5	0.24	75
	4.7	12.5*13.5	0.24	90

RVE SERIES



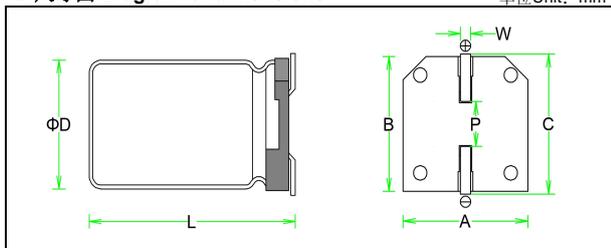
- 贴片，低阻抗品
SMD, low impedance product 105°C 2000Hrs.
- 适用于高密度，全自动表面贴装，高温回流焊
Suitable for high density, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics						
工作温度范围 Operating temperature range	-55~+105°C						
额定电压范围 Rated voltage range	6.3~50V _{dc}						
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)						
漏电流 Leakage current	I=0.01CV or 3μA 2min Whichever is greater	25°C		25°C, 120Hz		25°C	
		I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50
	tanδ(Max)	0.26	0.20	0.16	0.14	0.12	0.12
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value							
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage	6.3	10	16	25	35	50
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2
		Z(-55°C)/Z(+20°C)	12	8	6	4	3
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间（2000H），待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time(2000H), the product shall be tested after its temperature back to 25°C, and following requirements should be met:						
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:						
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value					

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
5*5.4	5.0	5.4	5.3	5.3	6.0	0.5~0.8	1.5
6.3*5.4	6.3	5.4	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

Freq(Hz)	120	1k	10k	100k
WV(Vdc)				
16~450	0.80	0.85	0.93	1.00

RVE SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
6.3	33	5*5.4	1.50	110
	47	5*5.4	1.50	110
	100	5*5.4	1.50	110
	100	6.3*5.4	0.85	170
	150	6.3*5.4	0.85	170
	220	6.3*5.4	0.85	170
	220	6.3*7.7	0.60	230
	330	6.3*7.7	0.60	230
	470	8*10.5	0.43	450
	680	8*10.5	0.43	450
	1000	8*10.5	0.43	450
	1000	10*10.5	0.23	670
	1500	10*10.5	0.23	670
10	22	5*5.4	1.50	110
	33	5*5.4	1.50	110
	47	5*5.4	1.50	110
	47	6.3*5.4	0.85	170
	100	6.3*5.4	0.85	170
	100	6.3*7.7	0.60	230
	150	6.3*5.4	0.85	170
	220	6.3*7.7	0.60	230
	330	8*10.5	0.43	450
	470	8*10.5	0.43	450
	680	10*10.5	0.23	670
1000	10*10.5	0.23	670	
16	22	5*5.4	1.50	110
	33	5*5.4	1.50	110
	33	6.3*5.4	0.85	170
	47	5*5.4	1.50	110
	47	6.3*5.4	0.85	170
	100	6.3*5.4	0.85	170
	100	6.3*7.7	0.60	230
	150	6.3*7.7	0.60	230
	220	6.3*7.7	0.60	230
	220	8*10.5	0.43	450
	330	8*10.5	0.43	450
	470	8*10.5	0.43	450
	470	10*10.5	0.23	670
	680	10*10.5	0.23	670

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	阻抗 Impedance (Ω)	额定纹波电流 (mA) Rated ripple current
25	10	5*5.4	1.50	110
	22	5*5.4	1.50	110
	22	6.3*5.4	0.85	170
	33	6.3*5.4	0.85	170
	47	6.3*5.4	0.85	170
	47	6.3*7.7	0.60	230
	100	6.3*7.7	0.60	230
	150	8*10.5	0.43	450
	220	8*10.5	0.43	450
	220	10*10.5	0.23	670
	330	8*10.5	0.43	450
	330	10*10.5	0.23	670
	470	10*10.5	0.23	670
	35	10	5*5.4	1.50
22		5*5.4	1.50	110
22		6.3*5.4	0.85	170
33		6.3*5.4	0.85	170
47		6.3*5.4	0.85	170
47		6.3*7.7	0.60	230
100		6.3*7.7	0.60	230
100		8*10.5	0.43	450
150		8*10.5	0.43	450
220		10*10.5	0.23	670
330		10*10.5	0.23	670
50	4.7	5*5.4	3.00	50
	10	6.3*5.4	2.00	70
	22	6.3*5.4	2.00	70
	22	6.3*7.7	1.00	120
	33	6.3*7.7	1.00	120
	47	6.3*7.7	1.00	120
	47	8*10.5	0.60	300
	100	8*10.5	0.60	300
	100	10*10.5	0.30	500
	150	10*10.5	0.30	500
	220	10*10.5	0.30	500

RVL SERIES



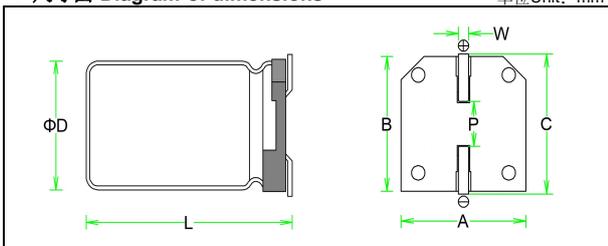
- 贴片, 长寿命品
SMD, long life product 105°C 5000~6000Hrs.
- 适用于高密度, 全自动表面贴装, 高温回流焊
Suitable for high density, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics															
工作温度范围 Operating temperature range	-40~+105°C															
额定电压范围 Rated voltage range	10~450V _{dc}															
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)															
漏电流 Leakage current	10~100V _{dc}					160~450V _{dc}					25°C		25°C, 120Hz		25°C	
	I=0.03CV or 4μA 2min Whichever is greater					I=0.04CV+100μA 1min					I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage		10	16	25	35	50	63	100	160	200	250	400	450	at 25°C 120Hz	
	tanδ(Max)		0.30	0.26	0.16	0.14	0.14	0.12	0.20	0.20	0.20	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value																
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage		10	16	25	35	50	63	100	160	200	250	400	450	at 120Hz	
	阻抗比 Max Impedance ratio		Z(-25°C)/Z(+20°C)		3	2	2	2	2	2	6	6	6	6		
		Z(-40°C)/Z(+20°C)		8	6	4	3	3	3	10	10	10	10	16	16	
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:															
	Rated voltage	10~100V _{dc}					160~450V _{dc}					Φ D (mm)	Life(Hrs)			
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value					ΦD≤6.3	5000			
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					≤初始规格值 ≤the initial specification value					8≤ΦD≤12	6000			
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:															
	Rated voltage	10~100V _{dc}					160~450V _{dc}									
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value					≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(Vdc)	Freq(Hz)	120	1k	10k	100k
16~450		0.50	0.80	0.90	1.00

尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5

RVL SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current	
10	33	5*7.7	0.30	65	
	150	6.3*7.7	0.30	98	
	220	8*10.5	0.30	260	
	330	10*10.5	0.30	380	
	470	10*10.5	0.30	510	
16	47	5*7.7	0.26	85	
	100	6.3*7.7	0.26	130	
	220	8*10.5	0.26	430	
	330	8*12.5	0.26	460	
25	470	10*10.5	0.26	660	
	33	5*7.7	0.16	85	
	47	6.3*7.7	0.16	130	
	100	6.3*7.7	0.16	160	
35	220	8*10.5	0.16	500	
	330	10*10.5	0.16	710	
	10	5*7.7	0.14	82	
	10	6.3*7.7	0.14	82	
50	22	5*7.7	0.14	90	
	22	6.3*7.7	0.14	92	
	33	6.3*7.7	0.14	162	
	47	6.3*7.7	0.14	180	
	100	8*10.5	0.14	530	
	220	10*10.5	0.14	760	
	63	10	5*7.7	0.14	60
		22	6.3*7.7	0.14	130
47		8*10.5	0.14	185	
100		10*10.5	0.14	610	
220		10*13.5	0.14	790	
220		12*13.5	0.14	790	
330		10*16.5	0.14	910	
330		12.5*16	0.14	910	
100	22	6.3*7.7	0.14	128	
	33	8*10.5	0.14	295	
	47	8*10.5	0.14	350	
	100	10*10.5	0.14	485	
	220	12.5*13.5	0.14	770	
160	10	8*10.5	0.20	140	
	10	10*10.5	0.20	150	
	15	8*12.5	0.20	210	
	15	10*13.5	0.20	230	
	22	12.5*16	0.20	310	
	33	16*16.5	0.20	400	
	47	16*16.5	0.20	450	
	200	6.8	8*10.5	0.20	95
10		10*13.5	0.20	160	
15		10*13.5	0.20	210	
22		10*12.5	0.20	320	
250	22	12.5*16	0.20	350	
	2.2	6.3*10.5	0.20	30	
	3.3	6.3*10.5	0.20	40	
	4.7	6.3*10.5	0.20	60	
	4.7	6.3*12	0.20	65	
	4.7	8*10.5	0.20	70	
	4.7	8*12.5	0.20	80	
	10	8*10.5	0.20	150	
	10	8*12.5	0.20	160	
	10	10*13.5	0.20	180	
	15	12.5*16	0.20	235	
	22	12.5*16	0.20	330	
400	1	6.3*10.5	0.24	25	
	1.5	6.3*10.5	0.24	33	
	2.2	6.3*12	0.24	50	
	2.2	8*10.5	0.24	50	
	2.2	8*12.5	0.24	60	
	3.3	8*10.5	0.24	75	
	3.3	10*10.5	0.24	80	
	3.3	8*12.5	0.24	80	
	3.9	10*13.5	0.24	92	
	4.7	8*10.5	0.24	100	
	4.7	10*10.5	0.24	105	
	5.6	8*12.5	0.24	115	
	6.8	8*12.5	0.24	138	
	6.8	10*13.5	0.24	150	
	10	10*13.5	0.24	210	
	10	10*16.5	0.24	220	
10	12.5*16	0.24	240		
15	10*16.5	0.24	280		
450	2.2	10*10.5	0.24	50	
	3.3	10*13.5	0.24	72	
	4.7	12.5*16	0.24	110	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
160	10	8*10.5	0.20	140
	10	10*10.5	0.20	150
	15	8*12.5	0.20	210
	15	10*13.5	0.20	230
	22	12.5*16	0.20	310
	33	16*16.5	0.20	400
	47	16*16.5	0.20	450
200	6.8	8*10.5	0.20	95
	10	10*13.5	0.20	160
	15	10*13.5	0.20	210
	22	10*12.5	0.20	320
250	22	12.5*16	0.20	350
	2.2	6.3*10.5	0.20	30
	3.3	6.3*10.5	0.20	40
	4.7	6.3*10.5	0.20	60
	4.7	6.3*12	0.20	65
	4.7	8*10.5	0.20	70
	4.7	8*12.5	0.20	80
	10	8*10.5	0.20	150
	10	8*12.5	0.20	160
	10	10*13.5	0.20	180
	15	12.5*16	0.20	235
	22	12.5*16	0.20	330
400	1	6.3*10.5	0.24	25
	1.5	6.3*10.5	0.24	33
	2.2	6.3*12	0.24	50
	2.2	8*10.5	0.24	50
	2.2	8*12.5	0.24	60
	3.3	8*10.5	0.24	75
	3.3	10*10.5	0.24	80
	3.3	8*12.5	0.24	80
	3.9	10*13.5	0.24	92
	4.7	8*10.5	0.24	100
	4.7	10*10.5	0.24	105
	5.6	8*12.5	0.24	115
	6.8	8*12.5	0.24	138
	6.8	10*13.5	0.24	150
	10	10*13.5	0.24	210
	10	10*16.5	0.24	220
10	12.5*16	0.24	240	
15	10*16.5	0.24	280	
450	2.2	10*10.5	0.24	50
	3.3	10*13.5	0.24	72
	4.7	12.5*16	0.24	110

RVH SERIES



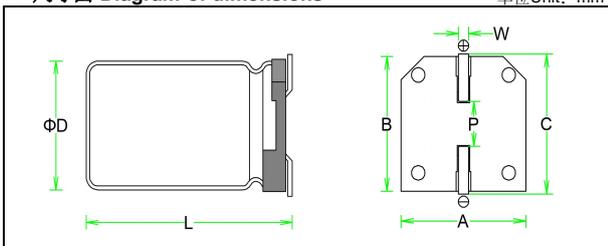
- 贴片, 超长寿命品
SMD, super long life product 105°C 8000~10000Hrs.
- 适用于高密度, 全自动表面贴装, 高温回流焊
Suitable for high density, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics																
工作温度范围 Operating temperature range	-40~+105°C																
额定电压范围 Rated voltage range	16~450V _{dc}																
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)																
漏电流 Leakage current	10~100V _{dc}					160~450V _{dc}					25°C		25°C, 120Hz		25°C		
	I=0.03CV or 4μA 2min Whichever is greater					I=0.04CV+100μA 1min					I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage		
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage		16	25	35	50	63	80	100	160	200	250	400	450	at 25°C 120Hz		
	tanδ(Max)		0.26	0.16	0.14	0.14	0.20	0.20	0.20	0.20	0.20	0.20	0.24	0.24			
当容量大于1000μF时, 容量每增加1000μF, tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value																	
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage		16	25	35	50	63	80	100	160	200	250	400	450	at 120Hz		
	阻抗比 Max Impedance ratio		Z(-25°C)/Z(+20°C)		2	2	2	2	2	2	6	6	6	6	6		
		Z(-40°C)/Z(+20°C)		6	4	3	3	3	3	3	10	10	10	16	16		
耐久性 Load life	在105°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:																
	Rated voltage	16~100V _{dc} (8000Hrs)					160~450V _{dc}										
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±30% ≤±30% of the initial value					Φ D(mm)		Life(Hrs)			
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的300% ≤300% of the initial specification value					ΦD≤6.3		8000			
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					≤初始规格值 ≤the initial specification value					8≤ΦD≤12		10000			
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:																
	Rated voltage	16~100V _{dc}					160~450V _{dc}										
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value										
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value										
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value					≤初始规格值200% ≤200% of the initial specification value										

■ 尺寸图 Diagram of dimensions

单位Unit: mm



■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V _{dc}) \ Freq(Hz)	120	1k	10k	100k
16~450	0.50	0.80	0.90	1.00

尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5
16*16.5	16.0	16.5	17.0	17.0	18.0	1.0~1.3	6.5
16*21.5	16.0	21.5	17.0	17.0	18.0	1.0~1.3	6.5
18*16.5	18.0	16.5	19.0	19.0	20.0	1.0~1.3	6.5
18*21.5	18.0	21.5	19.0	19.0	20.0	1.0~1.3	6.5

RVH SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
16	47	6.3*7.7	0.26	110
	100	6.3*7.7	0.26	220
	220	8*10.5	0.26	235
	330	8*10.5	0.26	410
	470	10*10.5	0.26	440
25	47	6.3*7.7	0.16	105
	100	8*10.5	0.16	210
	220	10*10.5	0.16	380
	330	10*10.5	0.16	410
35	33	6.3*7.7	0.14	100
	47	6.3*7.7	0.14	120
	100	8*10.5	0.14	220
	220	10*10.5	0.14	370
50	10	6.3*7.7	0.14	85
	22	6.3*7.7	0.14	92
	33	6.3*7.7	0.14	98
	47	10*10.5	0.14	170
	100	10*10.5	0.14	380
63	22	6.3*7.7	0.20	80
	33	8*10.5	0.20	150
	47	8*10.5	0.20	190
	100	10*12.5	0.20	360
80	10	8*10.5	0.20	90
	22	10*10.5	0.20	150
	33	8*10.5	0.20	180
	47	10*10.5	0.20	310

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
100	10	8*10.5	0.20	80
	22	8*10.5	0.20	150
	33	10*10.5	0.20	240
	47	10*10.5	0.20	290
	68	10*12.5	0.20	330
	160	10	10*10.5	0.20
15		10*13.5	0.20	250
22		12.5*16	0.20	350
200	10	10*10.5	0.20	180
	15	10*13.5	0.20	250
	22	12.5*16	0.20	350
250	4.7	10*10.5	0.20	100
	10	8*12.5	0.20	190
	15	12.5*16	0.20	260
400	1	6.3*10.5	0.24	20
	1.5	6.3*10.5	0.24	28
	2.2	10*10.5	0.24	65
	2.7	8*10.5	0.24	85
	3.3	10*10.5	0.24	100
	3.9	8*12.5	0.24	110
	4.7	10*10.5	0.24	130
	5.6	10*13.5	0.24	150
	6.8	10*13.5	0.24	180
450	2.2	10*10.5	0.24	60
	3.3	10*13.5	0.24	90
	4.7	12.5*16	0.24	130

RVK SERIES



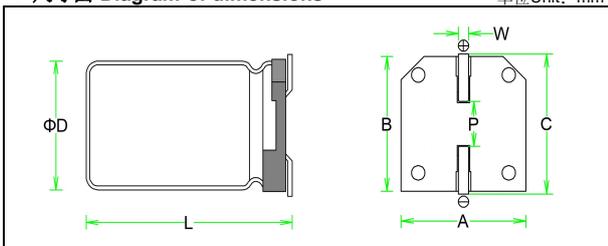
- 贴片, 耐高温品
SMD, High temperature resistance product +130°C 1K~5K Hrs
- 适用于高密度, 全自动表面贴装, 高温回流焊
Suitable for high density, fully automatic surface mount, high temperature reflow soldering.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics															
工作温度范围 Operating temperature range	-40~+130°C															
额定电压范围 Rated voltage range	16~450V _{dc}															
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)															
漏电流 Leakage current	10~100Vdc					160~450Vdc					25°C		25°C, 120Hz		25°C	
	I=0.03CV or 4µA 2min Whichever is greater					I=0.04CV+100µA 1min					I: 漏电流 I: Leakage current		C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage		16	25	35	50	63	80	100	160	200	250	400	450	at 25°C 120Hz	
	tanδ(Max)		0.26	0.16	0.14	0.14	0.20	0.20	0.20	0.20	0.20	0.20	0.24	0.24		
温度特性 Temperature characteristics	额定电压(V _{dc}) Rated voltage		16	25	35	50	63	80	100	160	200	250	400	450	at 120Hz	
	阻抗比 Max Impedance ratio	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2	6	6	6	6	6	6		
		Z(-40°C)/Z(+20°C)	6	4	3	3	3	3	3	10	10	10	16	16		
耐久性 Load life	在130°C环境中, 连续加载直流电压与额定纹波电流规定时间后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 130°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:															
	Rated voltage	160~450Vdc(3000Hrs)					16~100Vdc									
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±30% ≤±30% of the initial value					Φ D(mm)	Life(Hrs)			
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的300% ≤300% of the initial specification value					ΦD≤6.3	1000			
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value					≤初始规格值 ≤the initial specification value					8≤ΦD≤10	2000			
高温贮存 Shelf life	在105°C环境中, 无负载放置1000小时后, 待产品温度恢复到25°C进行测量时, 应满足以下要求: In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:															
	Rated voltage	16~100Vdc					160~450Vdc									
	容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value					≤初始值的±20% ≤±20% of the initial value									
	损耗角正切值 Dissipation factor	≤初始规格值的300% ≤300% of the initial specification value					≤初始规格值的200% ≤200% of the initial specification value									
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value					≤初始规格值200% ≤200% of the initial specification value									

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	D ±0.5	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
6.3*10.5	6.3	10.5	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
8*13.5	8.0	13.5	8.3	8.3	9.0	0.7~1.1	3.1
8*15.5	8.0	15.5	8.3	8.3	9.0	0.7~1.1	3.1
10*10.5	10.0	10.5	10.3	10.3	11.0	0.7~1.1	4.5
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*13.5	10.0	13.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5*13.5	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
12.5*16	12.5	16.0	13.0	13.0	13.7	1.0~1.3	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(Vdc)	Freq(Hz)	120	1k	10k	100k
16~450		0.50	0.80	0.90	1.00

RVK SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: mA rms/130°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
16	100	6.3*7.7	0.26	102
	220	8*10.5	0.26	195
	330	10*10.5	0.26	280
	470	10*13.5	0.26	310
25	47	6.3*7.7	0.16	102
	100	8*10.5	0.16	195
	220	10*10.5	0.16	280
	330	10*13.5	0.16	300
35	33	6.3*7.7	0.14	100
	47	6.3*7.7	0.14	105
	100	8*10.5	0.14	195
	220	10*10.5	0.14	280
50	10	6.3*7.7	0.14	70
	22	6.3*7.7	0.14	95
	33	6.3*7.7	0.14	102
	47	10*10.5	0.14	225
63	100	10*13.5	0.14	420
	22	6.3*7.7	0.20	55
	33	8*10.5	0.20	88
	47	8*10.5	0.20	112
80	100	10*12.5	0.20	245
	10	8*10.5	0.20	85
	22	8*10.5	0.20	95
	33	8*10.5	0.20	118
80	47	10*10.5	0.20	225

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (mA) Rated ripple current
100	10	8*10.5	0.20	70
	22	8*10.5	0.20	95
	33	10*10.5	0.20	168
	47	10*10.5	0.20	215
	68	10*12.5	0.20	245
160	10	10*10.5	0.20	70
	15	10*13.5	0.20	105
	22	12.5*16	0.20	170
200	10	10*10.5	0.20	85
	15	10*13.5	0.20	128
	22	12.5*16	0.20	165
250	4.7	10*10.5	0.20	70
	10	10*10.5	0.20	115
	15	12.5*16	0.20	136
400	1	6.3*10.5	0.24	15
	1.5	6.3*10.5	0.24	18
	2.2	8*10.5	0.24	32
	3.3	10*10.5	0.24	60
	4.7	10*10.5	0.24	75
	5.6	10*13.5	0.24	115
	6.8	10*13.5	0.24	125
450	2.2	10*10.5	0.24	30
	3.3	10*13.5	0.24	42
	4.7	12.5*16	0.24	55

LM SERIES



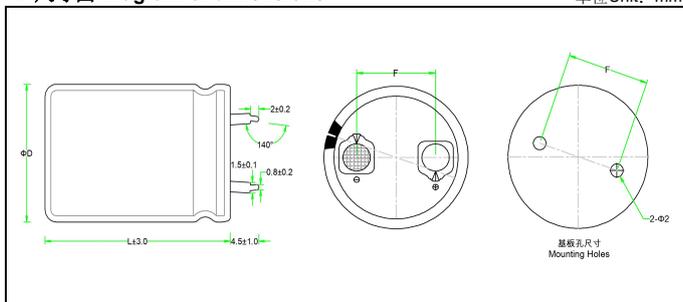
- 焊针式，标准品
Snap-in type, standard product 85°C 2000Hrs.
- 适用于电源，控制线路等一般电路板中
Suitable for power supply, control circuit and other general circuit board mounting.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics														
工作温度范围 Operating temperature range	-40~+85°C (10~100V _{dc}) -25~+85°C (160~450V _{dc})														
额定电压范围 Rated voltage range	10~450V _{dc}														
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)														
漏电流 Leakage current	I=0.02CV或3000μA取大者 I=0.02CV or 3000μA Whichever is greater	25°C, 5分钟(25°C, 5min)					25°C, 120Hz					25°C			
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance					V: 额定电压 V: Rated voltage			
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	160	200	250	350	400	450	at 25°C
	tanδ(Max)	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	0.15	0.15	0.20	0.20	0.24	120Hz
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value															
耐久性 Load life	在85°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 85°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature backs to 25°C, and following requirements should be met:														
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value													
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value													
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value													
高温贮存 Shelf life	在85°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 85°C with 1000 hours of no load, the product shall be tested after its temperature backs to 25°C, and following requirements should be met:														
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value													
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value													
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value													

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D±1.5	22	25	30	35
L±3.0	25~50	25~50	25~60	25~60
F±0.5	10			

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	50/60	120	1k	10k	100k
10~250		0.80	1.00	1.30	1.50	1.50
350~450		0.80	1.00	1.10	1.15	1.15

LM SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/85°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
10	10000	22*25	0.50	2.30
	12000	22*25	0.50	2.60
	15000	22*30	0.50	3.00
	15000	25*25	0.50	3.00
	18000	22*35	0.50	3.30
	18000	25*30	0.50	3.30
	18000	30*25	0.50	3.40
	22000	22*40	0.50	3.80
	22000	25*35	0.50	4.00
	22000	30*25	0.50	3.90
	27000	30*30	0.50	4.10
	27000	25*40	0.50	4.10
	33000	25*50	0.50	4.50
	33000	30*35	0.50	4.60
	33000	35*25	0.50	4.60
	39000	30*35	0.50	5.00
39000	35*30	0.50	5.00	
16	8200	22*25	0.40	2.00
	10000	22*30	0.40	2.40
	10000	25*25	0.40	2.40
	12000	22*35	0.40	2.80
	12000	25*30	0.40	2.80
	12000	30*25	0.40	2.90
	15000	22*40	0.40	3.10
	15000	25*30	0.40	3.10
	15000	30*25	0.40	3.20
	18000	22*45	0.40	3.60
	18000	25*35	0.40	3.60
	18000	30*30	0.40	3.70
	22000	22*50	0.40	4.00
	22000	25*40	0.40	4.00
	22000	30*30	0.40	4.00
	22000	35*25	0.40	4.10
	27000	25*45	0.40	4.70
	27000	30*45	0.40	4.70
	27000	35*30	0.40	4.80
	33000	30*40	0.40	5.40
33000	35*30	0.40	5.40	
39000	30*45	0.40	5.90	
39000	35*35	0.40	6.00	
47000	30*50	0.40	6.60	
47000	35*40	0.40	6.70	
25	5600	22*25	0.30	1.80
	6800	22*30	0.30	2.10
	6800	25*25	0.30	2.10
	8200	22*35	0.30	2.40
	8200	25*30	0.30	2.40
	8200	30*25	0.30	2.50
	10000	22*40	0.30	2.70
	10000	25*30	0.30	2.60
	10000	30*25	0.30	2.70
	12000	22*45	0.30	3.10

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current	
25	12000	25*35	0.30	3.10	
	12000	30*30	0.30	3.20	
	12000	35*25	0.30	3.20	
	15000	22*50	0.30	3.60	
	15000	25*40	0.30	3.50	
	15000	30*35	0.30	3.60	
	15000	35*25	0.30	3.50	
	18000	25*50	0.30	4.10	
	18000	30*35	0.30	4.00	
	18000	35*30	0.30	4.10	
	22000	30*40	0.30	4.50	
	22000	35*35	0.30	4.60	
	27000	30*50	0.30	5.30	
	27000	35*40	0.30	5.30	
	35	3300	22*25	0.25	1.60
		3900	22*30	0.25	1.90
3900		25*25	0.25	1.90	
4700		22*35	0.25	2.00	
4700		25*25	0.25	2.00	
5600		22*25	0.25	2.20	
5600		25*30	0.25	2.20	
5600		30*25	0.25	2.20	
6800		22*40	0.25	2.30	
6800		25*35	0.25	2.40	
6800		30*25	0.25	2.40	
8200		22*50	0.25	2.60	
8200		25*40	0.25	2.60	
8200		30*30	0.25	2.70	
8200		35*25	0.25	2.70	
10000		25*45	0.25	3.00	
10000	30*35	0.25	3.00		
10000	35*25	0.25	2.90		
12000	25*60	0.25	3.30		
12000	30*40	0.25	3.30		
12000	35*30	0.25	3.40		
50	2200	22*25	0.20	1.50	
	2700	22*30	0.20	1.70	
	2700	25*25	0.20	1.70	
	3300	22*35	0.20	1.90	
	3300	25*30	0.20	1.90	
	3300	30*25	0.20	2.00	
	3900	22*40	0.20	2.00	
	3900	25*35	0.20	2.00	
	3900	30*25	0.20	2.10	
	4700	22*45	0.20	2.20	
	4700	25*40	0.20	2.20	
	4700	30*30	0.20	2.20	
	4700	35*25	0.20	2.20	
	5600	22*50	0.20	2.30	
	5600	25*45	0.20	2.30	
	5600	30*30	0.20	2.30	
5600	35*25	0.20	2.40		

LM SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/85°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
50	6800	25*50	0.20	2.60
	6800	30*35	0.20	2.60
	6800	35*30	0.20	2.70
	8200	30*40	0.20	3.00
	8200	35*30	0.20	2.90
	10000	35*35	0.20	3.20
63	1500	22*25	0.15	1.40
	1600	22*30	0.15	1.60
	1600	25*25	0.15	1.60
	2200	22*30	0.15	1.80
	2200	25*25	0.15	1.80
	2700	22*35	0.15	2.00
	2700	25*30	0.15	2.00
	2700	30*25	0.15	2.00
	3300	22*40	0.15	2.10
	3300	25*35	0.15	2.10
	3300	30*25	0.15	2.10
	3900	22*45	0.15	2.30
	3900	25*40	0.15	2.50
	3900	30*30	0.15	2.40
	3900	35*25	0.15	2.40
	4700	22*50	0.15	2.50
	4700	25*45	0.15	3.00
	4700	30*35	0.15	2.50
	4700	35*25	0.15	2.50
	5600	25*50	0.15	3.30
5600	30*40	0.15	3.00	
5600	35*30	0.15	3.00	
6800	30*45	0.15	3.30	
6800	35*35	0.15	3.40	
8200	30*50	0.15	3.50	
8200	35*40	0.15	3.50	
100	680	22*35	0.15	1.00
	820	22*30	0.15	1.10
	820	25*25	0.15	1.10
	1000	22*35	0.15	1.20
	1000	25*30	0.15	1.20
	1000	30*25	0.15	1.20
	1200	22*40	0.15	1.40
	1200	25*30	0.15	1.40
	1200	30*25	0.15	1.40
	1500	22*45	0.15	1.60
	1500	25*35	0.15	1.60
	1500	30*30	0.15	1.70
	1500	35*25	0.15	1.70
	1800	22*50	0.15	1.90
	1800	25*40	0.15	1.80
	1800	30*30	0.15	1.90
	1800	35*25	0.15	1.90
	2200	25*45	0.15	2.00
2200	30*35	0.15	2.10	
2200	35*30	0.15	2.20	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
100	2700	25*50	0.15	2.40
	2700	30*40	0.15	2.50
	2700	35*35	0.15	2.50
	3300	30*50	0.15	2.80
	3300	35*35	0.15	2.90
	160	330	22*30	0.15
330		25*25	0.15	1.30
390		22*35	0.15	1.30
390		25*30	0.15	1.40
390		30*25	0.15	1.50
470		22*40	0.15	1.65
470		25*30	0.15	1.70
470		30*25	0.15	1.80
560		22*45	0.15	1.80
560		25*35	0.15	1.90
560		30*30	0.15	1.95
560		35*25	0.15	2.00
680		22*50	0.15	2.04
680		25*40	0.15	2.08
680		30*30	0.15	2.10
680		35*25	0.15	2.15
820		25*45	0.15	2.30
820		30*35	0.15	2.38
820		35*25	0.15	2.34
1000		25*50	0.15	2.65
1000	30*40	0.15	2.68	
1000	35*30	0.15	2.70	
1200	30*45	0.15	2.94	
1200	35*35	0.15	2.98	
1500	30*50	0.15	3.42	
1500	35*40	0.15	3.45	
1800	30*50	0.15	3.85	
1800	35*45	0.15	3.88	
2200	35*50	0.15	4.42	
2700	35*60	0.15	4.95	
200	330	22*30	0.15	1.15
	330	25*25	0.15	1.30
	390	22*35	0.15	1.30
	390	25*30	0.15	1.40
	390	30*25	0.15	1.50
	470	22*40	0.15	1.65
	470	25*30	0.15	1.70
	470	30*25	0.15	1.80
	560	22*45	0.15	1.80
	560	25*35	0.15	1.90
	560	30*30	0.15	1.95
	560	35*25	0.15	2.00
	680	22*50	0.15	2.04
	680	25*40	0.15	2.08
	680	30*30	0.15	2.10
	680	35*25	0.15	2.15
	820	25*45	0.15	2.30

LM SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/85°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
200	820	30*35	0.15	2.38
	820	35*25	0.15	2.34
	1000	25*50	0.15	2.65
	1000	30*40	0.15	2.68
	1000	35*30	0.15	2.70
	1200	30*45	0.15	2.94
	1200	35*35	0.15	2.98
	1500	30*50	0.15	3.42
	1500	35*40	0.15	3.45
	1800	30*50	0.15	3.85
	1800	35*45	0.15	3.88
	2200	35*50	0.15	4.42
	2700	35*60	0.15	4.95
250	220	22*25	0.15	1.05
	270	22*30	0.15	1.15
	270	25*25	0.15	1.18
	330	22*30	0.15	1.30
	330	25*25	0.15	1.35
	390	22*35	0.15	1.50
	390	25*30	0.15	1.55
	390	30*25	0.15	1.58
	470	22*40	0.15	1.70
	470	25*35	0.15	1.76
	470	30*25	0.15	1.80
	560	22*45	0.15	1.85
	560	25*25	0.15	1.88
	560	30*30	0.15	1.90
	560	35*25	0.15	1.92
	680	22*50	0.15	2.20
	680	25*40	0.15	2.25
	680	30*35	0.15	2.28
	680	35*25	0.15	2.32
	820	25*50	0.15	2.46
	820	30*40	0.15	2.48
820	35*30	0.15	2.50	
1000	30*45	0.15	2.78	
1000	35*35	0.15	2.80	
1200	30*50	0.15	3.15	
1200	35*40	0.15	3.20	
1500	30*55	0.15	3.78	
1500	35*40	0.15	3.80	
1800	30*60	0.15	4.40	
1800	35*50	0.15	4.45	
350	82	22*25	0.20	0.61
	100	22*25	0.20	0.65
	120	22*30	0.20	0.76
	120	25*25	0.20	0.78
	150	22*35	0.20	0.89
	150	25*30	0.20	0.91
	150	30*25	0.20	0.93
	180	22*40	0.20	1.00
	180	25*30	0.20	1.02

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
350	180	30*25	0.20	1.08
	220	22*45	0.20	1.10
	220	25*35	0.20	1.12
	220	30*30	0.20	1.15
	220	35*25	0.20	1.18
	270	22*50	0.20	1.35
	270	25*45	0.20	1.37
	270	30*35	0.20	1.38
	270	35*25	0.20	1.42
	330	25*50	0.20	1.50
	330	30*40	0.20	1.52
	330	35*30	0.20	1.55
	390	30*40	0.20	1.62
	390	35*35	0.20	1.70
	470	30*45	0.20	1.90
	470	35*40	0.20	2.00
	560	30*55	0.20	2.20
	560	35*45	0.20	2.30
	680	30*60	0.20	2.55
	680	35*50	0.20	2.60
	820	35*55	0.20	2.90
400	68	22*25	0.20	0.48
	82	22*25	0.20	0.60
	100	22*30	0.20	0.68
	100	25*25	0.20	0.70
	120	22*35	0.20	0.72
	120	25*30	0.20	0.78
	120	30*25	0.20	0.82
	150	22*40	0.20	0.88
	150	25*30	0.20	0.90
	150	30*25	0.20	0.93
	180	22*45	0.20	0.98
	180	25*35	0.20	1.00
	180	30*30	0.20	1.10
	180	35*25	0.20	1.20
	220	22*50	0.20	1.05
	220	25*40	0.20	1.10
	220	30*35	0.20	1.15
	220	35*25	0.20	1.20
	270	25*45	0.20	1.28
	270	30*40	0.20	1.35
	270	35*30	0.20	1.45
	330	25*50	0.20	1.55
	330	30*40	0.20	1.60
	330	35*30	0.20	1.68
	390	30*50	0.20	1.78
	390	35*35	0.20	1.80
	470	30*55	0.20	2.05
470	35*40	0.20	2.10	
560	30*60	0.20	2.28	
560	35*45	0.20	2.30	
680	35*50	0.20	2.60	

LM SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/85℃ 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
450	68	22*30	0.24	0.55
	68	25*25	0.24	0.57
	82	22*30	0.24	0.65
	82	25*25	0.24	0.66
	100	22*35	0.24	0.71
	100	25*30	0.24	0.72
	100	30*25	0.24	0.73
	120	22*40	0.24	0.78
	120	25*35	0.24	0.83
	120	30*25	0.24	0.83
	150	22*45	0.24	0.92
	150	25*35	0.24	0.95
	150	30*30	0.24	0.98
	180	22*50	0.24	1.02
	180	25*40	0.24	1.05
	180	30*30	0.24	1.10
	220	25*50	0.24	1.20
	220	30*35	0.24	1.25
	220	35*30	0.24	1.30
	270	30*40	0.24	1.40
	270	35*35	0.24	1.50
	330	30*45	0.24	1.60
	330	35*35	0.24	1.70
	390	30*55	0.24	1.80
	390	35*40	0.24	1.90
	470	30*60	0.24	2.15
	470	35*50	0.24	2.20
	560	35*55	0.24	2.50
680	35*60	0.24	2.90	

LH SERIES



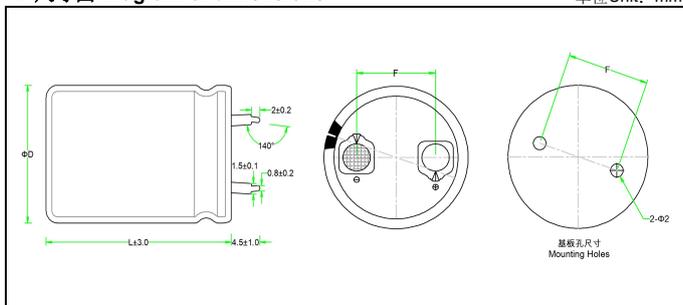
- 焊针式，宽温品
Snap-in type, wide temperature product 105°C 2000Hrs.
- 适用于高纹波电流电路板中
Suitable to circuit board with high ripple current.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics														
工作温度范围 Operating temperature range	-40~+105°C (10~100V _{dc}) -25~+105°C (160~450V _{dc})														
额定电压范围 Rated voltage range	10~450V _{dc}														
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)														
漏电流 Leakage current	I=0.02CV或3000μA取大者 I=0.02CV or 3000μA Whichever is greater	25°C, 5分钟(25°C, 5min)					25°C, 120Hz					25°C			
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance					V: 额定电压 V: Rated voltage			
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63	100	160	200	250	350	400	450	at 25°C
	tanδ(Max)	0.55	0.50	0.45	0.40	0.35	0.30	0.20	0.15	0.15	0.15	0.20	0.20	0.24	120Hz
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value															
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:														
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value													
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value													
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value													
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:														
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value													
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value													
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value													

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D±1.5	22	25	30	35
L±3.0	25~50	25~50	25~60	25~60
F±0.5	10			

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	50/60	120	1k	10k	100k
10~250		0.87	1.00	1.11	1.18	1.20
350~450		0.80	1.00	1.14	1.14	1.20

LH SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
10	10000	22*35	0.55	1.80
	12000	22*30	0.55	2.10
	12000	25*25	0.55	2.10
	15000	22*30	0.55	2.30
	15000	25*25	0.55	2.30
	18000	22*35	0.55	2.60
	18000	25*30	0.55	2.60
	18000	30*25	0.45	2.70
	22000	30*25	0.55	3.00
	22000	22*40	0.55	3.00
	22000	25*35	0.55	3.00
	27000	30*25	0.55	3.20
	27000	22*45	0.55	3.30
	27000	25*40	0.55	3.20
	33000	30*30	0.55	3.50
	33000	25*45	0.55	3.60
	33000	30*35	0.55	3.60
	39000	25*50	0.55	4.00
39000	30*40	0.55	4.20	
39000	35*30	0.55	4.10	
16	6800	22*25	0.50	1.50
	8200	22*25	0.50	1.60
	10000	22*30	0.50	1.90
	10000	25*25	0.50	1.90
	12000	22*35	0.50	2.20
	12000	25*30	0.50	2.20
	12000	30*25	0.50	2.20
	15000	22*40	0.50	2.40
	15000	25*30	0.50	2.40
	15000	30*25	0.50	2.50
	18000	22*45	0.50	2.80
	18000	25*35	0.50	2.80
	18000	30*30	0.50	2.90
	18000	35*25	0.50	2.90
	22000	25*40	0.50	3.10
	22000	30*35	0.50	3.30
	22000	35*25	0.50	3.30
	27000	25*50	0.50	4.00
27000	30*35	0.50	3.90	
27000	35*30	0.50	3.90	
25	4700	22*25	0.45	1.40
	5600	22*30	0.45	1.50
	6800	22*30	0.45	1.70
	6800	25*25	0.45	1.70
	8200	22*35	0.45	1.90
	8200	25*30	0.45	1.90
	8200	30*25	0.45	2.00
	10000	22*40	0.45	2.10
	10000	25*35	0.45	2.20
	10000	30*25	0.45	2.20
	12000	22*45	0.45	2.30
	12000	25*40	0.45	2.40

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current	
25	12000	30*30	0.45	2.40	
	12000	35*25	0.45	2.50	
	15000	25*45	0.45	3.00	
	15000	30*35	0.45	3.00	
	15000	35*25	0.45	3.00	
	18000	25*50	0.45	3.20	
	18000	30*40	0.45	3.30	
	18000	35*30	0.45	3.30	
	22000	30*45	0.45	4.00	
	22000	35*35	0.45	3.90	
	35	2700	22*25	0.40	1.20
		3300	22*30	0.40	1.30
3300		25*25	0.40	1.30	
3900		22*30	0.40	1.50	
3900		25*25	0.40	1.50	
4700		22*35	0.40	1.60	
4700		25*30	0.40	1.60	
4700		30*25	0.40	1.70	
5600		22*40	0.40	1.80	
5600		25*30	0.40	1.70	
5600		30*25	0.40	1.80	
6800		22*45	0.40	1.90	
6800		25*35	0.40	1.90	
6800		30*30	0.40	2.00	
6800		35*25	0.40	2.00	
8200		22*50	0.40	2.10	
8200		25*40	0.40	2.10	
8200		30*30	0.40	2.10	
8200	35*25	0.40	2.20		
10000	25*45	0.40	2.20		
10000	30*35	0.40	2.30		
10000	35*30	0.40	2.30		
12000	25*50	0.40	2.60		
12000	30*40	0.40	2.60		
12000	35*30	0.40	2.60		
50	1500	22*25	0.35	1.00	
	1800	22*25	0.35	1.10	
	2200	22*30	0.35	1.20	
	2200	25*25	0.35	1.20	
	2700	22*30	0.35	1.40	
	2700	25*25	0.35	1.40	
	3300	22*35	0.35	1.50	
	3300	25*30	0.35	1.50	
	3300	30*25	0.35	1.60	
	3900	22*40	0.35	1.60	
	3900	25*35	0.35	1.70	
	3900	30*25	0.35	1.70	
4700	22*45	0.35	1.80		
4700	25*40	0.35	1.80		
4700	30*30	0.35	1.80		
4700	35*25	0.35	1.80		
5600	22*50	0.35	1.90		

LH SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
50	5600	25*40	0.35	1.90
	5600	30*35	0.35	2.00
	5600	35*25	0.35	2.00
	6800	25*50	0.35	2.20
	6800	30*40	0.35	2.20
	6800	35*30	0.35	2.20
63	1000	22*25	0.30	0.95
	1200	22*25	0.30	1.05
	1500	22*30	0.30	1.22
	1500	25*25	0.30	1.22
	1800	22*30	0.30	1.35
	1800	25*25	0.30	1.35
	2200	22*35	0.30	1.43
	2200	25*30	0.30	1.43
	2200	30*25	0.30	1.43
	2700	22*40	0.30	1.65
	2700	25*35	0.30	1.65
	2700	30*25	0.30	1.65
	3300	22*45	0.30	1.76
	3300	25*40	0.30	1.76
	3300	30*30	0.30	1.76
	3300	35*25	0.30	1.76
	3900	25*45	0.30	2.02
	3900	30*35	0.30	2.05
	3900	35*25	0.30	2.02
	4700	25*50	0.30	2.10
4700	30*35	0.30	2.08	
4700	35*30	0.30	2.08	
100	470	22*25	0.20	0.62
	560	22*25	0.20	0.75
	680	22*30	0.20	0.82
	680	25*25	0.20	0.82
	820	22*30	0.20	0.91
	820	25*25	0.20	0.91
	1000	22*35	0.20	1.02
	1000	25*30	0.20	1.08
	1000	30*25	0.20	1.08
	1200	22*40	0.20	1.20
	1200	25*35	0.20	1.24
	1200	30*25	0.20	1.24
	1500	22*50	0.20	1.37
	1500	25*40	0.20	1.37
	1500	30*30	0.20	1.37
	1500	35*25	0.20	1.40
	1800	25*45	0.20	1.65
	1800	30*35	0.20	1.65
	1800	35*25	0.20	1.63
	2200	25*50	0.20	2.02
2200	30*40	0.20	2.02	
2200	35*30	0.20	2.00	
2700	30*45	0.20	2.20	
2700	35*35	0.20	2.20	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
160	220	22*25	0.15	0.78
	270	22*30	0.15	0.88
	330	22*30	0.15	1.00
	330	25*25	0.15	1.04
	390	22*35	0.15	1.10
	390	25*30	0.15	1.15
	390	30*25	0.15	1.20
	470	22*40	0.15	1.35
	470	25*35	0.15	1.40
	470	30*25	0.15	1.44
	560	22*45	0.15	1.46
	560	25*35	0.15	1.48
	560	30*30	0.15	1.56
	680	25*40	0.15	1.60
	680	30*30	0.15	1.66
	680	35*25	0.15	1.67
	680	25*45	0.15	1.70
	820	30*35	0.15	1.80
	820	35*30	0.15	1.89
	1000	25*50	0.15	2.10
	1000	30*40	0.15	2.18
	1000	35*30	0.15	2.19
	1200	30*45	0.15	2.37
	1200	35*35	0.15	2.40
	1500	35*50	0.15	2.76
	1500	35*40	0.15	2.80
	1800	30*60	0.15	3.10
	1800	35*45	0.15	3.12
	2200	35*55	0.15	3.60
	200	180	22*25	0.15
220		22*25	0.15	0.85
270		22*30	0.15	0.94
270		25*25	0.15	0.95
330		22*35	0.15	1.10
330		25*25	0.15	1.12
390		22*35	0.15	1.20
390		25*30	0.15	1.22
390		30*25	0.15	1.30
470		22*40	0.15	1.40
470		25*35	0.15	1.42
470		30*25	0.15	1.50
560		22*45	0.15	1.55
560		25*35	0.15	1.57
560		30*30	0.15	1.60
560		35*25	0.15	1.61
680		25*45	0.15	1.82
680		30*35	0.15	1.85
680		35*25	0.15	1.92
820		25*50	0.15	1.98
820	30*40	0.15	2.00	
820	35*30	0.15	2.00	
1000	30*45	0.15	2.20	

LH SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
200	1000	30*45	0.15	2.20
	1000	35*35	0.15	2.24
	1200	30*50	0.15	2.37
	1200	35*40	0.15	2.46
	1500	30*60	0.15	3.10
	1500	35*45	0.15	3.12
	1800	35*50	0.15	3.60
250	120	22*25	0.15	0.58
	150	22*30	0.15	0.62
	150	25*25	0.15	0.64
	180	22*30	0.15	0.74
	180	25*25	0.15	0.75
	220	22*35	0.15	0.87
	220	25*30	0.15	0.89
	270	22*40	0.15	0.94
	270	25*35	0.15	0.95
	270	30*25	0.15	0.96
	330	22*45	0.15	1.10
	330	25*35	0.15	1.10
	330	30*30	0.15	1.20
	330	35*25	0.15	1.22
	390	22*50	0.15	1.23
	390	25*40	0.15	1.23
	390	30*30	0.15	1.25
	390	35*25	0.15	1.30
	470	25*45	0.15	1.40
	470	30*35	0.15	1.41
	470	35*30	0.15	1.48
	560	30*40	0.15	1.60
	560	35*30	0.15	1.63
	680	30*45	0.15	1.80
	680	35*35	0.15	1.86
	820	30*55	0.15	2.02
	820	35*40	0.15	2.05
1000	30*60	0.15	2.40	
1000	35*45	0.15	2.42	
1200	35*55	0.15	2.70	
350	82	22*25	0.20	0.50
	100	22*30	0.20	0.53
	100	25*25	0.20	0.54
	120	22*35	0.20	0.62
	120	25*25	0.20	0.63
	150	22*40	0.20	0.73
	150	25*30	0.20	0.74
	150	30*25	0.20	0.75
	180	22*45	0.20	0.85
	180	25*35	0.20	0.87
	180	30*25	0.20	0.88
	220	22*50	0.20	0.90
	220	25*40	0.20	0.94
	220	30*30	0.20	0.96
	220	35*25	0.20	0.98

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current	
350	270	25*50	0.20	1.10	
	270	30*35	0.20	1.11	
	270	35*30	0.20	1.12	
	330	30*45	0.20	1.20	
	330	35*35	0.20	1.23	
	390	30*50	0.20	1.40	
	390	35*40	0.20	1.41	
	470	30*50	0.20	1.55	
	470	35*45	0.20	1.58	
	560	30*60	0.20	1.78	
	560	35*50	0.20	1.82	
	680	35*55	0.20	2.02	
	820	35*60	0.20	2.30	
	400	56	22*25	0.20	0.41
68		22*25	0.20	0.43	
82		22*30	0.20	0.51	
82		25*25	0.20	0.52	
100		22*30	0.20	0.54	
100		25*25	0.20	0.55	
120		22*35	0.20	0.62	
120		25*30	0.20	0.64	
120		30*25	0.20	0.65	
150		22*40	0.20	0.72	
150		25*35	0.20	0.74	
150		30*25	0.20	0.75	
180		22*50	0.20	0.87	
180		25*40	0.20	0.88	
180		30*30	0.20	0.88	
180		35*25	0.20	0.90	
220		22*45	0.20	0.97	
220		25*45	0.20	0.94	
220		30*35	0.20	0.95	
220		35*25	0.20	0.96	
450	270	22*52	0.20	1.08	
	270	25*50	0.20	1.15	
	270	30*40	0.20	1.17	
	270	35*30	0.20	1.20	
	330	25*50	0.20	1.20	
	330	30*45	0.20	1.26	
	330	35*35	0.20	1.28	
	390	30*45	0.20	1.64	
	390	35*40	0.20	1.42	
	470	30*50	0.20	1.41	
	470	35*45	0.20	1.68	
	560	30*60	0.20	1.66	
	560	35*50	0.20	1.90	
	820	35*50	0.20	2.35	
	450	68	22*30	0.24	0.44
		68	25*25	0.24	0.45
		82	22*35	0.24	0.51
82		25*30	0.24	0.53	
100		22*40	0.24	0.57	

LH SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
450	100	25*30	0.24	0.58
	100	30*25	0.24	0.58
	120	22*45	0.24	0.66
	120	25*35	0.24	0.67
	120	30*30	0.24	0.68
	150	22*50	0.24	0.76
	150	25*40	0.24	0.77
	150	30*30	0.24	0.78
	150	35*25	0.24	0.78
	180	25*45	0.24	0.83
	180	30*35	0.24	0.89
	180	35*30	0.24	0.92
	220	25*50	0.24	0.95
	220	30*40	0.24	1.00
	220	35*30	0.24	1.02
	270	30*45	0.24	1.18
	270	35*35	0.24	1.20
	330	30*55	0.24	1.35
	330	35*40	0.24	1.36
	390	30*60	0.24	1.50
390	35*45	0.24	1.60	
470	35*50	0.24	1.84	
560	35*60	0.24	2.00	
680	35*65	0.24	2.22	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
500	82	25*25	0.28	0.59
	100	30*25	0.28	0.68
	120	30*25	0.28	0.76
	150	25*35	0.28	0.84
	150	25*40	0.28	0.90
	220	30*30	0.28	1.05
	220	30*35	0.28	1.08
	220	30*40	0.28	1.12
	330	30*45	0.28	1.40
	390	30*50	0.28	1.65
	470	30*50	0.28	1.88
	560	35*60	0.28	2.10
	680	35*60	0.28	2.28
	680	35*65	0.28	2.30
	820	35*80	0.28	2.45

LP SERIES



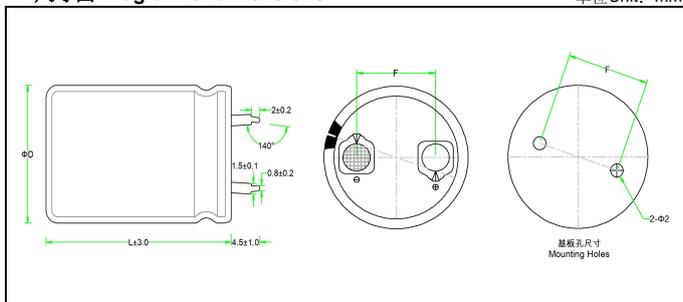
- 焊针式，高纹波电流
Snap-in type, high ripple current 105°C 5000Hrs.
- 适用于开关电源
Suitable for switching power supplies.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics									
工作温度范围 Operating temperature range	-40~+105°C (10~100V _{dc}) -25~+105°C (160~500V _{dc})									
额定电压范围 Rated voltage range	10~500V _{dc}									
标称容量允许偏差 Nominal capacitance tolerance	±20% (at 25°C 120Hz)									
漏电流 Leakage current	I=0.02CV或3000μA取大者 I=0.02CV or 3000μA Whichever is greater	25°C, 5分钟(25°C, 5min)					25°C, 120Hz		25°C	
		I: 漏电流 I: Leakage current					C: 标称容量 C: Nominal capacitance		V: 额定电压 V: Rated voltage	
损耗角正切值(tanδ) Dissipation factor	额定电压(V _{dc}) Rated voltage	10	16	25	35	50	63~100	160~400	420~450	at 25°C 120Hz
	tanδ(Max)	0.60	0.45	0.30	0.25	0.20	0.15	0.20	0.24	
当容量大于1000μF时，容量每增加1000μF，tanδ增加0.02 Capacitance > 1000μF: tanδ increases by 0.02 for each 1000μF from below value										
耐久性 Load life	在105°C环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值 ≤the initial specification value								
高温贮存 Shelf life	在105°C环境中，无负载放置1000小时后，待产品温度恢复到25°C进行测量时，应满足以下要求： In the environment of 105°C with 1000 hours of no load, the product shall be tested after its temperature back to 25°C, and following requirements should be met:									
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value								
	损耗角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value								
	漏电流 Leakage current	≤初始规格值200% ≤200% of the initial specification value								

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D±1.5	22	25	30	35
L±3.0	25~50	25~50	25~60	25~60
F±0.5	10			

■ 纹波电流频率校正因子 Frequency correction factor for RC

WV(V)	Freq(Hz)	50/60	120	1k	10k	100k
10~250		0.87	1.00	1.11	1.18	1.20
350~500		0.80	1.00	1.14	1.14	1.20

LP SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
10	6800	22*25	0.60	1.30
	10000	25*25	0.60	1.64
	12000	25*30	0.60	1.85
	15000	25*35	0.60	2.16
	18000	25*40	0.60	2.45
	22000	25*30	0.60	2.80
	27000	30*40	0.60	3.15
	33000	35*35	0.60	3.45
	39000	35*40	0.60	3.95
	47000	35*50	0.60	4.60
16	5600	22*25	0.45	1.44
	6800	25*25	0.45	1.16
	8200	22*35	0.45	1.87
	10000	25*30	0.45	2.07
	12000	30*30	0.45	2.37
	15000	25*40	0.45	2.71
	18000	30*35	0.45	3.02
	22000	35*35	0.45	3.49
	27000	35*40	0.45	4.05
	33000	35*45	0.45	4.45
39000	35*50	0.45	5.15	
25	3900	22*25	0.30	1.31
	4700	25*25	0.30	1.51
	5600	22*35	0.30	1.70
	6800	25*30	0.30	1.87
	8200	30*30	0.30	2.16
	10000	25*40	0.30	2.43
	12000	30*35	0.30	2.70
	15000	35*35	0.30	3.16
	18000	35*40	0.30	3.61
	22000	35*45	0.30	4.15
27000	35*50	0.30	4.70	
35	2200	22*25	0.25	1.10
	3300	25*25	0.25	1.41
	3900	25*30	0.25	1.58
	4700	30*25	0.25	1.77
	5600	30*30	0.25	1.98
	6800	25*40	0.25	2.24
	8200	30*35	0.25	2.50
	10000	35*35	0.25	2.88
	12000	35*40	0.25	3.30
	18000	35*50	0.25	4.29
50	1500	22*25	0.20	1.02
	1800	25*25	0.20	1.17
	2200	22*35	0.20	1.33
	2700	25*30	0.20	1.47
	3300	30*30	0.20	1.70
	3900	25*40	0.20	1.89
	4700	35*30	0.20	2.16
	5600	30*40	0.20	2.39
	6800	35*40	0.20	2.78
	10000	35*50	0.20	3.57

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
63	1000	22*25	0.15	1.00
	1200	25*25	0.15	1.15
	1500	22*35	0.15	1.32
	1800	25*30	0.15	1.45
	2200	30*30	0.15	1.68
	2700	25*40	0.15	1.90
	3300	35*30	0.15	2.18
	3900	35*35	0.15	2.43
	4700	35*40	0.15	2.78
	6800	35*50	0.15	3.55
80	680	22*25	0.15	0.97
	820	22*30	0.15	1.12
	1000	25*25	0.15	1.92
	1200	25*30	0.15	1.39
	1500	25*35	0.15	1.62
	1800	22*40	0.15	1.82
	2200	30*35	0.15	2.05
	2700	35*35	0.15	2.37
	3300	35*40	0.15	2.73
	470	35*50	0.15	3.46
100	390	22*25	0.15	0.78
	560	25*25	0.15	0.98
	680	22*35	0.15	1.12
	820	25*30	0.15	1.23
	1000	30*30	0.15	1.42
	1200	25*40	0.15	1.59
	1500	30*40	0.15	1.87
	1800	35*35	0.15	2.07
	2200	35*40	0.15	2.39
	2700	35*50	0.15	2.81
160	390	22*25	0.20	1.32
	560	25*25	0.20	1.68
	680	25*30	0.20	1.88
	820	22*40	0.20	2.09
	1000	25*35	0.20	2.38
	1000	35*40	0.20	2.78
	1200	30*35	0.20	2.69
	1500	30*45	0.20	3.17
	1800	35*40	0.20	3.66
	2200	35*45	0.20	4.14
2700	35*50	0.20	4.68	
200	270	22*25	0.20	1.10
	390	25*25	0.20	1.39
	470	22*35	0.20	1.55
	560	25*30	0.20	1.71
	680	25*35	0.20	1.87
	820	25*40	0.20	2.09
	1000	30*40	0.20	2.53
	1200	35*35	0.20	2.88
	1500	35*40	0.20	3.34
	1800	35*45	0.20	3.74

LP SERIES

■ 标准品一览表 List of standard products

(Rated ripple current: A rms/105°C 120Hz)

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
250	220	22*25	0.20	1.01
	270	22*30	0.20	1.20
	330	25*25	0.20	1.32
	390	25*30	0.20	1.43
	470	22*40	0.20	1.62
	560	25*35	0.20	1.78
	680	30*30	0.20	2.01
	680	30*35	0.20	2.06
	820	30*35	0.20	2.27
	820	30*40	0.20	2.33
	1000	35*40	0.20	2.72
	1200	35*45	0.20	3.05
	1500	35*50	0.20	3.49
315	150	22*25	0.20	0.80
	180	22*30	0.20	0.94
	220	30*25	0.20	1.17
	270	25*30	0.20	1.19
	330	25*35	0.20	1.37
	390	25*40	0.20	1.52
	470	30*35	0.20	1.71
	560	30*40	0.20	1.92
	680	35*40	0.20	2.29
	820	35*45	0.20	2.57
	1000	35*50	0.20	2.89
350	120	22*25	0.20	0.72
	150	22*30	0.20	0.84
	180	25*25	0.20	0.94
	220	25*30	0.20	1.07
	270	25*35	0.20	1.24
	330	25*40	0.20	1.39
	390	30*40	0.20	1.60
	470	35*35	0.20	1.83
	560	35*40	0.20	2.07
	560	35*40	0.20	2.07
	680	35*45	0.20	2.34
820	35*50	0.20	2.62	
400	100	22*25	0.20	0.66
	120	22*30	0.20	0.75
	150	30*25	0.20	0.86
	180	25*30	0.20	0.97
	220	25*35	0.20	1.12
	220	30*30	0.20	1.12
	270	25*40	0.20	1.26
	330	30*35	0.20	1.43
	390	35*35	0.20	1.67
	470	30*50	0.20	1.90
	470	35*40	0.20	1.90
	560	35*45	0.20	2.12
680	35*50	0.20	2.39	

电压 WV (V _{dc})	容量 Cap (μF)	尺寸 Size D*L(mm)	tanδ	额定纹波电流 (A) Rated ripple current
420	100	22*25	0.24	0.68
	120	25*25	0.24	0.77
	150	22*35	0.24	0.88
	180	25*30	0.24	0.99
	220	25*40	0.24	1.14
	270	30*35	0.24	1.30
	330	30*40	0.24	1.48
	390	35*40	0.24	1.73
	470	35*45	0.24	1.94
	560	35*50	0.24	2.17
	450	82	22*25	0.24
100		25*25	0.24	0.70
120		22*35	0.24	0.79
150		22*30	0.24	0.88
150		25*30	0.24	0.92
180		25*40	0.24	1.03
220		30*30	0.24	1.17
220		30*35	0.24	1.20
270		30*40	0.24	1.33
330		30*45	0.24	1.51
390		35*40	0.24	1.76
470	35*40	0.24	1.90	
470	35*50	0.24	1.98	
560	35*45	0.24	2.19	
560	35*50	0.24	2.23	
500	82	25*25	0.28	0.62
	100	30*25	0.28	0.76
	120	30*25	0.28	0.85
	220	35*45	0.28	1.34
	330	35*50	0.28	1.63
	470	35*50	0.28	1.99
	470	35*55	0.28	2.01
	560	35*60	0.28	2.34
	680	35*65	0.28	2.68
	820	35*70	0.28	2.99

PZ SERIES



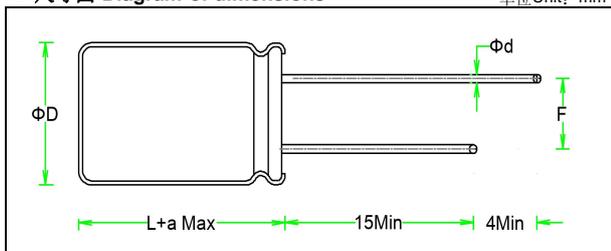
- 固态，标准品
Solid, standard product 105°C 2000Hrs.
- 适用于DC-DC转换器、通讯电源、机顶盒、路由器、TV、电压调节器、手机适配器（手机充电器）、电脑主板和显卡
Suitable to DC-DC converter, telecommunication power, set-top box, router, TV, voltage regulator, mobile phone adapter (mobile phone charger), computer mainboard and graphics card.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+105°C		
额定电压范围 Rated voltage range	2.5~80V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25°C 120Hz)		
漏电流 Leakage current	I≤0.2CV or 500µA, whichever is greater (at 20°C after 2 minutes)	20°C	20°C, 120Hz
		I: 漏电流 I: Leakage current	C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 20°C 120Hz
耐久性 Endurance	在105°C下应用额定电压2000小时后，电容器应符合以下要求： After applying rated voltage for 2000 hours at 105°C, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环，每个循环包括通过保护电阻器在常温下以规定浪涌电压充电 30秒，然后放电5分30秒，电容器应符合以下要求： After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D (-0.1~+0.5)	a	F±0.5	Φ d±0.05
5.0	±1.0	2.0	0.5
6.3	±1.0	2.5	0.5
8.0	±1.0	3.5	0.6
10.0	±1.0	5.0	0.6

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq. <1kHz	1kHz≤Freq. <10kHz	10kHz≤Freq. <100kHz	100kHz≤Freq. <300kHz
系数 coefficient	0.05	0.30	0.70	1.00

PZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
2.5	560	500	0.08	20	3000	6.3*8
	680	500	0.08	20	3000	6.3*8
	820	500	0.08	20	3000	6.3*9
	1000	600	0.08	20	3200	8*9
6.3	100	500	0.08	30	1800	5*7
	220	500	0.08	20	3500	5*7
	220	500	0.08	20	3900	6.3*7
	270	500	0.08	20	3800	5*7
	330	500	0.08	20	4000	5*8
	330	500	0.08	25	3160	6.3*6
	330	500	0.08	15	4000	6.3*8
	390	500	0.08	20	4100	5*9
	470	592	0.08	20	4300	5*10
	470	592	0.08	15	4400	6.3*8
	500	630	0.08	20	4100	5*9
	560	706	0.08	20	4800	6.3*8
	680	857	0.08	20	5080	6.3*9
	680	857	0.08	20	4600	8*9
	820	1033	0.08	20	5080	6.3*9
	1000	1260	0.08	10	5150	6.3*10
	1000	1260	0.08	10	5200	8*11
	1200	1512	0.08	10	5200	6.3*11
	1200	1512	0.08	10	5300	8*11
	1500	1890	0.08	10	5400	8*11
	1500	1890	0.08	10	5500	10*12
	1800	2268	0.08	10	5560	10*10
	2200	2772	0.08	10	5700	8*14
	2200	2772	0.08	10	5800	10*12
	3300	4158	0.08	10	5900	10*14
	4700	5000	0.08	10	6100	10*17
5600	5000	0.08	10	6300	10*18	
10	120	500	0.12	20	2450	5*7
	150	500	0.12	20	2500	5*7
	180	500	0.12	20	2700	5*8
	180	500	0.12	20	2800	6.3*7
	220	500	0.12	20	2820	5*9
	220	500	0.12	25	2800	6.3*6
	220	500	0.12	15	3160	6.3*8
	270	540	0.12	20	3100	6.3*8
	330	660	0.12	15	3400	8*9
	390	780	0.12	20	3400	6.3*8
	470	940	0.12	20	3500	6.3*8
	470	940	0.12	15	3550	8*9
	560	1120	0.12	13	3600	6.3*10
	560	1120	0.12	15	3600	8*9
	680	1360	0.12	12	3900	8*11
	820	1640	0.12	12	4000	8*11
	1000	2000	0.12	12	4200	8*11
	1000	2000	0.12	10	5300	10*12
	1200	2400	0.12	10	5450	10*12
	1500	3000	0.12	10	4800	8*14
	1500	3000	0.12	10	5500	10*12
	1800	3600	0.12	10	5800	10*13
	2200	4400	0.12	10	6100	10*15
3300	5000	0.12	10	6200	10*18	

PZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/105°C 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
16	47	500	0.12	20	2050	5*7
	56	500	0.12	20	2100	5*7
	68	500	0.12	20	2150	5*7
	82	500	0.12	20	2200	5*8
	100	500	0.12	20	2250	5*7
	100	500	0.12	20	2800	6.3*8
	150	500	0.12	20	2400	5*8
	180	576	0.12	20	2450	5*8
	180	576	0.12	20	2500	6.3*7
	220	704	0.12	20	2600	5*10
	220	704	0.12	20	2700	6.3*8
	220	704	0.12	20	2900	6.3*10
	270	864	0.12	20	2800	6.3*8
	270	864	0.12	20	2900	8*9
	330	1056	0.12	20	2900	6.3*9
	470	1504	0.12	15	3200	6.3*11
	470	1504	0.12	15	4600	8*11
	560	1792	0.12	15	3200	8*11
	560	1792	0.12	15	3300	8*13
	560	1792	0.12	15	3500	10*12
	680	2176	0.12	15	3400	8*11
	680	2176	0.12	15	3600	10*12
	820	2624	0.12	15	3500	8*13
	820	2624	0.12	15	3800	10*12
	1000	3200	0.12	15	3600	8*14
	1000	3200	0.12	15	4000	10*12
	1200	3840	0.12	15	4200	10*12
	1200	3840	0.12	15	4300	10*15
1500	4800	0.12	15	4800	10*12	
1500	4800	0.12	15	5500	10*18	
1800	5000	0.12	15	5400	10*14	
2200	5000	0.12	15	5500	10*15	
2200	5000	0.12	15	5800	10*17	
20	120	500	0.12	30	2300	6.3*8
	150	600	0.12	20	2350	6.3*10
	220	880	0.12	20	2550	8*11
	270	1080	0.12	20	2700	8*11
	330	1320	0.12	20	2100	6.3*10
	330	1320	0.12	20	2800	8*11
	470	1880	0.12	20	2400	8*11
	470	1880	0.12	20	3000	8*16
	470	1880	0.12	20	2900	10*12
	560	2240	0.12	20	3200	8*16
	560	2240	0.12	20	3100	10*12
	680	2720	0.12	20	2700	8*14
	680	2720	0.12	20	3300	10*15
	820	3280	0.12	20	3400	10*18
1000	4000	0.12	20	3900	10*18	

PZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/105°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
25	10	500	0.12	70	1800	5*8
	22	500	0.12	60	1810	5*9
	33	500	0.12	50	1850	5*9
	39	500	0.12	60	1900	5*8
	47	500	0.12	60	1950	5*9
	56	500	0.12	60	2050	5*9
	68	500	0.12	30	2100	6.3*7
	82	500	0.12	30	2150	6.3*7
	100	500	0.12	30	2500	6.3*8
	100	500	0.12	20	3000	8*11
	120	600	0.12	30	2500	6.3*8
	150	750	0.12	20	2800	6.3*10
	180	900	0.12	20	2800	6.3*10
	180	900	0.12	30	2500	8*9
	220	1100	0.12	20	3000	8*11
	220	1100	0.12	20	3500	10*12
	270	1350	0.12	20	3000	8*11
	330	1650	0.12	20	3100	8*11
	330	1650	0.12	20	3800	10*12
	470	2350	0.12	20	3000	8*11
	470	2350	0.12	20	3400	8*16
	470	2350	0.12	25	2800	10*10
	470	2350	0.12	20	4000	10*12
	560	2800	0.12	20	3100	8*12
	560	2800	0.12	20	4000	10*12
680	3400	0.12	20	3400	8*14	
680	3400	0.12	20	4100	10*12	
680	3400	0.12	20	4300	10*15	
820	4100	0.12	20	3600	8*16	
820	4100	0.12	20	4100	10*12	
1000	5000	0.12	20	4500	10*18	
35	15	500	0.12	60	1850	5*8
	39	500	0.12	50	2050	5*9
	82	574	0.12	50	2250	6.3*7
	100	700	0.12	50	2350	6.3*8
	100	700	0.12	40	2600	8*11
	120	840	0.12	40	2500	6.3*10
	150	1050	0.12	40	2550	6.3*10
	180	1260	0.12	40	2600	6.3*11
	220	1540	0.12	40	2600	6.3*11
	220	1540	0.12	40	2800	8*11
	220	1540	0.12	30	2900	10*12
	270	1890	0.12	30	3000	10*12
	330	2310	0.12	30	3100	10*12
	470	3290	0.12	20	3200	10*13
	560	3920	0.12	20	3300	10*14
	680	4760	0.12	20	3400	10*16
	820	5000	0.12	20	3500	10*18
1000	5000	0.12	20	3700	10*18	

PZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/105°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
50	10	500	0.12	70	1630	5*8
	10	500	0.12	35	1850	6.3*7
	15	500	0.12	70	1660	5*8
	22	500	0.12	40	1900	6.3*7
	33	500	0.12	40	2000	6.3*7
	47	500	0.12	35	2100	6.3*8
	56	560	0.12	35	2120	6.3*8
	68	680	0.12	30	2150	6.3*10
	100	1000	0.12	40	2100	8*9
	100	1000	0.12	30	2300	8*11
	120	1200	0.12	30	2400	8*11
	150	1500	0.12	30	2500	10*12
	180	1800	0.12	30	2600	10*12
	220	2200	0.12	30	2700	10*12
	270	2700	0.12	20	2900	10*13
330	3300	0.12	20	3000	10*15	
470	4700	0.12	20	3150	10*18	
63	33	500	0.12	30	1700	6.3*8
	39	500	0.12	30	1750	6.3*8
	47	592	0.12	30	1900	6.3*9
	56	705	0.12	30	1800	8*9
	68	856	0.12	30	2000	8*11
	82	1033	0.12	30	2100	8*11
	100	1260	0.12	30	2200	10*12
	150	1890	0.12	30	2500	10*12
	180	2268	0.12	20	2600	10*13
	220	2772	0.12	20	2650	10*15
	270	3402	0.12	20	2850	10*17
330	4158	0.12	20	2950	10*18	
80	4.7	500	0.12	60	1500	6.3*8
	6.8	500	0.12	60	1550	6.3*8
	22	500	0.12	60	1650	6.3*10
	33	528	0.12	35	1700	8*11
	47	752	0.12	35	1850	10*12
	68	1088	0.12	35	1900	10*12
	100	1600	0.12	35	2100	10*14

PS SERIES



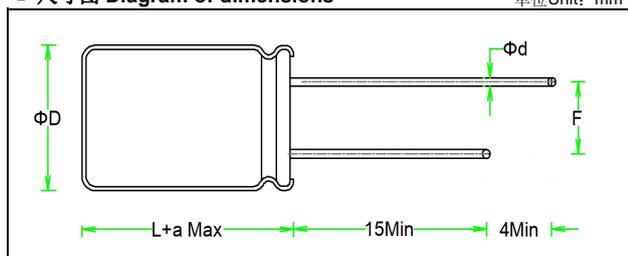
- 固态，低阻抗品
Solid, super low ESR product 105°C 2000Hrs.
- 适用于电脑主板、服务器、显卡、游戏机主机板等
Suitable for computer motherboards, server, graphics cards, mainboard
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55 ~ +105°C		
额定电压范围 Rated voltage range	6.3 ~ 25V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25°C 120Hz)		
漏电流 Leakage current	≤0.2CV or 500μA, whichever is greater (at 20°C after 2 minutes)	20°C	20°C, 120Hz
		I: 漏电流 I: Leakage current	C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		at 20°C 120Hz
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在105°C下应用额定电压2000小时后，电容器应符合以下要求： After applying rated voltage for 2000 hours at 105°C, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环，每个循环包括通过保护电阻器在常温下以规定浪涌电压充电30秒，然后放电5分30秒，电容器应符合以下要求： After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D (-0.1~+0.5)	a	F±0.5	Φ d±0.05
5.0	±1.0	2.0	0.5
6.3	±1.0	2.5	0.5
8.0	±1.0	3.5	0.6
10.0	±1.0	5.0	0.6

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq.<1kHz	1kHz≤Freq.<10kHz	10kHz≤Freq.<100kHz	100kHz≤Freq.<300kHz
系数 coefficient	0.05	0.30	0.70	1.00

PS SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
6.3	220	500	0.08	14	3800	5*7
	270	500	0.08	14	4100	5*7
	330	500	0.08	14	4400	5*8
	330	500	0.08	10	4400	6.3*8
	390	500	0.08	14	4500	5*9
	470	592	0.08	14	4700	5*10
	470	592	0.08	10	4800	6.3*8
	560	705	0.08	8	5200	6.3*8
	680	856	0.08	14	5500	6.3*9
	680	856	0.08	14	5000	8*9
	820	1033	0.08	14	5500	6.3*9
	1000	1260	0.08	8	5600	6.3*10
	1000	1260	0.08	8	5700	8*11
	1200	1512	0.08	8	5800	8*11
	1500	1890	0.08	8	5900	8*11
	1500	1890	0.08	8	6000	10*12
	1800	2268	0.08	8	6100	10*10
	2200	2772	0.08	8	6200	8*14
	2200	2772	0.08	8	6300	10*12
	3300	4158	0.08	8	6400	10*14
4700	5000	0.08	8	6700	10*17	
5600	5000	0.08	8	6900	10*18	
10	150	500	0.12	14	2700	5*7
	220	500	0.12	14	3100	5*9
	220	500	0.12	10	3400	6.3*8
	270	540	0.12	14	3400	6.3*8
	330	660	0.12	14	3600	6.3*8
	330	660	0.12	10	3700	8*9
	390	780	0.12	14	3700	6.3*8
	470	940	0.12	14	3800	6.3*8
	470	940	0.12	10	3900	8*9
	560	1120	0.12	10	3900	6.3*10
	560	1120	0.12	10	3900	8*9
	680	1360	0.12	9	4200	8*11
	820	1640	0.12	9	4400	8*11
	1000	2000	0.12	9	4600	8*11
	1000	2000	0.12	9	5800	10*12
	1200	2400	0.12	9	4900	8*12
	1200	2400	0.12	9	5900	10*12
	1500	3000	0.12	9	6000	10*12
	1800	3600	0.12	9	6300	10*13
	2200	4400	0.12	9	6700	10*15
3300	5000	0.12	9	6800	10*18	
12	470	1128	0.12	18	3795	6.3*9
	560	1344	0.12	14	3800	6.3*10
	680	1632	0.12	14	3960	6.3*11
	680	1632	0.12	14	4000	8*10
	820	1968	0.12	11	4180	8*11
	1000	2400	0.12	11	4400	8*12
	1200	2880	0.12	11	4840	8*14
	1500	3600	0.12	11	5280	8*16

PS SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/105°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
16	100	500	0.12	14	3000	6.3*8
	120	500	0.12	14	2500	5*8
	150	500	0.12	14	2600	5*8
	180	576	0.12	14	2600	5*8
	180	576	0.12	11	2700	6.3*7
	220	704	0.12	14	2800	5*10
	220	704	0.12	14	2900	6.3*8
	220	704	0.12	10	3100	6.3*10
	270	864	0.12	14	3000	6.3*8
	270	864	0.12	14	3100	8*9
	330	1056	0.12	14	3100	6.3*9
	470	1504	0.12	10	3500	6.3*11
	470	1504	0.12	10	5000	8*11
	560	1792	0.12	10	3500	8*11
	560	1792	0.12	10	3600	8*13
	560	1792	0.12	9	3800	10*12
	680	2176	0.12	10	3700	8*11
	680	2176	0.12	9	3900	10*12
	820	2624	0.12	9	3800	8*13
	820	2624	0.12	9	4100	10*12
1000	3200	0.12	9	3900	8*14	
1000	3200	0.12	9	4400	10*12	
1200	3840	0.12	9	4700	10*15	
1500	4800	0.12	9	6000	10*18	
1800	5000	0.12	9	5900	10*18	
2200	5000	0.12	9	6300	10*18	
20	120	500	0.12	27	2530	6.3*8
	150	600	0.12	18	2585	6.3*10
	180	720	0.12	27	2695	8*9
	220	880	0.12	15	4100	8*11
	270	1080	0.12	15	3500	8*11
	330	1320	0.12	15	3600	8*11
	470	1880	0.12	15	3700	10*12
	560	2240	0.12	15	3800	10*13
	680	2720	0.12	15	3900	10*15
	820	3280	0.12	15	4000	10*18
1000	4000	0.12	15	4300	10*18	
25	82	500	0.12	21	2300	6.3*7
	100	500	0.12	21	2700	6.3*8
	100	500	0.12	15	3000	6.3*10
	100	500	0.12	15	3300	8*11
	120	600	0.12	21	2700	6.3*8
	150	750	0.12	15	3000	6.3*10
	180	900	0.12	21	2700	8*9
	220	1100	0.12	15	3300	8*11
	220	1100	0.12	15	3800	10*12
	270	1350	0.12	15	3300	8*11
	330	1650	0.12	15	3400	8*11
	330	1650	0.12	15	4100	10*12
	470	2350	0.12	15	3700	8*16
	470	2350	0.12	15	4400	10*12
	560	2800	0.12	15	4400	10*12
	680	3400	0.12	15	4700	10*15
	820	4100	0.12	15	4900	10*18
1000	5000	0.12	15	4900	10*18	

PR SERIES



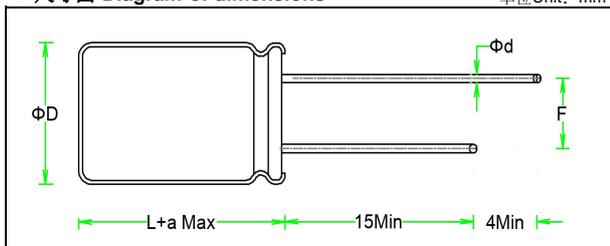
- 固态, 125℃高耐温品
Solid, 125℃ high-temperature resistance product 125℃ 2000Hrs.
- 适用于汽车、LED驱动电源、通讯电源
Suitable to automobile, LED driving power, telecommunication power supply.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+125℃		
额定电压范围 Rated voltage range	6.3~35V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25℃ 120Hz)		
漏电流 Leakage current	I≤0.2CV or 500μA, whichever is greater (at 20℃ after 2 minutes)	20℃ I: 漏电流 I: Leakage current	20℃, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20℃ V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在125℃下应用额定电压2000小时后, 电容器应符合以下要求: After applying rated voltage for 2000 hours at 125℃, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环, 每个循环包括通过保护电阻器在常温下以规定浪涌电压充电 30秒, 然后放电5分30秒, 电容器应符合以下要求: After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D (-0.1~+0.5)	a	F±0.5	Φ d±0.05
5.0	±1.0	2.0	0.5
6.3	±1.0	2.5	0.5
8.0	±1.0	3.5	0.6
10.0	±1.0	5.0	0.6

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq. <1kHz	1kHz≤Freq. <10kHz	10kHz≤Freq. <100kHz	100kHz≤Freq. <300kHz
系数 coefficient	0.05	0.30	0.70	1.00

PR SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/125℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
6.3	270	500	0.08	30	1100	5*7
	330	500	0.08	30	1200	5*8
	330	500	0.08	22	1200	6.3*8
	390	500	0.08	30	1200	5*9
	470	592	0.08	30	1200	5*10
	470	592	0.08	22	1300	6.3*8
	560	705	0.08	30	1400	6.3*8
	680	856	0.08	30	1500	6.3*9
	680	856	0.08	30	1300	8*9
	820	1033	0.08	30	1500	6.3*9
	1000	1260	0.08	15	1500	6.3*10
	1000	1260	0.08	18	1400	8*9
	1000	1260	0.08	15	1500	8*11
	1200	1512	0.08	15	1500	8*11
	1500	1890	0.08	15	1600	8*11
	1500	1890	0.08	15	1600	10*12
	1800	2268	0.08	15	1600	10*10
	2200	2772	0.08	15	1700	8*14
	2200	2772	0.08	15	1700	10*12
	3300	4158	0.08	15	1700	10*14
4700	5000	0.08	15	1800	10*17	
5600	5000	0.08	15	1800	10*18	
10	150	500	0.12	30	700	5*7
	180	500	0.12	30	800	5*8
	220	500	0.12	30	800	5*9
	220	500	0.12	22	900	6.3*8
	270	540	0.12	30	900	6.3*8
	330	660	0.12	30	900	6.3*8
	330	660	0.12	22	1000	8*9
	390	780	0.12	30	1000	6.3*8
	470	940	0.12	30	1000	6.3*8
	470	940	0.12	22	1000	8*9
	560	1120	0.12	20	1000	6.3*10
	560	1120	0.12	22	1000	8*9
	680	1360	0.12	20	1100	8*11
	820	1640	0.12	20	1200	8*11
	1000	2000	0.12	20	1200	8*11
	1000	2000	0.12	15	1500	10*12
	1200	2400	0.12	15	1300	8*12
	1200	2400	0.12	15	1600	10*12
	1500	3000	0.12	15	1600	10*12
	1800	3600	0.12	15	1700	10*13
2200	4400	0.12	15	1800	10*15	
3300	5000	0.12	15	1800	10*18	
12	470	1128	0.12	28	1000	6.3*9
	560	1344	0.12	21	1000	6.3*10
	680	1632	0.12	21	1100	6.3*11
	820	1968	0.12	17	1100	8*11
	1000	2400	0.12	17	1200	8*12
	1200	2880	0.12	17	1300	8*14
1500	3600	0.12	17	1400	8*16	

PR SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/125℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
16	100	500	0.12	30	600	5*7
	100	500	0.12	30	800	6.3*8
	180	576	0.12	30	700	5*8
	180	576	0.12	24	700	6.3*7
	220	704	0.12	30	700	5*10
	220	704	0.12	30	800	6.3*8
	220	704	0.12	24	800	6.3*10
	270	864	0.12	30	800	6.3*8
	270	864	0.12	30	800	8*9
	330	1056	0.12	30	800	6.3*9
	470	1504	0.12	24	900	6.3*11
	470	1504	0.12	24	1300	8*11
	560	1792	0.12	24	900	8*11
	560	1792	0.12	24	900	8*13
	560	1792	0.12	20	1000	10*12
	680	2176	0.12	24	1000	8*11
	680	2176	0.12	20	1000	10*12
	820	2624	0.12	18	1000	8*13
	820	2624	0.12	20	1100	10*12
	1000	3200	0.12	20	1200	8*14
1000	3200	0.12	20	1200	10*12	
1800	4800	0.12	20	1600	10*18	
2200	5000	0.12	20	1700	10*18	
25	56	500	0.12	90	600	5*9
	82	500	0.12	45	600	6.3*7
	100	500	0.12	45	700	6.3*8
	120	600	0.12	45	700	6.3*8
	150	750	0.12	30	800	6.3*10
	180	900	0.12	30	800	6.3*10
	220	1100	0.12	30	900	8*11
	220	1100	0.12	30	1000	10*12
	270	1350	0.12	30	900	8*11
	330	1650	0.12	30	900	8*11
	330	1650	0.12	30	1100	10*12
	470	2350	0.12	30	1000	8*16
	470	2350	0.12	30	1200	10*12
	560	2800	0.12	30	1200	10*12
	680	3400	0.12	30	1200	10*12
	820	4100	0.12	30	1200	10*18
1000	5000	0.12	30	1300	10*18	
35	82	574	0.12	75	600	6.3*7
	100	700	0.12	75	700	6.3*8
	100	700	0.12	60	700	6.3*10
	100	700	0.12	60	700	8*11
	120	840	0.12	60	700	6.3*10
	150	1050	0.12	60	700	6.3*10
	220	1540	0.12	60	800	8*11
	220	1540	0.12	45	800	10*12
	270	1890	0.12	45	900	10*12
	330	2310	0.12	45	900	10*12
	470	3290	0.12	30	900	10*13
	560	3920	0.12	30	900	10*14
	680	4760	0.12	30	1000	10*16
	820	5000	0.12	30	1000	10*18
1000	5000	0.12	30	1100	10*18	

PF SERIES



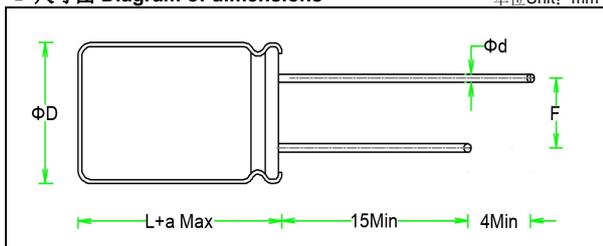
- 固态，长寿命品
Solid, long life product 105°C 3000~5000Hrs.
- 适用于长时间工作的电子产品及电子设备，如：电脑主板、服务器主板、显卡、LED照明驱动电源
Suitable for long-term working electronic products and electronic equipment, such as computer motherboards, server motherboards, graphics cards and LED lighting driving power.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+105°C		
额定电压范围 Rated voltage range	6.3~63V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25°C 120Hz)		
漏电流 Leakage current	≤0.2CV or 500μA, whichever is greater (at 20°C after 2 minutes)	20°C I: 漏电流 I: Leakage current	20°C, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20°C V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在105°C下应用额定电压3000~5000小时后，电容器应符合以下要求： After applying rated voltage for 3000~5000 hours at 105°C, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环，每个循环包括通过保护电阻器在常温下以规定浪涌电压充电30秒，然后放电5分30秒，电容器应符合以下要求： After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D (-0.1~+0.5)	a	F±0.5	Φ d±0.05
5.0	±1.0	2.0	0.5
6.3	±1.0	2.5	0.5
8.0	±1.0	3.5	0.6
10.0	±1.0	5.0	0.6

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz ≤ Freq. < 1kHz	1kHz ≤ Freq. < 10kHz	10kHz ≤ Freq. < 100kHz	100kHz ≤ Freq. < 300kHz
系数 coefficient	0.05	0.30	0.70	1.00

PF SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
6.3	330	500	0.08	16	3600	6.3*8
	470	592	0.08	16	3900	6.3*8
	560	706	0.08	22	3800	5.5*9
	560	706	0.08	22	4200	6.3*8
	680	857	0.08	22	4100	8*9
	820	1033	0.08	22	4500	6.3*9
	1000	1260	0.08	11	4600	8*11
	1200	1512	0.08	11	4700	8*11
10	1500	1890	0.08	11	4800	10*12
	220	500	0.12	16	2800	6.3*8
	270	540	0.12	22	2700	6.3*8
	330	660	0.12	22	2900	6.3*8
	470	940	0.12	22	3000	5.5*9
	470	940	0.12	16	3100	8*9
	560	1120	0.12	16	3200	8*9
	680	1360	0.12	13	3500	8*11
	820	1640	0.12	13	3600	8*11
	1000	2000	0.12	11	4700	10*12
16	1200	2400	0.12	11	4900	10*12
	1500	3000	0.12	11	4900	10*12
	220	704	0.12	16	2600	6.3*10
	270	864	0.12	22	2500	6.3*8
	330	1056	0.12	22	2600	6.3*9
	470	1504	0.12	16	2800	8*11
	560	1792	0.12	16	2800	8*11
	680	2176	0.12	15	3200	10*12
	820	2624	0.12	15	3400	10*12
	1000	3200	0.12	15	3600	10*12
25	82	500	0.12	33	1900	6.3*7
	100	500	0.12	33	2200	6.3*8
	100	500	0.12	22	2700	8*11
	120	600	0.12	33	2200	6.3*8
	180	900	0.12	33	2200	8*9
	220	1100	0.12	22	2700	8*11
	270	1350	0.12	22	2700	8*11
	330	1650	0.12	22	2500	10*12
	470	2350	0.12	22	2700	8*11
	470	2350	0.12	22	3600	10*12
35	680	3400	0.12	22	3800	10*15
	68	500	0.12	55	1900	6.3*7
	82	574	0.12	55	2000	6.3*7
	100	700	0.12	55	2100	6.3*8
	150	1050	0.12	44	2200	6.3*10
	220	1540	0.12	44	2500	8*11
	220	1540	0.12	33	2600	10*12
	270	1890	0.12	33	2700	10*12
50	330	2310	0.12	33	2700	10*12
	680	4760	0.12	22	3000	10*16
	47	500	0.12	38	1800	6.3*8
	100	1000	0.12	33	2000	8*11
	150	1500	0.12	33	2200	10*12
63	270	2700	0.12	22	2600	10*13
	330	3300	0.12	22	2700	10*15
	39	500	0.12	33	1500	6.3*8
	82	1033	0.12	33	1800	8*11
	150	1890	0.12	33	2200	10*12
63	220	2772	0.12	22	2300	10*15
	270	3402	0.12	22	2500	10*17

VZ SERIES



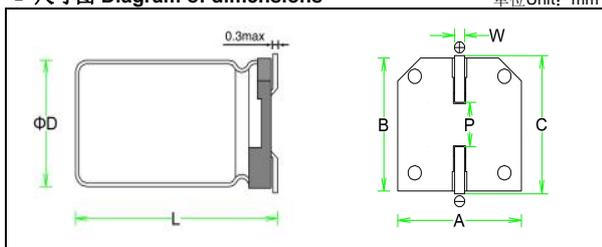
- 固态贴片, 标准品
Solid SMD, standard product 105°C 2000Hrs.
- 适用于电脑主板和显卡
Suitable to computer mainboard and graphics card.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+105°C		
额定电压范围 Rated voltage range	2.5~63V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25°C 120Hz)		
漏电流 Leakage current	≤0.2CV or 500μA, whichever is greater (at 20°C after 2 minutes)	20°C I: 漏电流 I: Leakage current	20°C, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20°C V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在105°C下应用额定电压2000小时后, 电容器应符合以下要求: After applying rated voltage for 2000 hours at 105°C, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环, 每个循环包括通过保护电阻器在常温下以规定浪涌电压充电30秒, 然后放电5分30秒, 电容器应符合以下要求: After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	ΦD (-0.1~+0.5)	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P ±0.2
6.3*6	6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq.<1kHz	1kHz≤Freq.<10kHz	10kHz≤Freq.<100kHz	100kHz≤Freq.<300kHz
系数 coefficient	0.05	0.30	0.70	1.00

VZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
2.5	330	500	0.08	20	2700	6.3*6
	390	500	0.08	20	2800	6.3*6
	470	500	0.08	20	2900	6.3*6
	560	500	0.08	20	3000	6.3*6
	680	500	0.08	15	4300	6.3*9
6.3	220	500	0.08	20	2800	6.3*6
	270	500	0.08	20	3000	6.3*6
	330	500	0.08	20	2100	6.3*6
	470	592	0.08	15	3500	6.3*9
	560	705	0.08	15	3700	6.3*9
	1000	1260	0.08	15	4300	8*11.5
	1500	1890	0.08	15	4400	8*11.5
10	2200	2772	0.08	15	5600	10*12.5
	120	500	0.12	30	2700	6.3*6
	220	500	0.12	30	2700	6.3*6
	220	500	0.12	20	3000	6.3*9
	330	660	0.12	20	3100	6.3*9
	470	940	0.12	30	3400	6.3*9
	470	940	0.12	22	3400	8*9.5
	560	1120	0.12	20	3600	8*11.5
	560	1120	0.12	20	5000	10*12.5
	1000	2000	0.12	15	4200	8*11.5
16	1000	2000	0.12	15	4400	10*12.5
	1500	3000	0.12	15	4400	10*12.5
	47	500	0.12	40	1700	6.3*6
	68	500	0.12	40	2000	6.3*6
	100	500	0.12	30	2400	6.3*6
	150	500	0.12	30	2400	6.3*6
	150	500	0.12	25	2600	6.3*9
	180	576	0.12	60	2500	6.3*6
	180	576	0.12	25	2700	6.3*9
	220	704	0.12	25	2500	6.3*9
	270	864	0.12	25	2600	6.3*9
	270	864	0.12	25	2800	8*9.5
	330	1056	0.12	25	2600	6.3*9
	330	1056	0.12	20	4000	8*11.5
25	330	1056	0.12	20	5000	10*12.5
	560	1792	0.12	20	3500	8*11.5
	680	2176	0.12	20	4000	10*12.5
	1000	3200	0.12	20	4100	10*12.5
	22	500	0.12	80	1600	6.3*6
	47	500	0.12	50	1800	6.3*6
	47	500	0.12	35	2000	6.3*9
	56	500	0.12	50	1800	6.3*6
	68	500	0.12	50	1800	6.3*6
	100	500	0.12	50	2100	6.3*6
100	500	0.12	30	2400	6.3*9	
150	750	0.12	30	2500	6.3*9	
220	1100	0.12	30	2500	6.3*9	
220	1100	0.12	30	2600	8*11.5	
330	1650	0.12	30	2700	8*11.5	
330	1650	0.12	22	2800	10*12.5	
470	2350	0.12	30	2800	8*11.5	
470	2350	0.12	22	3100	10*12.5	
560	2800	0.12	22	3300	10*12.5	
680	3400	0.12	22	3300	10*12.5	

VZ SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L (mm)
35	22	500	0.12	60	1100	6.3*6
	27	500	0.12	60	1100	6.3*6
	33	500	0.12	60	1100	6.3*6
	47	500	0.12	50	1100	6.3*6
	47	500	0.12	50	1500	6.3*9
	68	500	0.12	50	1100	6.3*6
	68	500	0.12	40	1800	6.3*9
	100	700	0.12	40	2100	6.3*9
	100	700	0.12	40	2800	8*9.5
	150	1050	0.12	30	3000	8*11.5
	220	1540	0.12	30	2400	8*11.5
	270	1890	0.12	30	2500	8*11.5
	270	1890	0.12	30	2700	10*12.5
50	330	2310	0.12	30	2700	10*12.5
	470	3290	0.12	30	3000	10*12.5
	22	500	0.12	80	800	6.3*6
	33	500	0.12	80	850	6.3*6
	47	500	0.12	60	1400	6.3*9
	68	680	0.12	30	2000	8*11.5
	82	820	0.12	30	2000	8*11.5
	82	820	0.12	30	2000	10*12.5
	100	1000	0.12	30	2000	8*11.5
	100	1000	0.12	30	2100	10*12.5
	120	1200	0.12	30	2000	8*11.5
63	150	1500	0.12	30	2100	10*12.5
	220	2200	0.12	30	2300	10*12.5
	22	500	0.12	80	450	6.3*6
	33	500	0.12	60	500	6.3*9
	47	592	0.12	60	1000	8*9.5
	56	705	0.12	40	1400	8*11.5
	100	1260	0.12	40	1600	10*12.5

VS SERIES



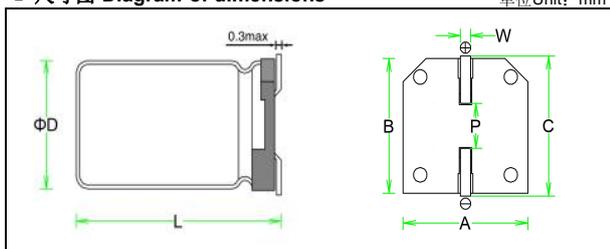
- 固态贴片, 低ESR品
Solid SMD, low ESR product 105°C 2000Hrs.
- 适用于高阶主板、服务器
Suitable to High order main board, server.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+105°C		
额定电压范围 Rated voltage range	2.5~25V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25°C 120Hz)		
漏电流 Leakage current	I≤0.2CV or 500µA, whichever is greater (at 20°C after 2 minutes)	20°C I: 漏电流 I: Leakage current	20°C, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20°C V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在105°C下应用额定电压2000小时后, 电容器应符合以下要求: After applying rated voltage for 2000 hours at 105°C, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环, 每个循环包括通过保护电阻器在常温下以规定浪涌电压充电 30秒, 然后放电5分30秒, 电容器应符合以下要求: After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	ΦD (-0.1~+0.5)	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P ±0.2
6.3*6	6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq.<1kHz	1kHz≤Freq.<10kHz	10kHz≤Freq.<100kHz	100kHz≤Freq.<300kHz
系数 coefficient	0.05	0.30	0.70	1.00

VS SERIES

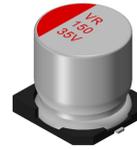
■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
2.5	330	500	0.08	18	2800	6.3*6
	390	500	0.08	18	2900	6.3*6
	470	500	0.08	18	4000	6.3*6
	560	500	0.08	18	4000	6.3*6
	680	500	0.08	13	4500	6.3*9
6.3	220	500	0.08	18	2900	6.3*6
	270	500	0.08	18	3100	6.3*6
	330	500	0.08	18	3200	6.3*6
	470	592	0.08	13	3600	6.3*9
	560	705	0.08	13	3800	6.3*9
	1000	1260	0.08	13	4500	8*11.5
	1500	1890	0.08	13	4600	8*11.5
10	2200	2772	0.08	13	5800	10*12.5
	120	500	0.12	27	2800	6.3*6
	220	500	0.12	27	2800	6.3*6
	220	500	0.12	18	3100	6.3*9
	330	660	0.12	18	3200	6.3*9
	470	940	0.12	27	3500	6.3*9
	560	1120	0.12	18	3700	8*11.5
	560	1120	0.12	18	5200	10*12.5
	1000	2000	0.12	13	4400	8*11.5
	1000	2000	0.12	13	4600	10*12.5
16	1500	3000	0.12	13	4600	10*12.5
	47	500	0.12	36	1700	6.3*6
	68	500	0.12	36	2100	6.3*6
	100	500	0.12	27	2500	6.3*6
	150	500	0.12	27	2500	6.3*6
	150	500	0.12	22	2700	6.3*9
	180	576	0.12	22	2800	6.3*9
	220	704	0.12	22	2600	6.3*9
	270	864	0.12	22	2700	6.3*9
	270	864	0.12	22	2900	8*9.5
	330	1056	0.12	22	2700	6.3*9
	330	1056	0.12	18	4200	8*11.5
	330	1056	0.12	18	5200	10*12.5
	560	1792	0.12	18	3600	8*11.5
25	680	2176	0.12	18	4200	10*12.5
	1000	3200	0.12	18	4300	10*12.5
	22	500	0.12	45	1100	6.3*6
	47	500	0.12	45	1800	6.3*6
	47	500	0.12	31	2100	6.3*9
	56	500	0.12	45	1800	6.3*6
	68	500	0.12	45	1800	6.3*6
	100	500	0.12	45	2200	6.3*6
	100	500	0.12	27	2500	6.3*9
	150	750	0.12	27	2600	6.3*9
	220	1100	0.12	27	2600	6.3*9
	220	1100	0.12	27	2700	8*11.5
	330	1650	0.12	27	2800	8*11.5
	330	1650	0.12	20	2900	10*12.5
	470	2350	0.12	27	2900	8*11.5
	470	2350	0.12	20	3200	10*12.5
	560	2800	0.12	20	3400	10*12.5
680	3400	0.12	20	3400	10*12.5	

VR SERIES

- 固态贴片, 125℃高耐;
Solid SMD, 125℃ high-temperature resistance product 125℃ 2000Hrs.
- 适用于光电、LED电源、服务器设备
Suitable to Lamps Power, LED Power, Service Equipment.
- 符合RoHS
RoHS compliance

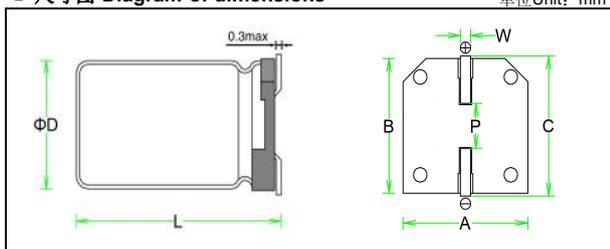


■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+125℃		
额定电压范围 Rated voltage range	2.5~35V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25℃ 120Hz)		
漏电流 Leakage current	I≤0.2CV or 500μA, whichever is greater (at 20℃ after 2 minutes)	20℃	20℃, 120Hz
		I: 漏电流 I: Leakage current	C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20℃
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		V: 额定电压 V: Rated voltage
耐久性 Endurance	在125℃下应用额定电压2000小时后, 电容器应符合以下要求: After applying rated voltage for 2000 hours at 125℃, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环, 每个循环包括通过保护电阻器在常温下以规定浪涌电压充电 30秒, 然后放电5分30秒, 电容器应符合以下要求: After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	ΦD (-0.1~+0.5)	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P ±0.2
6.3*6	6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq.<1kHz	1kHz≤Freq.<10kHz	10kHz≤Freq.<100kHz	100kHz≤Freq.<300kHz
系数 coefficient	0.05	0.30	0.70	1.00

VR SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/125℃ 100kHz)

电压 WV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
2.5	330	500	0.08	30	800	6.3*6
	390	500	0.08	30	800	6.3*6
	470	500	0.08	30	800	6.3*6
	560	500	0.08	30	900	6.3*6
	680	500	0.08	22	1200	6.3*9
6.3	220	500	0.08	30	800	6.3*6
	270	500	0.08	30	900	6.3*6
	330	500	0.08	30	900	6.3*6
	470	592	0.08	22	1000	6.3*9
	560	705	0.08	22	1100	6.3*9
	1000	1260	0.08	22	1200	8*11.5
	1500	1890	0.08	22	1300	8*11.5
2200	2772	0.08	22	1600	10*12.5	
10	120	500	0.12	45	800	6.3*6
	220	500	0.12	45	800	6.3*6
	220	500	0.12	30	900	6.3*9
	330	660	0.12	30	900	6.3*9
	560	1120	0.12	30	1000	8*11.5
	560	1120	0.12	30	1500	10*12.5
	1000	2000	0.12	22	1300	10*12.5
	1500	3000	0.12	22	1300	10*12.5
16	47	500	0.12	60	500	6.3*6
	68	500	0.12	60	600	6.3*6
	100	500	0.12	45	700	6.3*6
	150	500	0.12	45	700	6.3*6
	150	500	0.12	38	700	6.3*9
	180	576	0.12	90	700	6.3*6
	180	576	0.12	38	800	6.3*9
	220	704	0.12	38	700	6.3*9
	270	864	0.12	38	700	6.3*9
	560	1792	0.12	30	1000	8*11.5
	680	2176	0.12	30	1200	10*12.5
1000	3200	0.12	30	1200	10*12.5	
25	22	500	0.12	75	300	6.3*6
	47	500	0.12	75	500	6.3*6
	47	500	0.12	55	600	6.3*9
	56	500	0.12	75	500	6.3*6
	100	500	0.12	75	600	6.3*6
	100	500	0.12	45	700	6.3*9
	150	750	0.12	45	700	6.3*9
	220	1100	0.12	45	700	8*11.5
	330	1650	0.12	45	800	8*11.5
	330	1650	0.12	35	800	10*12.5
470	2350	0.12	35	900	10*12.5	
35	22	500	0.12	90	300	6.3*6
	47	500	0.12	70	300	6.3*6
	47	500	0.12	75	400	6.3*9
	68	500	0.12	60	500	6.3*9
	100	700	0.12	60	600	6.3*9
	100	700	0.12	45	900	8*11.5
	150	1050	0.12	45	900	8*11.5
	220	1540	0.12	45	700	8*11.5
	270	1890	0.12	45	700	8*11.5
	270	1890	0.12	45	800	10*12.5
	330	2310	0.12	45	800	10*12.5
470	3290	0.12	45	900	10*12.5	

VF SERIES

- 固态贴片，长寿命品
Solid SMD, long life product 105℃ 3000~5000Hrs.
- 适用于系统主板、显卡、小型充电器和智能电视
Suitable to System Board, Display Card, Small Changer and intelligent TV.
- 符合RoHS
RoHS compliance

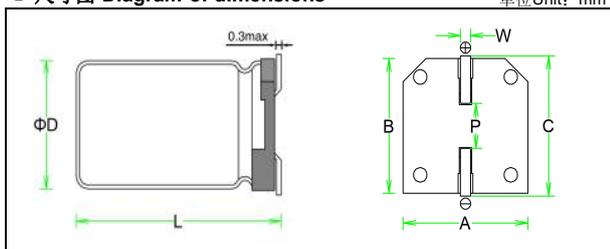


■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+105℃		
额定电压范围 Rated voltage range	2.5~35V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25℃ 120Hz)		
漏电流 Leakage current	≤0.2CV or 500μA, whichever is greater (at 20℃ after 2 minutes)	20℃ I: 漏电流 I: Leakage current	20℃, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20℃ V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性 Endurance	在105℃下应用额定电压3000~5000小时后，电容器应符合以下要求： After applying rated voltage for 3000~5000 hours at 105℃, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	
浪涌测试 Surge test	经过1000个循环，每个循环包括通过保护电阻器在常温下以规定浪涌电压充电30秒，然后放电5分30秒，电容器应符合以下要求： After subjecting to 1000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.		
	容量变化 Capacitance change	≤初始值的±20% ≤±20% of the initial value	
	漏电流 Leakage current	≤初始规格值 ≤The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value	
	损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	ΦD (-0.1~+0.5)	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P ±0.2
6.3*6	6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz≤Freq.<1kHz	1kHz≤Freq.<10kHz	10kHz≤Freq.<100kHz	100kHz≤Freq.<300kHz
系数 coefficient	0.05	0.30	0.70	1.00

VF SERIES

■ 标准品一览表 List of standard products

(ESR: 20℃ 100kHz/Ω Max, Rated ripple current: mA rms/105℃ 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
2.5	330	500	0.08	24	2400	6.3*6
	390	500	0.08	24	2500	6.3*6
	470	500	0.08	24	2600	6.3*6
	560	500	0.08	24	2700	6.3*6
	680	500	0.08	18	3800	6.3*9
6.3	220	500	0.08	24	2500	6.3*6
	270	500	0.08	24	2700	6.3*6
	330	500	0.08	24	2700	6.3*6
	470	592	0.08	18	3100	6.3*9
	560	705	0.08	18	3300	6.3*9
	1000	1260	0.08	18	3800	8*11.5
	1500	1890	0.08	18	3900	8*11.5
10	2200	2772	0.08	18	5000	10*12.5
	120	500	0.12	35	2400	6.3*6
	220	500	0.12	35	2400	6.3*6
	220	500	0.12	22	2700	6.3*9
	330	660	0.12	22	2700	6.3*9
	560	1120	0.12	22	3200	8*11.5
	560	1120	0.12	22	4500	10*12.5
	1000	2000	0.12	16	3900	10*12.5
16	1500	3000	0.12	16	3900	10*12.5
	47	500	0.12	45	1500	6.3*6
	68	500	0.12	45	1800	6.3*6
	100	500	0.12	35	2100	6.3*6
	150	500	0.12	35	2100	6.3*6
	150	500	0.12	27	2300	6.3*9
	180	576	0.12	27	2400	6.3*9
	220	704	0.12	27	2200	6.3*9
	270	864	0.12	27	2300	6.3*9
	560	1792	0.12	22	3100	8*11.5
25	680	2176	0.12	22	3600	10*12.5
	1000	3200	0.12	22	3600	10*12.5
	27	500	0.12	55	900	6.3*6
	47	500	0.12	55	1600	6.3*6
	47	500	0.12	40	1800	6.3*9
	56	500	0.12	55	1600	6.3*6
	100	500	0.12	55	1800	6.3*6
	100	500	0.12	35	2100	6.3*9
	150	750	0.12	35	2200	6.3*9
	220	1100	0.12	35	2300	8*11.5
35	330	1650	0.12	35	2400	8*11.5
	330	1650	0.12	24	2500	10*12.5
	470	2350	0.12	24	2700	10*12.5
	22	500	0.12	66	900	6.3*6
	47	500	0.12	66	900	6.3*6
	47	500	0.12	55	1300	6.3*9
	68	500	0.12	44	1600	6.3*9
	100	700	0.12	44	1800	6.3*9
	100	700	0.12	33	2700	8*11.5
	150	1050	0.12	33	2700	8*11.5
35	220	1540	0.12	33	2100	8*11.5
	270	1890	0.12	33	2200	8*11.5
	270	1890	0.12	33	2400	10*12.5
	330	2310	0.12	33	2400	10*12.5
	470	3290	0.12	33	2700	10*12.5

EA SERIES



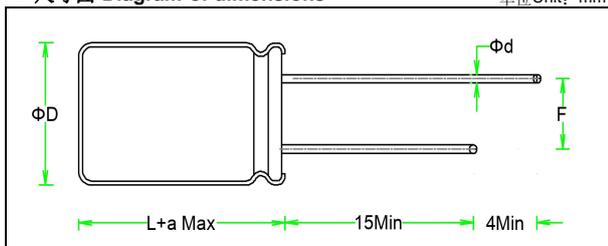
- 固液混合插件型，低ESR和125℃ 4000H高耐温；
Hybrid radial type, low ESR and high-temperature resistance product 125℃ 4000Hrs.
- 推荐应用：车用电子设备、基站
Recommended applications: Automotive electronics, The base station.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+125℃		
额定电压范围 Rated voltage range	25~63V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25℃ 120Hz)		
漏电流 Leakage current	≤0.01CV or 3μA, whichever is greater (at 20℃ after 2 minutes)	20℃ I: 漏电流 I: Leakage current	20℃, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20℃ V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性Endurance	在125℃环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到20℃进行测量时，应满足以下要求： In the environment of 125℃, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 20℃, and following requirements should be met:		
125℃,4000小时 额定电压下 125℃,4000 hours, at rated voltage	容量变化 Capacitance change	≦初始值的±30% ≦±30% of the initial value	
	漏电流 Leakage current	≦初始规格值 ≦The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≦初始规格值的200% ≦200% of the initial specification value	
	损失角正切值 Dissipation factor	≦初始规格值的200% ≦200% of the initial specification value	
耐湿性Humidity resistance	在85℃±2℃和85~90%RH下施加额定电压1000小时后，待产品温度恢复到20℃进行测量时，电容器应满足以下要求： After applying rated voltage for 1000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements when its temperature backs to 20℃:		
带负荷存放在 85℃,85~90%RH,1000小时 On-load stored at 85℃,85~90%RH,1000 hours	容量变化 Capacitance change	≦初始值的±30% ≦±30% of the initial value	
	漏电流 Leakage current	≦初始规格值 ≦The initial specification value	
	等效串联电阻(ESR) Equivalent series resistance	≦初始规格值的200% ≦200% of the initial specification value	
	损失角正切值 Dissipation factor	≦初始规格值的200% ≦200% of the initial specification value	

■ 尺寸图 Diagram of dimensions

单位Unit: mm



Φ D (-0.1~+0.5)	a	F±0.5	Φ d±0.05
6.3	±1.0	2.5	0.5
8.0	±1.0	3.5	0.6
10.0	±1.0	5.0	0.6

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz ≦ Freq. < 1kHz	1kHz ≦ Freq. < 10kHz	10kHz ≦ Freq. < 100kHz	100kHz ≦ Freq. < 300kHz
系数 coefficient	0.05	0.30	0.70	1.00

EA SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/125°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
25	100	25	0.12	35	1200	6.3*7
	270	67.5	0.12	27	1700	8*10
	330	82.5	0.12	25	1800	10*10
	470	117.5	0.12	20	2000	10*10
	560	140	0.12	18	2500	10*12
35	47	16.5	0.12	40	1100	6.3*7
	68	23.8	0.12	40	1200	6.3*8
	120	42	0.12	30	1400	8*10
	220	77	0.12	30	1800	10*10
	330	115.5	0.12	20	2500	10*12
	470	164.5	0.12	20	3000	10*16
50	22	11	0.12	90	900	6.3*8
	56	28	0.12	30	1400	8*10
	100	50	0.12	28	1600	10*10
	150	75	0.12	20	2200	10*12
	220	110	0.12	18	2600	10*16
63	15	9.5	0.12	100	800	6.3*8
	47	29.6	0.12	40	1100	8*10
	56	35.3	0.12	35	1200	10*10
	100	63	0.12	20	2100	10*12
	150	94.5	0.12	20	2400	10*16

SA SERIES



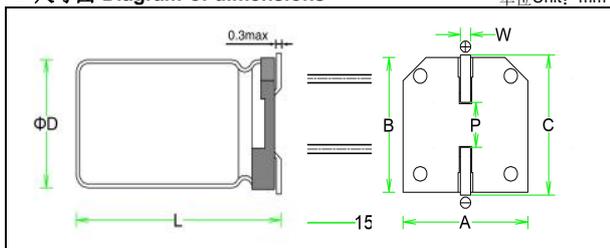
- 固液混合贴片型，低ESR和125℃ 4000H高耐温；
Hybrid surface mount type, low ESR and high-temperature resistance product 125℃ 4000Hrs.
- 推荐应用：车用电子设备、基站
Recommended applications: Automotive electronics, The base station.
- 符合RoHS
RoHS compliance

■ 主要技术性能 Specifications

项目 Item	特性 Characteristics		
工作温度范围 Operating temperature range	-55~+125℃		
额定电压范围 Rated voltage range	25~63V _{dc}		
标称容量允许偏差 Nominal capacitance tolerance	±20% (M) (at 25℃ 120Hz)		
漏电流 Leakage current	I≤0.01CV or 3µA, whichever is greater (at 20℃ after 2 minutes)	20℃ I: 漏电流 I: Leakage current	20℃, 120Hz C: 标称容量 C: Nominal capacitance
损失角正切值(tanδ) Dissipation factor	不超过指定值 Not to exceed the value specified		20℃ V: 额定电压 V: Rated voltage
等效串联电阻(ESR) Equivalent series resistance	不超过指定值 Not to exceed the value specified		at 100kHz
耐久性Endurance	在125℃环境中，连续加载直流电压与额定纹波电流规定时间后，待产品温度恢复到20℃进行测量时，应满足以下要求： In the environment of 125℃, after continuous loading of DC voltage and rated ripple current for specified time, the product shall be tested after its temperature back to 20℃, and following requirements should be met:		
容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value		
漏电流 Leakage current	≤初始规格值 ≤The initial specification value		
等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value		
损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		
耐湿性Humidity resistance	在85℃±2℃和85~90%RH下施加额定电压1000小时后，待产品温度恢复到20℃进行测量时，电容器应满足以下要求： After applying rated voltage for 1000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements when its temperature backs to 20℃:		
容量变化 Capacitance change	≤初始值的±30% ≤±30% of the initial value		
漏电流 Leakage current	≤初始规格值 ≤The initial specification value		
等效串联电阻(ESR) Equivalent series resistance	≤初始规格值的200% ≤200% of the initial specification value		
损失角正切值 Dissipation factor	≤初始规格值的200% ≤200% of the initial specification value		

■ 尺寸图 Diagram of dimensions

单位Unit: mm



尺寸 Size D*L(mm)	ΦD (-0.1~+0.5)	L ±0.5	A ±0.2	B ±0.2	C ±0.2	W	P ±0.2
6.3*6	6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3*7.7	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8*10.5	8.0	10.5	8.3	8.3	9.0	0.7~1.1	3.1
8*12.5	8.0	12.5	8.3	8.3	9.0	0.7~1.1	3.1
10*12.5	10.0	12.5	10.3	10.3	11.0	0.7~1.1	4.5
10*16.5	10.0	16.5	10.3	10.3	11.0	0.7~1.1	4.5

■ 纹波电流频率校正因子 Frequency correction factor for RC

频率 Frequency	120Hz ≤ Freq. < 1kHz	1kHz ≤ Freq. < 10kHz	10kHz ≤ Freq. < 100kHz	100kHz ≤ Freq. < 300kHz
系数 coefficient	0.05	0.30	0.70	1.00

SA SERIES

■ 标准品一览表 List of standard products

(ESR: 20°C 100kHz/Ω Max, Rated ripple current: mA rms/125°C 100kHz)

电压 VV (V _{dc})	容量 Cap (μF)	漏电流 Lc (μA)	tanδ	ESR (mΩ)	额定纹波电流 (mA) Rated ripple current	尺寸 Size D*L(mm)
25	100	25	0.12	30	1400	6.3*7.7
	220	55	0.12	27	1600	8*10.5
	470	117.5	0.12	20	2000	10*10.5
	560	140	0.12	20	2900	10*12.5
35	47	16.5	0.12	60	900	6.3*6
	68	23.8	0.12	35	1400	6.3*7.7
	150	52.5	0.12	27	1600	8*10.5
	270	94.5	0.12	20	2000	10*10.5
	330	115.5	0.12	20	2500	10*12.5
	470	164.5	0.12	15	4000	10*16.5
50	33	16.5	0.12	40	1100	6.3*7.7
	68	34	0.12	30	1250	8*10.5
	100	50	0.12	28	1600	10*10.5
	150	75	0.12	20	2250	10*12.5
63	22	13.9	0.12	80	900	6.3*7.7
	47	29.6	0.12	30	1100	8*10.5
	82	51.7	0.12	30	1400	10*10.5
	100	63	0.12	20	2100	10*12.5
	150	94.5	0.12	15	2800	10*16.5