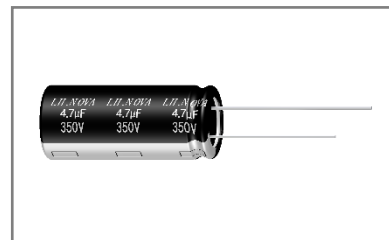


■ ALE 系列铝电解电容器

ALE Series Aluminum Electrolytic Capacitor

◆ 特征 Features

- * 寿命: 105℃ 2000~5000 小时
Load life: 105℃ 2000~5000 hours.
- * 低阻抗性
Low impedance.
- * 符合 AEC-Q200
Compliant to the AEC-Q200 Directive.
- * 符合 RoHS
Compliant to the RoHS Directive.

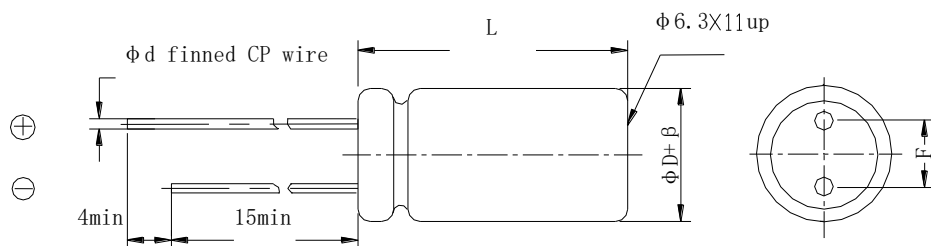


◆ 应用 Application

- * 适用于汽车模块电子产品
Ideally suited for automobile modules.

◆ 型号表示法 Part Number

8		222		LA		M		0511		AE		N		0		1		B		0			
代码 Code		产品类别 Type		代码 Code		电压 Voltage		代码 Code		尺寸 Dimensions ΦDxL(mm)		代码 Code		商标 Trademark		代码 Code		内码 Internal Code		代码 Code		产品脚型 Lead Forming Type	
8		成品 Product		LA		6.3		0511		Φ5x11		N		LH.NOVA		1		105℃		0		散装品 Bulk	
				LB		10		AA12		Φ6.3x12						2		125℃		P		直脚方式 编带品 original type(vertical tape)	
				LC		16		0812		Φ8x12						8		85℃					
				LD		25		1020		Φ10x20													
				MD		250		AB25		Φ12.5x25													
				VA		400																	
				VB		450																	
代码 Code		标称容量 Nominal Capacitance		代码 Code		误差 Tolerance		代码 Code		型号 Series		代码 Code		胶管颜色 Sleeve Color		代码 Code		内码 Internal Code					
1R0		1uF		K		±10%		V		± ²⁰ ₁₀ %		AE		ALE		0		黑色 Black		B		汽车电子 Automotive electronics cartronics	
470		47uF		V		± ²⁰ ₁₀ %										1		深蓝色 Deep-blue					
222		2200uF		M		±20%										7		棕色 Brown					
183		18000uF		Q		± ³⁰ ₁₀ %										9		绿色 Green					

◆产品结构
Product Structure


$\beta(\text{mm})$	± 0.5			± 1.0				
$\Phi D(\text{mm})$	5	6.3	8	10	12.5	16	18	22
$F \pm 0.5(\text{mm})$	2.	2.5	3.5	5.0		7.5		10.0
$\Phi d \pm 0.1(\text{mm})$	0.5		0.6		0.8	0.8		
$L(\text{mm})$	11,12	12,16	12,16,	16,20	25	16,20,25,30,35	20,25,30,35,40	25,30,35,40
$L \pm 2.0$								

◆主要特性表
Main specifications

项目 Item	主要特性 Performance Characteristics									
额定工作电压范围 Rated Voltage Range	6.3~100V.DC	160~450V.DC								
使用温度范围 Operating Temperature Range	-55℃~+105℃	-40℃~+105℃								
标称静电容量范围 Nominal Capacitance Range	1~18000 μ F									
静电容量允许偏差 Capacitance Tolerance	±20% (M, +20℃, 120Hz)									
漏电流 Leakage Current (20℃)	额定工作电压(V) Rated working voltage	6.3~100	160~450							
	漏电流 Leakage current	2 分钟后 ≤0.01CV 或 3(μA),取最大值 After 2 min. ≤0.01CV or 3(μA), Whichever is greater.	2 分钟后 ≤0.03CV+25(μA) After 2 min . ≤0.03CV+25(μA)							
	C: 标称静电容量 (μF) Nominal Capacitance in μF V: 额定工作电压 (V) Rated working voltage in V									
损耗角正切 DF Dissipation Factor										
	额定工作电压(V) Rated working voltage	6.3	10	16	25	35	50	63	80~100	160~450
	DF(MAX) (20℃,120Hz)	0.18	0.16	0.14	0.12	0.12	0.10	0.09	0.08	0.10
当容量值大于 1000μF 时, 每增加 1000μF, DF 值加 0.02 For capacitance of more than 1000μF,add 0.02 for every increase of 1000μF.										

浪涌电压 Surge Voltage Test	<table><tr><td>额定工作电压(V) Rated working voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr><tr><td>浪涌电压(V) Surge voltage</td><td>8</td><td>13</td><td>20</td><td>32</td><td>44</td><td>63</td><td>79</td><td>125</td><td>200</td><td>250</td><td>300</td><td>400</td><td>450</td><td>500</td></tr></table>															额定工作电压(V) Rated working voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	浪涌电压(V) Surge voltage	8	13	20	32	44	63	79	125	200	250	300	400	450	500																																																												
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	施加表中所示浪涌电压, 充电 30±5 秒, 放电 5.5±0.5 分钟作为一个周期, 共进行 1000 次。测试温度: 15°C-35°C然后在标准大气条件下放置达到热稳定, 测试各参数。 Application of DC surge Voltage stated at table,1000 times of charging for 30 ± 5 sec.,discharging with a period of 5.5± 0.5 min.. Test temperature: 15°C -35°CAnd the capacitor shall be stored under standard atmospheric conditions to obtain thermal stability, after which measurements shall be made.																																																																																																								
容量变化: 在初始值的± 20%以内。损耗角正切值不大于规定值的 200%。漏电流: 不大于初始规定值 Capacitance change:Within ± 20% of the initial value Dissipation factor:Not more than 200% of the specified value.Leakage current: more than the initial specified value																																																																																																									
温度特性 Temperature Characteristic	电容器根据下表的次序处理, 放置在每一温度下, 待阻抗或电容量稳定后方可测试。 The capacitor shall be subjected in turn to the procedures specified below. The capacitor should be stored at each temperature until measured impedance or capacitance are stabilized.																																																																																																								
	<table><tr><td>阶段 Step</td><td colspan="10">温度 Temperature</td><td colspan="4">时间 Time</td></tr><tr><td>1</td><td colspan="10">20±2°C</td><td colspan="4">热平衡状态 Thermal balance</td></tr><tr><td>2</td><td colspan="10">下限类别温度 Lower temperature</td><td colspan="4">2 hours</td></tr><tr><td>3</td><td colspan="10">20±2°C</td><td colspan="4">热平衡状态 Thermal balance</td></tr><tr><td>4</td><td colspan="10">105±2°C</td><td colspan="4">2 hours</td></tr><tr><td>5</td><td colspan="10">20±2°C</td><td colspan="4">热平衡状态 Thermal balance</td></tr></table>															阶段 Step	温度 Temperature										时间 Time				1	20±2°C										热平衡状态 Thermal balance				2	下限类别温度 Lower temperature										2 hours				3	20±2°C										热平衡状态 Thermal balance				4	105±2°C										2 hours				5	20±2°C										热平衡状态 Thermal balance			
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	阶段 1: 测定容量, 损耗和阻抗值。 Step 1: Capacitance, Dissipation Factor and impedance shall be measured.																																																																																																								
	阶段 2: 放置 2 小时后, 达到热平衡状态再测定容量, 损耗和阻抗值。 Step 2: After the capacitor being stored for 2 hours, Capacitance, Dissipation Factor and impedance shall be Measured. The measurement shall be made at thermal stability.																																																																																																								
阶段 4: 放置 2 小时后, 达到热平衡状态再测定容量, 损耗和阻抗值。 Step 4: After the capacitor being stored for 2 hours, Capacitance, Dissipation Factor and impedance shall be Measured. The measurement shall be made at thermal stability.																																																																																																									
阻抗比 (阶段 2 对阶段 1) Impedance ratio																																																																																																									
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静电容量变化率 (阶段 4 对阶段 1) : 阶段 1 的±20% Capacitance change: within ±20% of step 1																																																																																																									
漏电流 (阶段 4) : 规定值 5 倍以下 Leakage Current: Less than 500% of the specified value.																																																																																																									

<p>高温负荷特性 Load life</p>	<p>在 $105 \pm 2^{\circ}\text{C}$ 环境施加额定工作电压和最大允许纹波电流到规定寿命后, 电容器的性能符合下面要求:</p> <p>After application of rated working voltage with max permissible ripple current specified at $105 \pm 2^{\circ}\text{C}$ for specified life time, capacitors meet the characteristics requirements measured listed at below:</p> <p>电容量变化率: $\pm 20\%$ 初始测量值以内 Capacitance change: $\pm 20\%$ initial measured value</p> <p>漏电流: \leq 初始规定值 Leakage current: \leq initial specified value</p> <p>损耗角正切值 $\leq 200\%$ 倍初始规定值 Dissipation factor: $\leq 200\%$ initial specified value</p> <table border="1" data-bbox="1133 403 1404 616"> <thead> <tr> <th>外径 Case Dia</th><th>时间 (hrs) Life Time</th></tr> </thead> <tbody> <tr> <td>$\phi D \leq 6.3$</td><td>2000</td></tr> <tr> <td>$\phi D = 8; 10$</td><td>3000</td></tr> <tr> <td>$\phi D \geq 12.5$</td><td>5000</td></tr> </tbody> </table>	外径 Case Dia	时间 (hrs) Life Time	$\phi D \leq 6.3$	2000	$\phi D = 8; 10$	3000	$\phi D \geq 12.5$	5000
外径 Case Dia	时间 (hrs) Life Time								
$\phi D \leq 6.3$	2000								
$\phi D = 8; 10$	3000								
$\phi D \geq 12.5$	5000								
<p>高温贮存特性 Shelf life</p>	<p>试验温度: $105 \pm 2^{\circ}\text{C}$ 环境下无负荷贮存 Test temperature: without voltage load at $105 \pm 2^{\circ}\text{C}$</p> <p>试验时间: 1000 小时 Test time : 1000h</p> <p>外观: 无异状 Appearance: No remarkable abnormality</p> <p>电容量变化率: $\pm 20\%$ 初始测量值以内 Capacitance change : $\pm 20\%$ initial measured value</p> <p>漏电流: $\leq 200\%$ 倍初始规定值 Leakage current: $\leq 200\%$ initial specified value</p> <p>损耗角正切值 $\leq 200\%$ 倍初始规定值 Dissipation factor: $\leq 200\%$ initial specified value</p>								
<p>温度循环 Temperature Cycling</p>	<p>试验温度: 高温: 上限类别温度、低温: 下限类别温度; 高低温暴露时间: 各 30 分钟; 转换时间: 小于 1 分钟; 循环次数: 1000 次; 试验结束后 (24 ± 4) 小时内进行测试。 Expose to the upper and lower category temperatures for 30 minutes each, with a transition time of less than 1 minute between high and low temperatures, and cycle 1000 times. The test shall be conducted within 24 ± 4 hours after the end of the experiment.</p> <p>外观: 无可见损伤和电解质漏出 Appearance: No remarkable damage and electrolyte leakage</p> <p>容量变化: 在初始值 $\pm 20\%$ 范围内 Variation of capacitance: Within $\pm 20\%$ of the initial value.</p> <p>漏电流: $\leq 200\%$ 倍初始规定值 Leakage current: $\leq 200\%$ initial specified value</p> <p>损耗角正切值 $\leq 200\%$ 倍初始规定值 Dissipation factor: $\leq 200\%$ initial specified value</p>								

耐焊接热 Resistance to soldering heat	焊槽法： 焊锡温度：260±5℃； 浸入时间：10±1 秒； 浸入深度：1.6mm Solder bath method Solder bath temperature：260±5℃ Immersion time：10±1sec. Immersion depth: 1.6mm 外观：无异状 Appearance: No remarkable abnormality 容量变化：在初始值±10%范围内 Variation of capacitance: Within ±10% of the initial value. 损耗角正切值：不大于规定值 Dissipation factor: ≤specified value 漏电流：不大于规定值 Leakage current: ≤specified value																								
防爆试验 Safety vent	以下试验只适用于铝壳直径≥Φ8 产品。 The following tests only apply to those products with vent products at diameter≥Φ8 with vent. 在电容器两极施加反向直流电压，其中通过的电流为 1A，在测试时防爆装置应能在 30 分钟内动作。 DC Application test: The capacitor shall be subjected to a reverse DC voltage. The current flowing through the capacitor shall be 1A. If the vent does work with the voltage applied for 30 minutes, the test is considered to be passed. 应无引线、铝箔等散射，无火花产生 The safety vent is actuated under the test conditions, thereby preventing terminals, metal pieces, etc, of the capacitor from scattering due to burst, the case from separating from the seal packing, or the capacitor from producing flame.																								
端子强度 Terminal strength	端子抗拉强度：沿电容器端子引线方向施加拉力(如下表)，10±1 秒。 <table><tr><td>引线直径 φ</td><td>0.45</td><td>0.50</td><td>0.60</td><td>0.80</td><td>1.00</td></tr><tr><td>拉力 N</td><td>5</td><td>5</td><td>10</td><td>10</td><td>20</td></tr></table> Tensile strength of terminal: A static load shall be applied to the terminal in the axial direction and acting in a direction away from the body for 10±1 sec. 端子抗弯强度：在电容器引线施加固定重力（如下表），然后 5 秒内完成将电容体弯折 90°后回到原位，再向相反方向弯折 90°后回到原位。 <table><tr><td>引线直径 φ</td><td>0.45</td><td>0.50</td><td>0.60</td><td>0.80</td><td>1.00</td></tr><tr><td>拉力 N</td><td>2.5</td><td>2.5</td><td>5</td><td>5</td><td>10</td></tr></table> Bending strength of terminal: Hang the specified dead weight, in about 5 sec then bend the body through 90°, return to the original position. Next bend it in opposite direction through 90° with the same speed, again return to the original position 外观：无可见机械损伤 Appearance: no visible mechanical damage 电容器应无接触不良开路或短路 The capacitor shall be no intermittent contacts, or open or short circuiting	引线直径 φ	0.45	0.50	0.60	0.80	1.00	拉力 N	5	5	10	10	20	引线直径 φ	0.45	0.50	0.60	0.80	1.00	拉力 N	2.5	2.5	5	5	10
引线直径 φ	0.45	0.50	0.60	0.80	1.00																				
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拉力 N	2.5	2.5	5	5	10																				

<p>耐溶剂性 Solvent Resistance</p>	<p>三种溶剂： 溶剂 a、在 20°C~30°C按下述配方构成混合溶剂：1）一份体积的分析纯异丙醇；2）三份体积的 80%体积的煤油和 20%体积的乙苯构成的混合液； 溶剂 b、三氯三氟乙烷，半水溶性的溶剂； 溶剂 c、在 63°C~70°C，按下述配方构成混合溶剂；1）42 份体积的去离子水； 2）一份体积的乙二醇-丁醚；3）一份体积的单乙醇胺； 将样品分成 3 组，分别浸在 a、b、c 三种溶剂 3min 后擦拭 10 次；擦拭后，立即按上述方法再重复 2 回，浸、刷共 3 回。然后用水洗清洗剂进行清洗，并在室温下对整个表面进行通风干燥。</p> <p>The solvent solutions used in this test shall consist of the following:</p> <p>Solvent a: A mixture consisting of the following at 20°C~30°C:</p> <p>1) One part by volume of isopropyl alcohol.</p> <p>2) Three parts by volume of a mixture of 80% by volume of kerosene and 20% by volume ethyl benzene.</p> <p>Solvent b: Trichlorotrifluoroethane, semi water-soluble solvents.</p> <p>Solvent c: A mixture consisting of the following at 63°C~70°C:</p> <p>1) Forty-two parts by volume of deionized water.</p> <p>2) One part by volume of ethylene glycol butyl ether.</p> <p>3) One part by volume of monoethanolamine.</p> <p>The specimens subjected to this test shall be divided into three groups of approximately equal size, were immersed in a, b, c three solvents solutions. The specimens shall be completely immersed for 3 minutes, immediately following immersing, each specimen shall be tested as follows: The bristle portion of the brush, shall be dipped in the solution until wetted and the specimen shall be brushed with normal hand pressure (approximately 2 to 3 ounce applied normal to the surface) for ten strokes on the portion of the specimen where has been applied. The brush stroke shall be directed in a forward direction across the surface of the specimen being tested. Immediately after brushing, the procedure shall be repeated two more times, for a total of three immersions, followed by brushing. After completion of the third immersion and brushing, the specimens shall be rinsed in approximately 25°C water and all surfaces sir-blown dry.</p> <p>外观：无异状 Appearance: No remarkable abnormality 容量变化：在初始值±3%范围内 Capacitance change: Within ±3% of the initial value. 损耗角正切值：不大于规定值 Dissipation factor: ≤ specified value 漏电流：不大于规定值 Leakage current: ≤ specified value</p>
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<p>振动试验 Resistance To Vibration</p>	<p>在 X、Y、Z 三个互相垂直的方向分别进行 12 个循环，共 36 个循环，一个循环 20 分钟。 频率：10-2000Hz 加速度：5g. Perform 12 cycles in X, Y, and Z directions perpendicular to each other, for a total of 36 cycles, each lasting 20 minutes. Vibration frequency range: 10-2000Hz Acceleration: 5g</p> <p>外观：无可见机械损伤 Appearance: No visible mechanical damage 容量变化：在初始值±3%范围内 Capacitance change: Within ±3% of the initial value. 损耗角正切值：不大于规定值 Dissipation factor: ≤ specified value 漏电流：不大于规定值 Leakage current: ≤ specified value</p>
<p>可焊性 Solderability</p>	<p>焊锡温度：255±5℃ 浸入时间：5±0.5 秒 Temperature of solder: 255±5℃ Dipping time: 5±0.5sec. This specification shall be met after the capacitors are stored under standard atmospheric conditions for 6 months.</p> <p>浸入焊锡的引线表面积约 95%以上应附着新锡。 At least 95% of circumferential surface of the dipping portion of terminal shall be covered with new solder.</p>
<p>高温高湿 Biased Humidity</p>	<p>试验电压：额定电压 Test voltage: rated voltage 试验温湿度：85℃，85%RH Test temperature and humidity : 85℃，85%RH 试验时间：1000 小时 Test time :1000 h 试验结束后 24±4 小时后进行测试 Measurement at 24±4 hours after test conclusion.</p> <p>外观：绝缘套管的剥落、剥落、碎裂、起泡或收缩是可以接受的。 Appearance: Peeling, flaking, chipping, bubbling or shrinking of insulation sleeve is acceptable. 容量变化：在初始值±20%范围内 Capacitance change: Within ±20% of the initial value. 损耗角正切值：≤150% 规定值 Dissipation factor: ≤ 150% of specified value 漏电流：≤150%规定值 Leakage current: ≤ 150% of specified value</p>

◆尺寸表、允许纹波电流、纹波电流频率因子
Dimensions and ripple current and frequency coefficient

*纹波电流频率因子

Ripple current frequency coefficient

Cap(μF) \ Freq (Hz)	50 (60)	100 (120)	1K	10K	≥100K
6.8~33	0.30	0.42	0.70	0.90	1.00
39~270	0.35	0.50	0.73	0.92	1.00
330~680	0.40	0.55	0.77	0.94	1.00
820~1800	0.45	0.60	0.80	0.96	1.00
2200~18000	0.50	0.70	0.85	0.98	1.00

*尺寸表与允许纹波电流

Dimensions and ripple current

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
6.3	100	5×7	1	143
	150	5×11	0.58	200
	220	5×7	0.5	95
	220	5×11	0.45	285
	220	6.3×12	0.32	323
	270	6.3×12	0.32	323
	330	6.3×12	0.28	323
	390	8×12	0.26	380
	470	8×12	0.25	456
	560	8×12	0.2	532
	680	6.3×12	0.13	608
	820	8×12	0.14	665
	1000	8×12	0.13	855
	1000	8×16	0.087	798
	1200	8×14	0.08	1150
	1200	10×16	0.06	1150
	1500	10×20	0.058	1330
	1800	12.5×16	0.058	1378
	2200	8×20	0.08	1473
	2200	10×16	0.08	1473
	2200	10×20	0.055	1568
	2700	10×30	0.055	1815
	3300	10×20	0.055	1425
	3300	10×25	0.052	1710
	3300	12.5×20	0.056	1805
	3900	12.5×25	0.05	2119
	4700	12.5×30	0.045	2518

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	5600	12.5×35	0.04	2736
	6800	16×25	0.03	2784
	8200	16×30	0.025	3278
	10000	16×35	0.023	3430
	12000	18×35	0.02	3962
	15000	18×35	0.018	4009
	18000	18×40	0.015	4066
10	100	5×11	0.58	200
	220	5×11	0.6	238
	220	6.3×12	0.22	323
	270	8×12	0.15	323
	330	8×12	0.19	456
	390	8×12	0.15	390
	470	6.3×12	0.15	523
	470	8×12	0.14	608
	560	8×12	0.098	722
	560	10×12	0.093	665
	680	6.3×14	0.25	523
	680	8×12	0.098	722
	680	8×16	0.087	798
	820	10×12	0.085	817
	1000	8×12	0.1	855
	1000	8×16	0.09	950
	1000	10×12	0.09	1150
	1000	10×16	0.06	1150
	1200	10×20	0.06	1330
	1500	10×16	0.07	1568
	1500	10×20	0.058	1568
	1800	10×20	0.058	1663
	2200	10×16	0.065	1710
	2200	10×20	0.058	1805
	2200	12.5×20	0.053	1805
	2700	12.5×25	0.045	2100
	2700	16×20	0.043	2109
	3300	10×25	0.09	2071
	3300	12.5×20	0.07	1995
	3300	12.5×25	0.035	2119
	3900	12.5×30	0.03	2518
	4700	10×30	0.07	1520

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	4700	16×25	0.028	1710
	5600	16×25	0.025	2784
	6800	12.5×25	0.038	1710
	6800	16×25	0.023	3278
	6800	16×30	0.023	3278
	8200	16×35	0.017	3430
	10000	18×35	0.014	4009
16	10	5×11	1.5	95
	15	5×11	1.4	98
	22	5×11	1.2	143
	33	5×11	0.65	200
	47	5×11	0.65	171
	47	6.3×7	0.7	171
	47	6.3×12	0.65	181
	56	5×11	0.63	171
	68	5×11	0.58	181
	82	5×11	0.55	190
	100	6.3×7	0.67	124
	100	5×11	0.5	190
	100	6.3×12	0.4	204
	120	6.3×12	0.22	266
	150	6.3×12	0.22	285
	220	6.3×7	0.55	285
	220	6.3×12	0.19	304
	220	8×12	0.19	456
	270	8×12	0.16	523
	270	8×12	0.18	527
	390	8×12	0.12	665
	470	8×12	0.1	713
	470	8×16	0.11	822
	470	10×12	0.08	822
	560	8×16	0.08	855
	680	8×16	0.087	855
	680	10×12	0.087	855
	680	10×16	0.06	1150
	820	10×20	0.06	1150
	1000	8×16	0.1	1045
	1000	10×12	0.11	1045
	1000	10×16	0.06	1150

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	1000	10×20	0.055	1330
	1200	10×20	0.05	1568
	1500	10×16	0.065	1150
	1500	10×20	0.05	1663
	1500	12.5×20	0.045	1805
	1800	12.5×20	0.055	1900
	1800	12.5×25	0.045	1905
	2200	10×30	0.065	1995
	2200	12.5×20	0.053	1805
	2200	12.5×25	0.045	2119
	2200	12.5×30	0.046	2119
	2700	16×20	0.027	2404
	2700	16×25	0.043	2408
	3300	12.5×25	0.045	2233
	3300	16×25	0.035	2375
	3900	16×25	0.028	2784
	4700	12.5×30	0.058	2850
	4700	16×25	0.03	3088
	4700	16×30	0.025	3278
	5600	16×35	0.02	3430
	6800	16×30	0.055	3325
	6800	18×25	0.028	3610
	6800	18×35	0.018	3876
	8200	18×35	0.016	4009
	10000	18×40	0.014	4066
	15000	18×35	0.038	3895
25	10	5×11	1.5	95
	15	5×11	1.3	114
	22	5×11	0.93	143
	33	5×7	0.68	171
	33	5×11	0.58	200
	47	5×11	0.58	200
	47	6.3×11	0.58	200
	47	6.3×12	0.45	200
	56	5×11	0.55	219
	68	5×11	0.45	228
	82	5×11	0.38	238
	82	6.3×11	0.24	285
	100	5×11	0.38	238

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	100	6.3×12	0.22	266
	100	6.3×14	0.4	361
	120	8×12	0.2	333
	150	6.3×12	0.22	418
	150	8×12	0.19	456
	220	6.3×11	0.17	475
	220	8×12	0.13	608
	220	10×12	0.08	822
	270	10×12	0.11	665
	330	8×12	0.11	713
	330	8×16	0.095	822
	330	10×12	0.08	822
	390	8×16	0.11	822
	390	10×12	0.08	855
	470	8×12	0.11	808
	470	8×14	0.08	822
	470	10×16	0.06	1150
	560	10×16	0.07	1235
	560	10×20	0.075	1283
	680	8×20	0.085	1140
	680	10×14	0.075	1140
	680	10×16	0.065	1330
	680	10×20	0.056	1330
	820	8×20	0.08	1235
	820	10×16	0.08	1473
	820	10×20	0.05	1568
	1000	10×16	0.055	1425
	1000	10×20	0.048	1568
	1000	12.5×20	0.043	1805
	1000	12.5×25	0.043	1805
	1200	12.5×25	0.043	2100
	1500	12.5×20	0.05	1900
	1500	12.5×25	0.043	2119
	1800	12.5×25	0.038	2404
	1800	16×20	0.027	2408
	2200	10×30	0.055	2470
	2200	12.5×20	0.045	2375
	2200	12.5×25	0.027	2470
	2200	16×25	0.033	2470

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	2700	16×25	0.03	2784
	3300	12.5×25	0.045	2518
	3300	16×30	0.025	3278
	3900	16×25	0.028	2784
	4700	16×25	0.043	3800
	4700	16×30	0.035	3800
	4700	18×35	0.023	4009
	5600	18×25	0.03	2375
	5600	18×40	0.018	4066
	6800	18×25	0.025	4750
	6800	18×30	0.026	4760
35	10	5×11	1.4	95
	15	5×11	1.2	143
	22	5×11	0.7	171
	33	5×11	0.58	200
	47	5×11	0.45	200
	47	6.3×12	0.35	228
	56	6.3×12	0.32	204
	68	6.3×12	0.32	266
	82	6.3×12	0.32	285
	100	6.3×11	0.3	527
	100	8×12	0.17	532
	120	8×12	0.15	694
	150	8×12	0.12	713
	150	10×12	0.12	722
	220	8×12	0.12	722
	220	10×12	0.1	822
	220	10×16	0.084	998
	270	8×12	0.11	822
	270	8×20	0.069	998
	330	8×12	0.07	822
	330	8×20	0.11	1026
	330	10×12	0.11	1150
	390	10×16	0.09	1216
	470	8×20	0.07	1140
	470	10×16	0.06	1235
	470	10×20	0.06	1330
	560	10×20	0.058	1568
	680	10×20	0.05	1710

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	680	12.5×16	0.058	1710
	680	12.5×20	0.045	1805
	820	12.5×20	0.043	1805
	1000	10×20	0.06	1568
	1000	10×30	0.075	1805
	1000	12.5×20	0.04	1805
	1000	12.5×25	0.035	2119
	1200	16×20	0.027	2404
	1200	16×25	0.032	2404
	1500	10×30	0.035	2660
	1500	12.5×25	0.043	2736
	1500	12.5×35	0.031	2736
	1800	16×25	0.03	2784
	2200	16×25	0.05	2375
	2200	18×20	0.05	2375
	2200	16×30	0.028	3278
	2700	18×30	0.023	3962
	2700	16×35	0.023	3278
	3300	18×25	0.018	4009
	3900	18×40	0.016	4066
	4700	18×30	0.04	4066
	4700	18×35	0.018	4066
50	1	5×11	5	21
	2.2	5×11	2.5	41
	3.3	5×11	2.3	45
	4.7	5×11	2	105
	6.8	5×11	1.8	109
	10	5×7	3	105
	10	5×11	1.4	118
	10	6.3×12	2	118
	22	5×11	0.7	171
	22	6.3×12	0.71	176
	33	6.3×12	0.58	200
	47	6.3×9	0.38	238
	47	8×12	0.5	285
	56	6.3×11	0.3	280
	56	6.3×12	0.35	280
	56	8×12	0.43	333
	68	8×12	0.33	380

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	82	8×12	0.28	456
	100	6.3×14	0.23	456
	100	8×12	0.17	527
	120	8×16	0.17	599
	150	8×12	0.15	646
	150	8×16	0.13	646
	150	10×12	0.12	722
	180	10×12	0.091	770
	180	8×20	0.091	770
	220	8×16	0.09	822
	220	10×12	0.09	822
	220	10×16	0.09	822
	220	10×20	0.084	998
	270	10×20	0.082	1140
	330	10×12	0.08	1140
	330	10×14	0.08	1140
	330	10×16	0.075	1188
	390	10×20	0.064	1425
	470	12.5×16	0.062	1425
	470	12.5×20	0.061	1577
	560	10×20	0.055	1710
	560	12.5×20	0.053	1758
	680	12.5×20	0.052	1805
	680	12.5×25	0.04	1910
	680	10×30	0.04	1910
	820	12.5×25	0.038	2100
	820	16×20	0.038	2100
	1000	12.5×35	0.035	2185
	1000	16×20	0.035	2185
	1000	16×25	0.035	2423
	1200	16×30	0.035	2860
	1200	16×35	0.035	2860
	1500	16×30	0.034	2898
	1500	16×35	0.029	2993
	1800	12.5×35	0.031	3021
	1800	12.5×40	0.031	3021
	1800	18×30	0.027	3040
	2200	16×30,35	0.03	3088
	2200	18×30	0.03	3116

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	2200	18×35	0.026	3496
	2700	18×40	0.026	3610
	3300	18×40	0.024	3753
	3300	22×25	0.03	3610
63	1	5×11	5	21
	2.2	5×11	2.5	41
	3.3	5×11	2.3	45
	4.7	5×11	2	105
	6.8	5×11	1.8	109
	10	5×11	1.8	105
	22	6.3×12	1.3	143
	33	6.3×12	1.2	109
	47	8×12	0.85	157
	56	8×12	0.63	220
	68	8×16	0.3	399
	82	8×16	0.25	475
	100	8×16	0.4	485
	100	10×16	0.38	532
	120	8×20	0.16	618
	120	10×14	0.15	646
	150	10×12	0.14	656
	150	10×16	0.13	665
	180	10×20	0.01	779
	220	8×20	0.09	822
	220	10×16	0.09	822
	220	10×20	0.09	903
	270	12.5×20	0.09	1145
	330	12.5×25	0.089	1159
	390	12.5×25	0.089	1473
	390	16×20	0.088	1501
	470	12.5×20	0.061	1577
	470	16×20	0.06	1587
	560	16×25	0.06	1791
	680	12.5×25	0.058	1853
	680	12.5×25	0.055	1957
	820	16×25	0.038	2100
	820	16×30	0.038	2100
	1000	16×30	0.037	2423
	1200	18×25	0.032	2898

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	1200	18×35	0.032	2898
	1500	16×30	0.035	3021
	1500	18×40	0.036	3040
	1800	18×40	0.035	3116
	2200	18×35	0.03	3230
	2200	18×40	0.035	3563
	3300	18×40	0.024	3667
80	1	5×11	5	21
	2.2	5×11	2.5	41
	3.3	5×11	2.3	45
	4.7	5×11	2	105
	6.8	5×11	1.8	109
	10	5×11	1.8	105
	22	6.3×12	0.45	171
	33	6.3×12	1.2	111
	47	8×12	0.65	190
	56	8×12	0.63	220
	68	8×12	0.31	333
	82	8×16	0.45	285
	100	8×16	0.4	428
	100	10×12	0.4	428
	100	10×16	0.38	504
	120	8×20	0.35	513
	120	10×14	0.35	532
	150	10×16	0.22	551
	180	10×20	0.21	589
	220	10×20	0.17	627
	220	12.5×20	0.15	646
	270	12.5×20	0.15	727
	330	12.5×20	0.11	931
	330	12.5×25	0.11	931
	390	12.5×20	0.12	1169
	390	12.5×25	0.12	1216
	390	16×20	0.12	1254
	470	16×25	0.078	1492
	560	16×25	0.073	1511
	680	16×25	0.075	1710
	680	18×25	0.07	1729
	820	16×25	0.06	1758

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	820	16×30	0.054	1777
	1000	16×30	0.05	1900
	1000	18×25	0.045	1900
	1000	18×35	0.045	2185
	1200	18×25	0.043	2328
	1500	18×40	0.043	2375
	1800	18×40	0.025	3496
	2200	18×45	0.025	3496
100	1	5×11	6	21
	2.2	5×11	3.5	41
	3.3	5×11	3.5	45
	4.7	5×11	2.8	105
	6.8	5×11	2.3	52
	10	5×11	2	95
	10	6.3×12	1.6	105
	10	8×12	2	105
	22	6.3×12	1.3	109
	22	8×12	1	143
	33	8×12	0.55	190
	33	8×16	0.47	238
	47	8×12	0.45	190
	47	8×14,16	0.47	238
	47	10×12	0.48	274
	56	8×20	0.33	344
	68	10×12	0.35	333
	68	10×16	0.31	380
	82	10×20	0.23	443
	100	10×14	0.23	475
	100	10×16	0.22	551
	100	10×20	0.22	589
	120	12.5×16	0.2	589
	120	10×25	0.22	618
	120	12.5×20	0.16	656
	150	10×20	0.18	570
	150	12.5×20	0.16	618
	150	12.5×25	0.14	618
	180	12.5×25	0.12	741
	220	10×30	0.091	998
	220	12.5×20	0.091	988

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	220	12.5×25	0.091	988
	270	12.5×25	0.09	1093
	330	12.5×25	0.09	1140
	330	16×20	0.09	1188
	330	18×20	0.08	1178
	390	16×25	0.075	1492
	390	16×30	0.073	1492
	470	18×20	0.06	1568
	470	18×30	0.06	1549
	560	16×25	0.055	1710
	560	18×30	0.055	1919
	560	18×35	0.06	1919
	680	18×30	0.055	1701
	680	18×35	0.05	1701
	820	16×40	0.032	2375
	820	18×40	0.045	2214
	1000	18×35	0.03	2565
	1000	18×40	0.035	2570
	1200	18×40	0.036	2993
	1500	22×35	0.025	3021
	1800	18×40	0.02	3496
	2200	22×45	0.018	3515
160	10	6.3×12	4	76
	10	10×16	1.5	190
	15	10×20	1.3	238
	22	8×12	3	190
	22	10×16	1.3	238
	22	10×20	1	285
	33	10×16	0.9	380
	33	12.5×20	0.71	428
	47	10×16	0.7	475
	47	12.5×20	0.6	475
	68	12.5×20	0.68	428
	82	12.5×20	0.5	570
	82	12.5×25	0.45	580
	100	12.5×20	0.45	665
	100	16×25	0.4	903
	150	16×30	0.35	1188
	220	16×25, 30	0.27	1235

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	220	18×30	0.32	1330
	220	18×35	0.32	1330
	330	16×40	0.42	1520
	330	18×30	0.22	1520
	470	18×35	0.2	1710
	560	18×40	0.14	1710
	1000	18×45	0.08	1900
200	2.2	6.3×12	8	62
	3.3	6.3×12	8	62
	4.7	6.3×12	7	76
	5.6	8×12	2	76
	6.8	10×12	2.5	105
	8.2	10×12	2.5	105
	10	8×12	4	171
	10	10×16	1.8	266
	15	10×16	1.8	285
	22	8×14	2.5	285
	22	10×12	2.8	333
	22	10×16	1.2	333
	33	10×16	1.5	380
	33	10×20	1	380
	33	12.5×20	0.98	380
	33	12.5×25	0.55	523
	47	10×20	0.8	523
	47	12.5×16	0.95	523
	47	12.5×20	0.6	570
	47	12.5×25	0.6	570
	68	12.5×20	0.65	665
	68	12.5×25	0.58	670
	82	12.5×25	0.5	760
	100	12.5×20	0.75	713
	100	12.5×25	0.33	855
	100	16×25	0.4	903
	150	16×25	0.35	1045
	150	16×30	0.38	1050
	220	12.5×40	0.3	1140
	220	16×30	0.25	1140
	220	18×25,30	0.32	1235
	220	18×35	0.2	1235

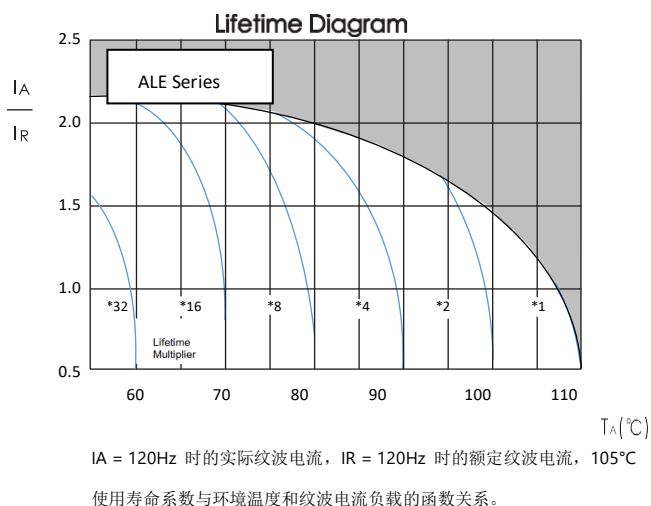
Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	330	18×30,35	0.22	1235
	470	18×40	0.22	1235
	470	22×35	0.25	1240
250	1	5×11	18	57
	1.2	6.3×12	12	43
	1.5	6.3×12	10	48
	2.2	6.3×12	8.5	76
	3.3	6.3×12	9	71
	4.7	6.3×12	7	76
	4.7	8×12	5.5	76
	4.7	10×16	2.5	105
	5.6	8×16	2.3	114
	6.8	8×12	4.5	124
	6.8	10×12	4.5	124
	6.8	10×16	2	124
	8.2	8×12	4.5	124
	8.2	10×12	4.5	124
	8.2	10×16	2	124
	10	8×12	2.5	143
	10	10×16	1.5	190
	10	10×20	1.5	190
	15	10×20	1.5	238
	22	10×16	1.8	238
	22	10×20	1.4	285
	22	12.5×20	1.3	285
	33	12.5×20	1	428
	33	12.5×25	1	432
	47	12.5×20	0.9	238
	47	12.5×25	0.85	238
	47	16×25	0.7	808
	68	16×25	0.45	808
	82	16×25	0.45	950
	100	16×25	0.45	1045
	100	18×35	0.8	1150
	150	18×35	0.35	1283
	220	18×40	0.14	1330
400	1	6.3×12	6.5	57
	1	8×12	9.5	67
	1.2	6.3×12	12	43

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	1.5	8×12	9	57
	2.2	6.3×11	10	48
	2.2	6.3×12	9.5	48
	2.2	8×12	8.5	57
	2.2	10×12	6.5	74
	3.3	8×10	10	86
	3.3	8×12	6.5	76
	3.3	10×12	4	86
	4.7	8×12	5	86
	4.7	10×16	4.1	90
	4.7	10×20	4.2	91
	5.6	8×14	6	76
	5.6	8×16	4.5	78
	6.8	10×12	4.5	76
	6.8	10×16	3.8	86
	6.8	10×20	3.2	105
	8.2	8×12	4	86
	8.2	8×16	2	228
	8.2	10×16	3.8	114
	10	8×12	4.5	114
	10	8×14	3	114
	10	10×12	4.5	143
	15	10×12	3.8	143
	15	10×16	3.5	171
	15	12.5×20	2.6	171
	22	12.5×16	2.5	200
	22	12.5×20	2.5	201
	22	12.5×25	1.3	204
	33	12.5×20	2.5	333
	33	12.5×25	1.3	333
	33	16×30	0.65	390
	47	16×20	1.2	618
	47	18×20	1	618
	47	16×25	0.75	380
	47	18×30	0.8	713
	68	16×25	0.95	713
	68	18×25	0.75	741
	68	18×30	0.75	741
	82	16×25	0.5	770

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	82	16×30	0.65	770
	82	18×35	0.65	770
	100	18×25	0.5	903
	100	18×30	0.6	903
	100	18×35	0.6	903
	100	22×25	0.5	903
	150	18×40	0.71	950
	150	22×40	0.55	1045
450	1	8×12	7	59
	1.2	6.3×12	12	43
	1.5	8×12	9	57
	2.2	8×12	9.5	65
	2.2	10×12	6.5	67
	3.3	8×12	11	76
	3.3	10×16	4	86
	4.7	10×12	3.5	105
	4.7	10×16	4.5	109
	4.7	10×20	3.5	112
	5.6	10×20	3.5	114
	6.8	10×16	3.5	124
	6.8	10×20	3	124
	8.2	10×16	3.5	124
	8.2	10×20	3	124
	10	10×16	4	124
	10	10×20	3	124
	10	10×30	3	124
	15	10×16	4	124
	15	12.5×20	1.6	171
	15	12.5×25	1.6	171
	15	16×20	1.6	171
	22	12.5×20	1	143
	22	12.5×25	1.7	171
	22	16×20	1	200
	33	12.5×25	1.2	380
	33	16×20	0.95	380
	33	16×25	0.95	380
	33	16×30	0.9	390
	47	16×30	0.9	646
	47	18×20	1	570

Rated voltage	Rated capacitance	Case size	ESR(mΩ)	Rated ripple current
额定电压(V)	标称容量(μF)	尺寸 D×L(mm)	等效串联电阻	额定纹波电流
			at 20°C, 100 kHz	(mA rms/105°C/100kHz)
	47	18×25	1	618
	47	18×30	0.85	713
	68	16×35	0.71	770
	68	18×25	0.75	774
	68	18×35	0.76	777
	82	18×30	0.5	789
	82	18×40	0.65	836
	100	18×30	0.34	903
	100	18×40	0.56	908
	150	18×30	0.34	903
	150	18×40	0.8	914

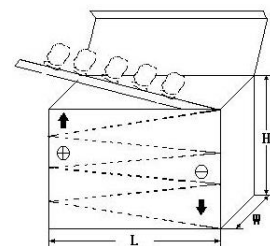
◆产品特征曲线 Product Characteristic Curve



◆包装 Packaging

*编带产品包装规范与数量 Taped packaging quantity

直径 ΦD(mm)	数量 (只) Qty. (Pcs)	L(电容高度)≤22mm	L(电容高度)=25±2mm
		L×W×H(mm)	L×W×H(mm)
Φ5	2000	328×235×50	328×235×57
Φ6.3	1500		
Φ8	1000		
Φ10	600		
Φ12.5	400		
Φ16	250		
Φ18	200		



* 散装品包装数量 Bulk packaging quantity

直径 ΦD(mm) Diameter	高度 L(mm) Length	数量 (只/袋) Quantity (pcs/bag)	袋/盒 bag/box	内箱/外箱 Inner box/outer box	(只/箱) psc/box
Φ4	7-8	1000	15	4	60000
Φ5	5-7	1000	12	4	48000
Φ5	11	1000	10	4	40000
Φ6.3	5-7	1000	10	4	40000
Φ6.3	8-15	1000	8	4	32000
Φ6.3	15-20	1000	6	4	24000
Φ8	5-12	500	8	4	16000
Φ8	14-16	500	8	4	16000
Φ8	20	500	6	4	12000
Φ10	9-13	500	6	4	12000
Φ10	14-16	250	8	4	8000
Φ10	17-20	250	8	4	8000
Φ10	25-30	200	8	4	6400
Φ10	31-35	200	6	4	4800
Φ12-Φ13	16-28	200	6	4	4800
Φ12-Φ13	30-40	100	8	4	3200
Φ12-Φ13	45-55	100	6	4	2400
Φ16	15-20	100	8	4	3200
Φ16	21-30	100	6	4	2400
Φ16	31-40	50	10	4	2000
Φ18	15-20	100	6	2	1200
Φ18	25-30	50	8	2	800
Φ18	35-40	50	6	2	600
Φ18	41-50	25	10	2	500
Φ20	25-40	50	10	2	1000
Φ22	25-35	50	5	2	500
Φ22	≥40	25	10	2	500

◆贮存方法 Storage Methods

* 请保管在室温 5℃~35℃，湿度 75%RH 以下的环境

* (1)产品储存期限: ≤12 个月;

* (2)产品储存期限超 12 个月时, 需充电后再使用

* (3)产品储存时间超过 3 年的应报废处理

* (4)库存有效期以套管上印刷的时间开始计算

* (5)请尽量以包装状态保管

* (6)避免在下列环境中保管

① 溅水、高温高湿及结露的环境;

② 溅油、或者充满气体油成分的环境;

③ 充满酸性有毒气体 (硫化氢、亚硫酸、亚硝酸、氯、溴、溴化甲烷等) 的环境;

* We recommend the following conditions for storage:

Ambient temperature: 5℃~35℃, Ambient humidity: Less than 75% RH.

- * (1) Storage life: ≤ 12 months;
- * (2) If storage life time is over 12 months, the products need to be recharged;
- * (3) If storage life time is over three years, the product need to be discarded;
- * (4) Expiry date: calculating from the date marked on the sleeve;
- * (5) Please keep capacitors in the original package;
- * (6) Avoid storing the capacitors under such circumstances:
 - ① Environment of water splashing, high temperature, high humidity and dewing;
 - ② The environment that splashes oil, or is filled with gas oil;
 - ③ With full of acid toxic gases environment such as(hydrogen sulfide , sulfurous acid, nitrous acid, chlorine , bromine, methyl bromide, etc.

◆ 铝电解电容器使用注意事项

Important information on the application of aluminum electrolytic capacitors

- * (1) 直流铝电解电容器应按正确的极性使用
当直流铝电解电容器被反极性接入电路时，电容器会导致电子线路短路，由此产生的电流会引致电容器损坏。若电路中有可能在负引线施加正极电压，请选用无极性产品
- * (2) 在额定工作电压以下作用
当电容器上所施加电压高于额定工作电压时，电容器的漏电流将上升，其电气特性将在短小时内劣化直至损坏。注意电压峰值请勿超出额定工作电压
- * (3) 常规产品禁止作快速充放电使用
当常规电容器被用作快速充电用途。其使用寿命可能会因为容量下降，温度急剧上升等而缩减。
- * (4) 施加纹波电流应小于额定值
施加纹波电流超过额定值后，会导致电容器体过热，容量下降，寿命缩短。所施加纹波电压的峰值应小于额定工作电压。
- * (5) 使用环境温度
铝电解电容器的使用寿命会受到环境温度的影响。据科学统计，使用环境温度下降 10°C 其使用寿命增加 1 倍。
- * (6) 引出线强度
当拉力施加到电容器引出线，该拉力将作用于电容器内部，这将导致电容器内部短路，开路或漏电流上升。在电容器焊装到电路板，请勿强烈摇动电容器。
- * (7) 焊接过程耐热性
铝电解电容器装至电路板进行浸焊或波峰焊时，其塑料套管可能因焊接时间过长、温度过高而发生破裂或二次收缩。
- * (8) 电路板的安装孔距及安装位置
电路板安装孔的设计应与产品说明书的引线脚距一致，如果将电容器强行插入孔距不配套的电路板，那么会有应力作用于引出线，这将导致短路或漏电流上升。
- * (9) 铝电解电容可能会有残留电压，请在使用前对电容器进行放电。

(1) DC aluminum electrolytic capacitors should be used according to the correct polarity

When a DC aluminum electrolytic capacitor is connected to a circuit with reverse polarity, the capacitor will cause a short circuit in the electronic circuit, and the resulting current will cause damage to the capacitor. If it is possible to apply positive voltage to the negative lead in the circuit, please choose a non-polar product.

(2) Function below rated operating voltage

When capacitor is used at higher voltage than the rated voltage, leakage current increases, characteristics drastically deteriorate and damage in a short period may occur as a result. Please take extra caution that the peak voltage should not exceed the rated voltage.

(3) Conventional capacitors are prohibited from being used for fast charging and discharging

When aluminum electrolytic capacitors for general purpose are employed in rapid charge and discharge application, its life may be shorted by capacitance decreasing, heat rising, etc.

(4) The applied ripple current should be less than the rated value

Excessive heat will reduce capacitance and result in shortened life of capacitor if ripple currents exceeding the specified rated value are applied. The peak value of the ripple voltage should be less than the rated voltage.

(5) Operating ambient temperature

Its ambient temperature closely affects the life of an aluminum electrolytic capacitor. It is generally stated, that life doubles for each 10°C decrease in temperature.

(6) Terminal Strength

When a strong force is applied to the lead wires or terminals, stress is put on the internal connections. This may result in short circuit, open circuit or increased leakage current. It is not advisable to bend or handle a capacitor after it has been soldered to the PCB board.

(7) Heat resistance during welding process

In the dip soldering process of PCB board with aluminum electrolytic capacitors mounted, secondary shrinkage or crack of PVC sleeve may be observed when solder temperature is too high or dipping time is too long.

(8) Installation pitch-row and installation position of circuit boards

PCB board must be designed so its hole coincides with the lead pitch (lead spacing) of the capacitor specified by the catalog or specifications. When a capacitor is forcibly inserted into an unmatched hole, a stress is put on the leads. This could result in a short circuit or increased leakage current.

(9) Aluminum electrolytic capacitors may have residual voltage, please discharge the capacitor before use.

◆推荐安装/焊接方法 Recommended Installation/Welding Methods

*波峰焊接条件

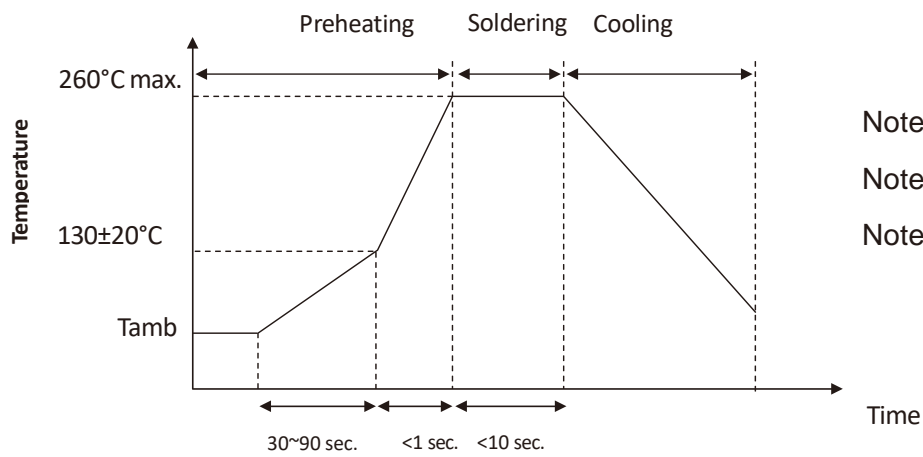
预热: 105°C

波峰焊: 260±5°C 10±1 秒以下 (或 380±10°C 3±0.5 秒以下: 手焊)

*Wave Soldering Conditions

Preheating: 105°C

Wave Soldering: 260±5°C for ≤10±1 seconds (or 380±10°C for ≤3±0.5 seconds for manual soldering)



◆其它说明 Others

*本产品不含铅、镉等元素

This product does not include Plumbum or Cadmium.

[illegible]

Note: The content provided above is the product specification. Fenghua reserves the right to modify this content without prior notice when the product remains unchanged. Any product changes will be notified to customers via PCN.