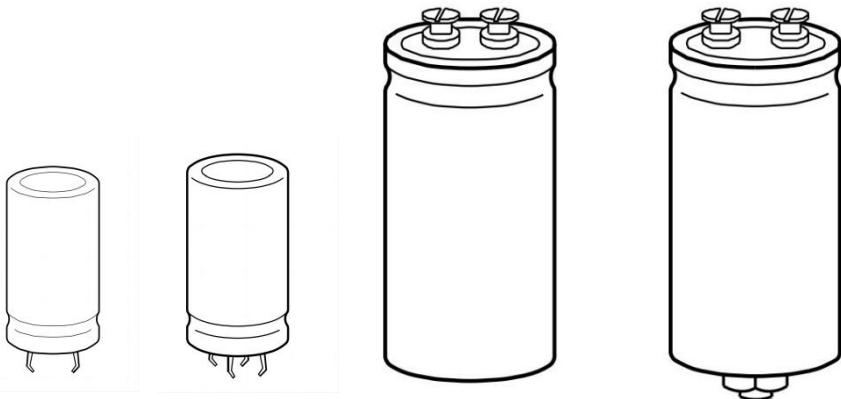


HUAYU

# 铝电解电容器

Aluminum Electrolytic Capacitors



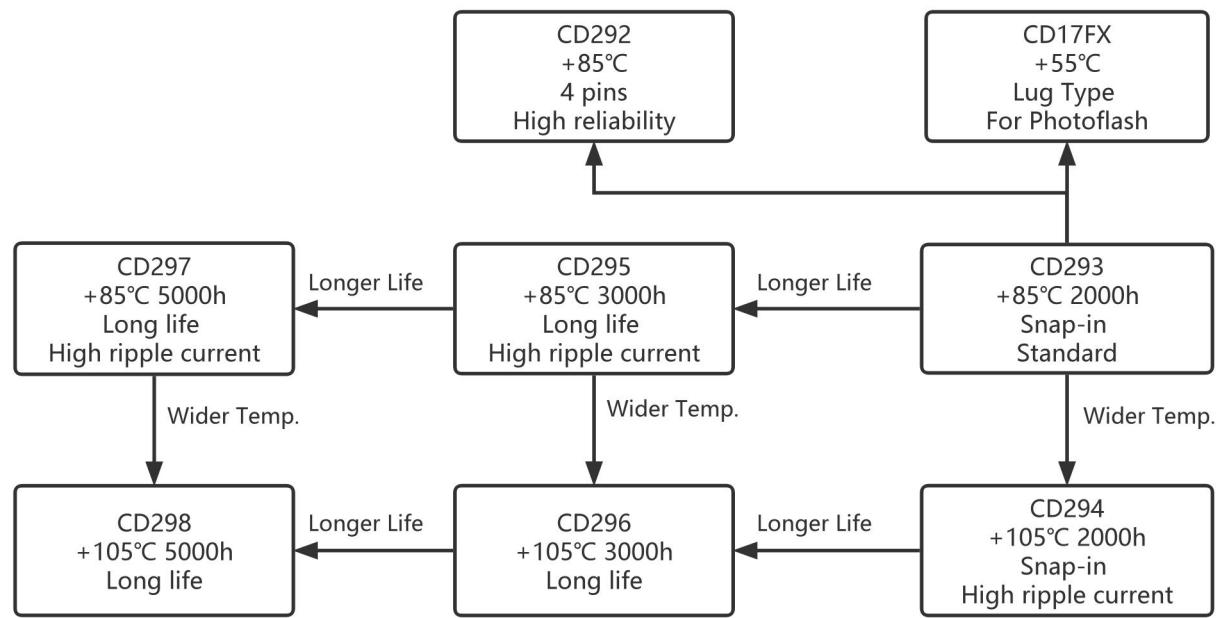
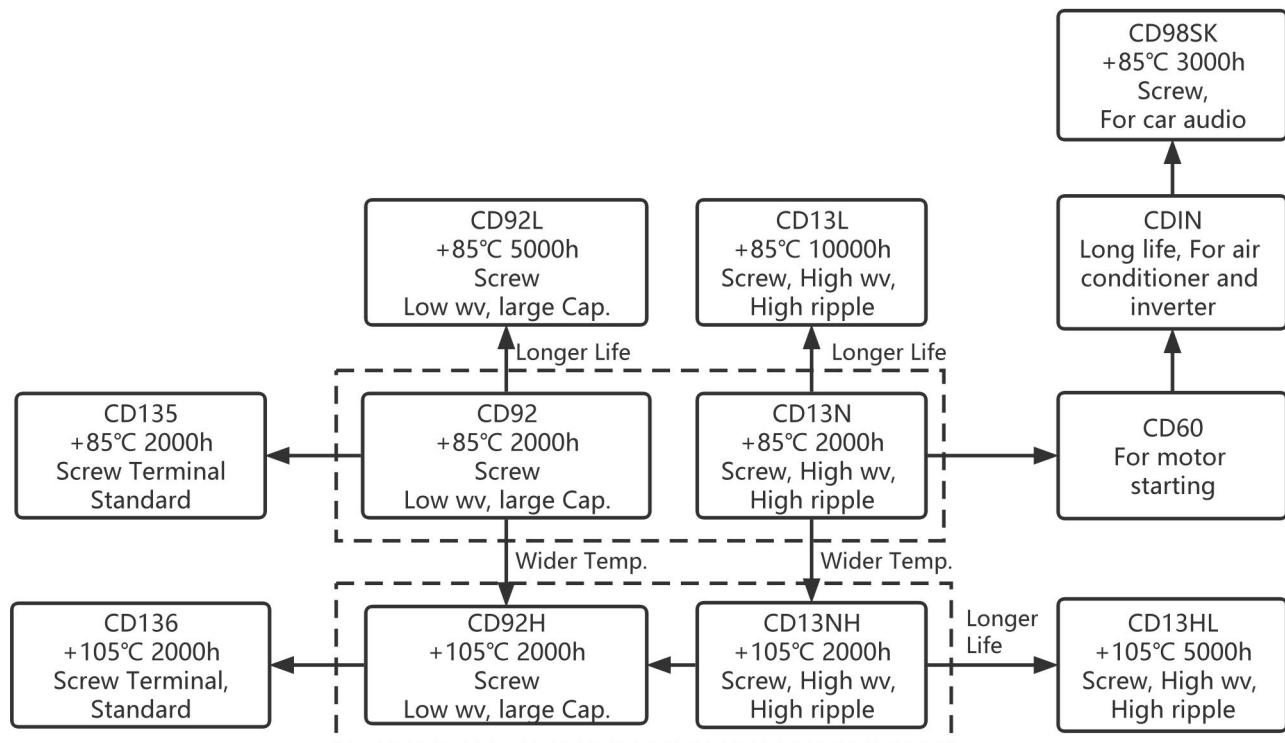
南通华裕电子有限公司

NANTONG HUAYU ELECTRONICS CO.,LTD.

2025

Terminal 引脚	Series 型号	Feature 特性	Load Life 寿命/H	Temp.°C 温度范围	Capacitance 容量范围/μF	Voltage/V 电压范围	Page 页码
Snap-in Lug 焊针型 焊片型	CD292	High Reliability, 4 pins 高可靠性，四脚焊针	2000	-40 ~ +85	220 - 100,000	10 - 450	12
	CD293	Standard, 85°C 85 度标准品	2000	-40 ~ +85	100 - 100,000	10 - 500	14
	CD294	High Ripple Current, Wide Temp. 高纹波电流，宽温度	2000	-40 ~ +105	100 - 100,000	16 - 500	17
	CD295	Long Life 长寿命	3000	-40 ~ +85	39 - 22,000	16 - 450	20
	CD296	Long Life, Wide Temp. 长寿命，宽温度	3000	-40 ~ +105	68 - 47,000	16 - 450	22
	CD297	High Ripple Current, Long Life 高纹波电压，长寿命	5000	-40 ~ +85	68 - 22,000	16 - 450	25
	CD298	Long Life, Wide Temp. 长寿命，宽温度	5000	-40 ~ +105	68 - 56,000	16 - 450	28
	CD17FX	For photo flash 闪光灯用	5000 times	-20 ~ +55	150 - 1500	330360	31
Screw 螺栓型	CD135	Standard, Wide voltage 标准品，电压范围广	2000	-25 ~ +85	1000uF - 2.5F	10 - 500	33
	CD136	Wide Temp. Wide voltage 宽温度，电压范围广	2000	-25 ~ +105	1000uF - 0.68F	25 - 500	36
	CD92	Low Voltage, Large Capacity, Low Loss, High Ripple Current 低电压，大容量，低损耗，高纹波电流	2000	-40 ~ +85	2200 - 470,000	10 - 100	39
	CD92H	Low WV, Large Capacity, Low Loss, High ripple, Wide Temp. 低压大容量，低损耗，高 纹波，宽温度	2000	-40 ~ +105	2200~470,000	10 - 100	39
	CD92L	Long Life, High Ripple Current, Extremely Low Impedance. 长寿命，高纹波，极低阻抗	5000	-40 ~ +85	1000~220,000	10 - 100	41
	CD13N	Medium and High Voltage, Large Capacitance, High Ripple Current 中高压，大容量，高纹波	2000	-25 ~ +85	220~18,000	160 - 500	43
	CD13NH	High Ripple Current, Wide Temp. 高纹波电流，宽温度	2000	-25 ~ +105	270 - 39,000	160 - 500	45
	CD13HL	Long Life, Wide Temp. 长寿命，宽温度	5000	-25 ~ +105	1000 - 15,000	350 - 500	47
	CD13L	Long Life, High Ripple Current 长寿命，高纹波	10000	-25 ~ +85	100 - 18,000	350 - 500	49
	CD98SK	For Car Audio 汽车音响用	3000	-40 ~ +85	0.5F - 2F	16,20,25	51

The specific capacitance and case size are available on request. 特殊容量和尺寸可按需定制

**Snap-in Type****Screw Type**

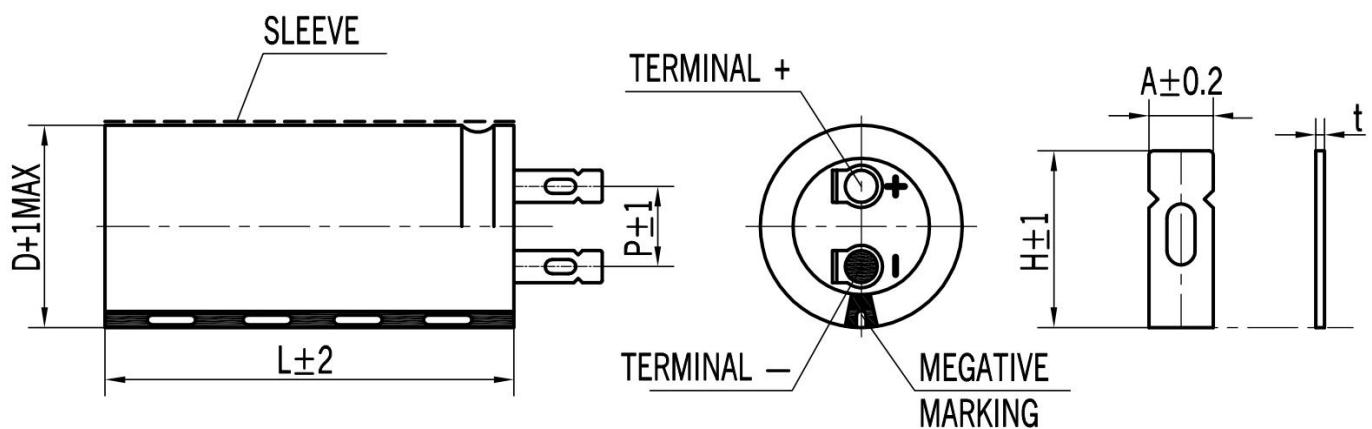
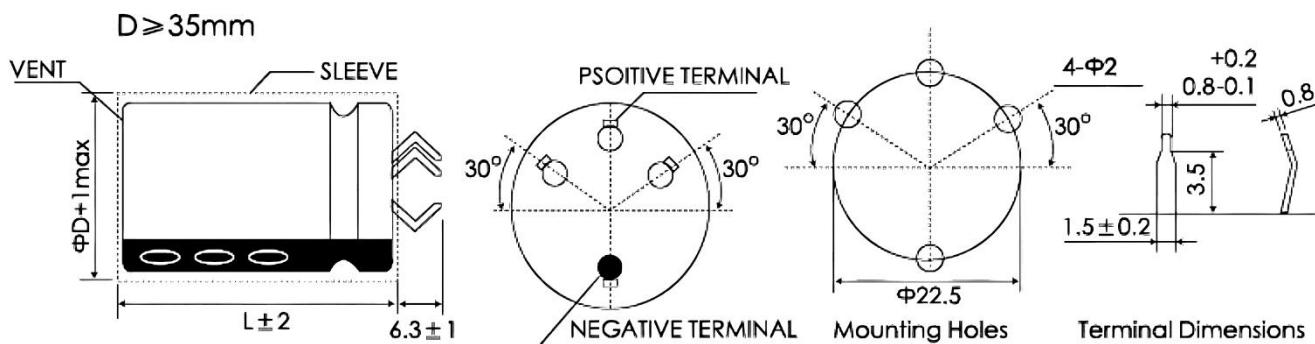
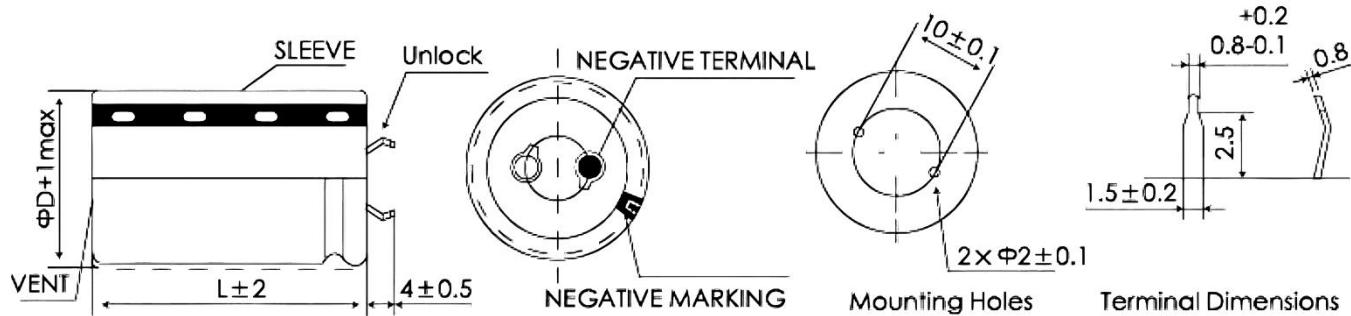
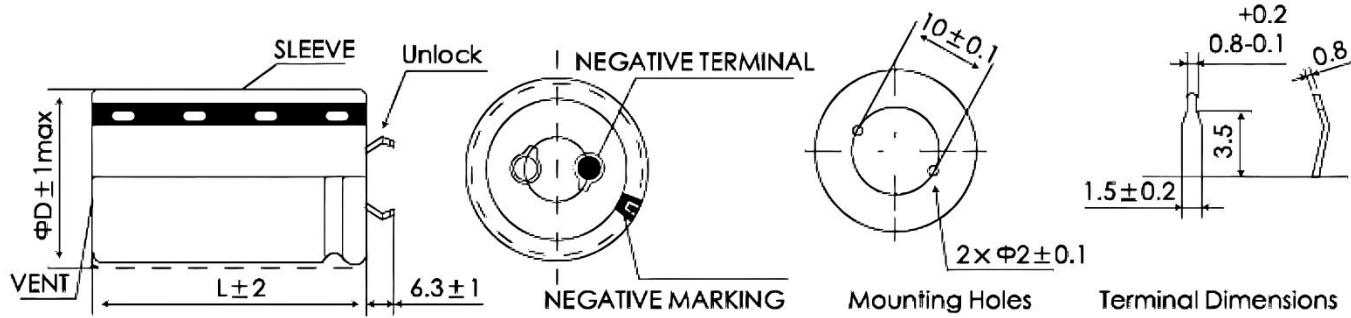
BP		2G	682	M	077155		S	
Series code		Rated voltage code	Capacitance Code(μF)	Capacitance Tolerance	Diameter Code		Special Code	
Snap-in / Lug	CD292=LC	10=1A	100=101	±20%=M	22x30	022030	With stud	S
	CD293=LD	16=1C	470=471	±15%=L	35x50	035050	With Bracket	B
	CD294=LE	20=1D	1000=102	±10%=K	51x80	051080		
	CD295=LF	25=1E	2200=222	-0+20%=R	77x155	077155		
	CD296=LG	35=1V	3300=332	-0+30%=F	90x235	090235		
	CD297=LH	50=1H	6800=682	-10+20%=V	101x235	101235		
	CD298=LI	63=1J	8200=822	-10+30%=Q				
	CD17FX=FX	80=1K	10000=103	-10+50%=T				
Screw	CD135=BP	100=2A	12000=123	-10+75%=U				
	CD136=PK	160=2C	470000=474					
	CD92=GA	200=2D	1000000=105					
	CD92H=GB	250=2E						
	CD13N=GC	300=2L						
	CD92L=GD	315=2F						
	CD13NH=GE	330=2U						
	CD13L=GF	350=2V						
	CD13HL=GG	360=2N						
	CD98SK=GK	400=2G						
		420=2X						
		450=2W						
		500=2H						

Ex1: PN: LE1H103M030050

CD294 50V10000μF 30x50MM ±20%

Ex2: PN: BP2G682M077155S

CD135 400V6800μF 77x155MM ±20% with stud



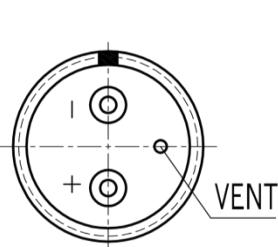


Fig.1-Terminal A

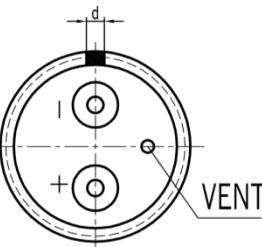


Fig.2-Terminal B,C

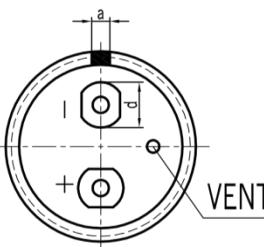
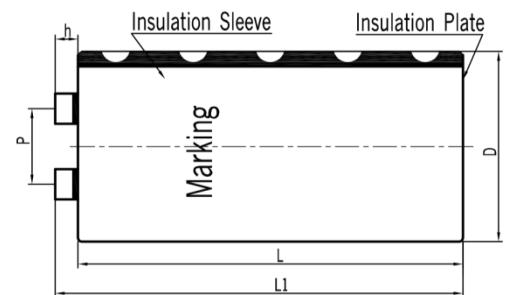
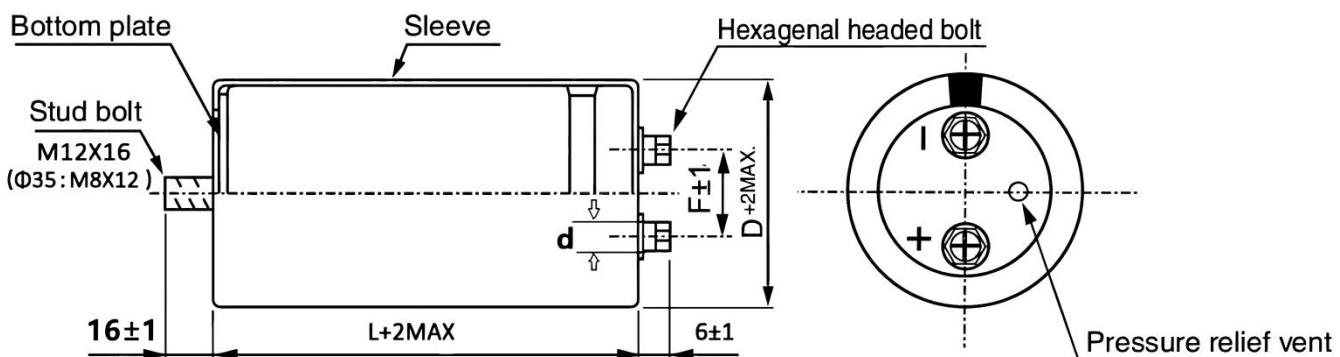


Fig.3-Terminal D

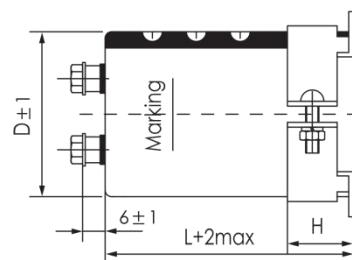
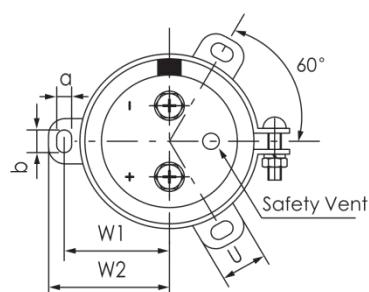


Code	$\Phi D \pm 1$	Thread	$\Phi d \pm 0.3$	$h \pm 0.5$
A	36~90	M5	10	
B	77~90	M6	17.2	
C	64	M5	13	6
	77~90		17.2	
D	51		13(a=10)	5
	64		15(a=13)	6
	77	M6	15(a=13)	

D	F
36	12.7
51	22
65	28.2
77	31.4
90	31.4
101	41.5

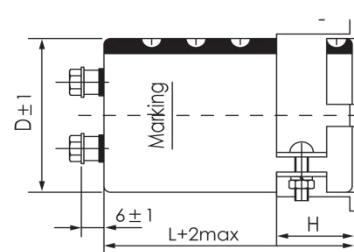
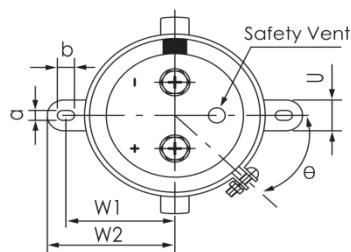


## 3-legs Bracket (Type Y)

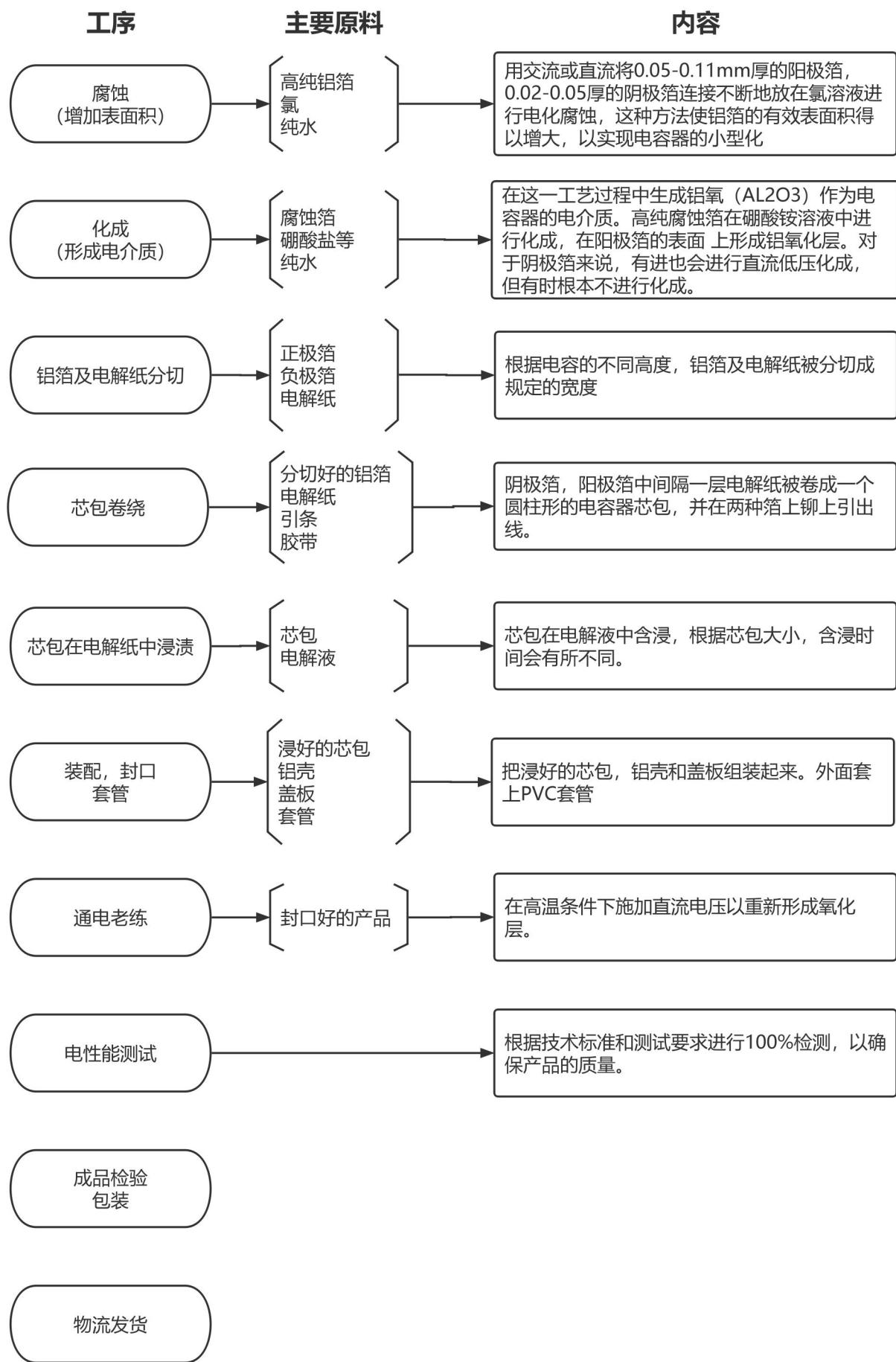


D	W1	W2	a	b	U
51	31.8	36.5	5	7	14
64	38.1	42.6	5	7	14
77	44.5	49.2	5	7	14
90	50.8	55.6	5	7	14
101	57.5	63.5	5.5	8	20

## 2-legs Bracket (Type I)

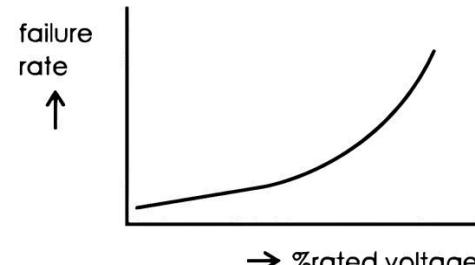
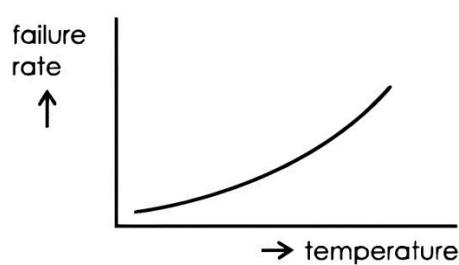
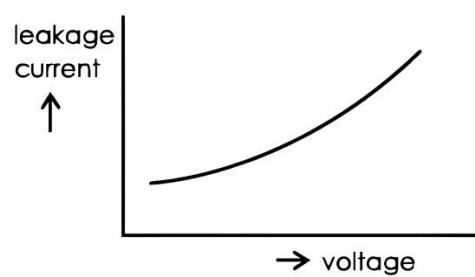
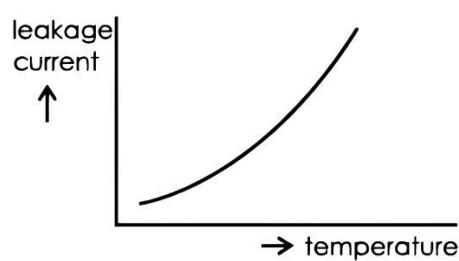
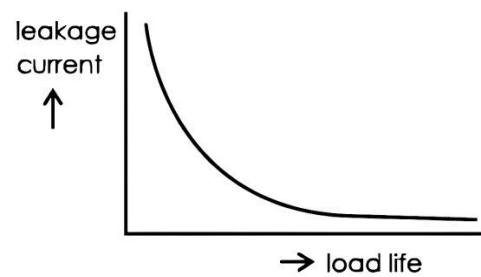
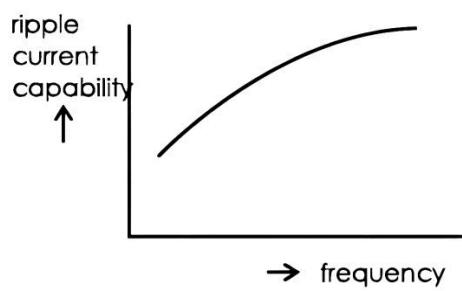
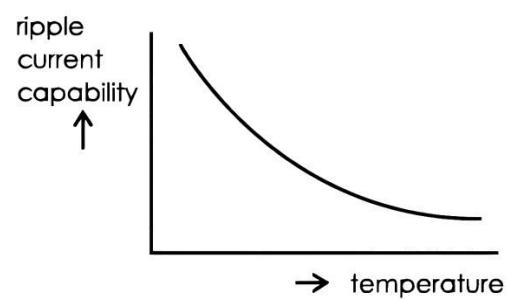
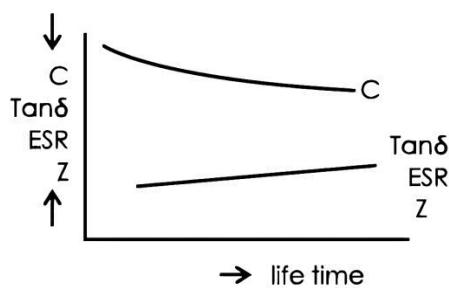
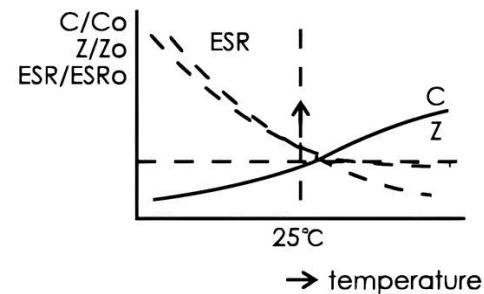
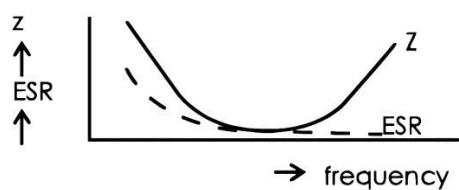
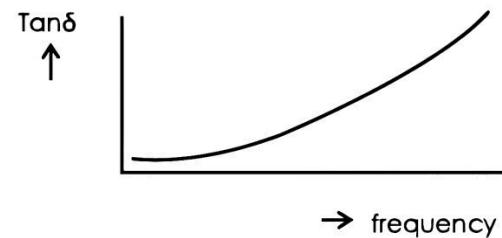
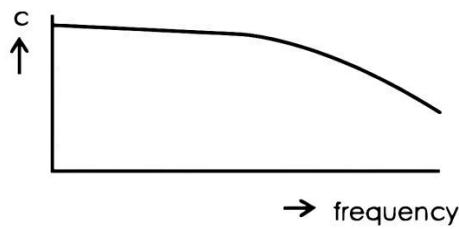


D	W1	W2	a	b	U
36	24	29	3.8	7	10
51	34	40	5	7	14
64	40.5	46.5	5	7	14
77	46.8	53	5	7	14
90	54	60.3	5	7	14

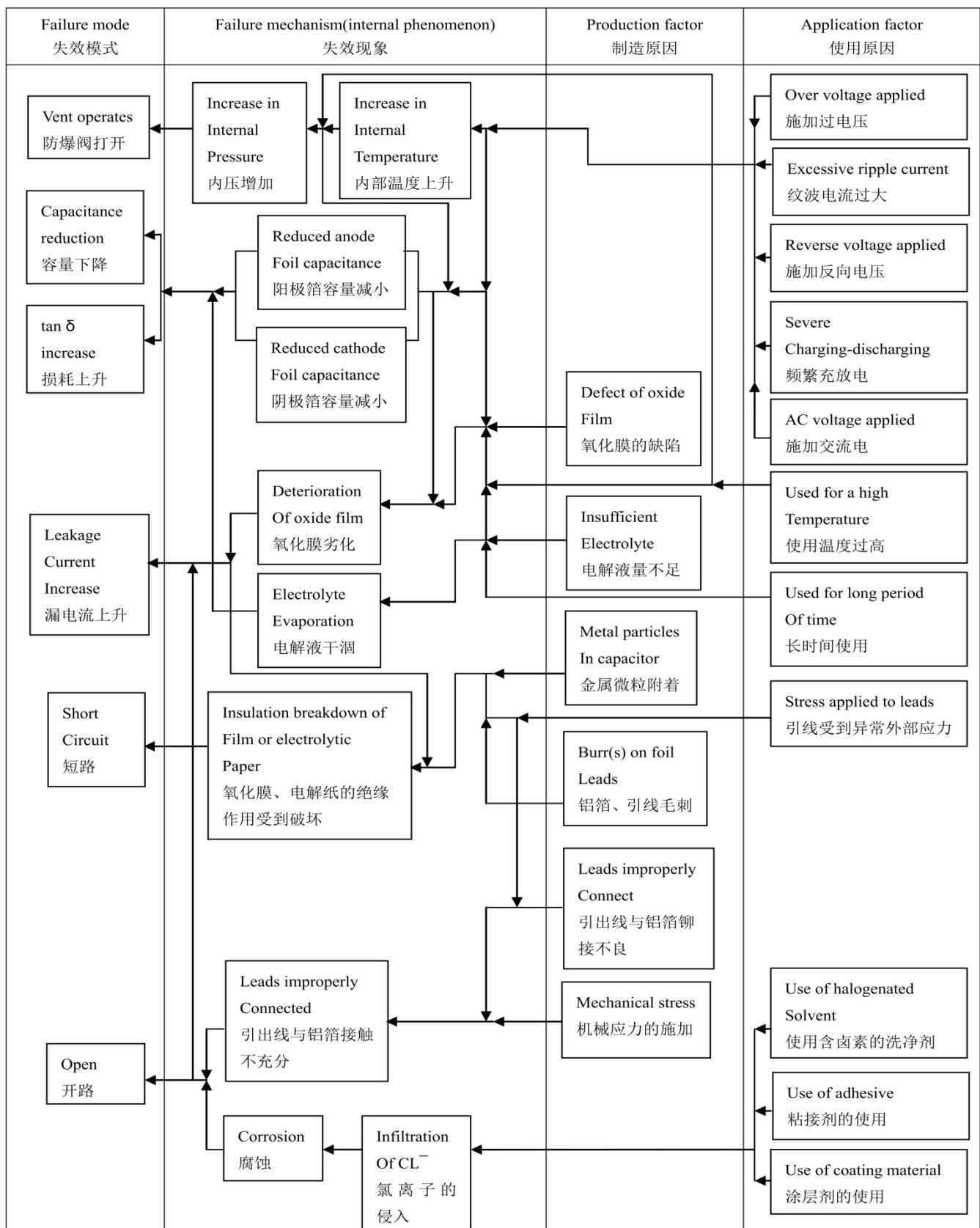


Characteristics of electrical capacitors vary with temperature, time, and applied voltage.

电容器的电气特性与温度，时间，以及印加电压的关系



项目 Item	试验条件 Test conditions	性能要求 Requirements	
浪涌电压 Surge voltage	温度+15 ~ +35°C, 施加规定的浪涌电压, 充电 30 秒, 放电 5 分 30 秒, 共循环 1000 次 At +15 ~ +35°C, applying the Us 1000 cycles of 30s on and 330s off	无可见损伤 No visible damage	
		△C/C	≤±15%
		tgδ	≤初始规定值 Initial specified value
			≤初始规定值 Initial specified value
耐久性 Load life	+105°C施加额定电压 2000 小时,恢复 16 小时后 After applying rated voltage for 2000 hours at +105°C and then resumed 16 hours	△C/C	≤±20%
		tgδ	≤200%初始规定值 Initial specified value
			≤初始规定值 Initial specified value
高温贮存 Shelf life	+105°C, 500 小时,恢复 16 小时后 +105°C, 500 hours then resumed 16 hours	△C/C	≤±20%
		tgδ	≤200%初始规定值 Initial specified value
			≤200%初始规定值 Initial specified value
引出端强度 Tension strength	IEC 68-2 试验 Ua: 拉力 10N, 10 秒 IEC 68-2 Test Ua: Loading force 10N for 10s	无可见损伤且标志清晰 No visible damage; marking legible.	
可焊性 Solder ability	IEC 68-2 试验 Ta: 焊料槽温度为 235±5°C, 浸渍深度占整个引出线的 90%, 浸渍持续时间为 5±1 秒 IEC 68-2 Test Ta: Tank temperature: 235 ± 5 °C ; Impregnating depth: ≥90% of the total lead wire; Impregnating time:5±1s	引出端的良好的镀层, 焊料自由流动, 引出端湿润。 The lead wire is coated by tin and wet	
耐焊接热 Resistance to soldering heat	IEC 68-2 试验 Tb 方法 1A: 焊料槽温度为 230±5°C, 浸渍深度 6mm, 浸渍持续时间为 10 秒 IEC 68-2 Test Tb means 1A: Tank temperature: 230 ± 5 °C ; Impregnating depth: 6mm; Impregnating time: 10s	无可见损伤, 标志清晰, 电容量变化率≤±5%。 No visible damage; marking legible; △C/C≤±5%	
稳态湿热 Stable humidity	IEC 68-2 试验 Ca: +40°C, 湿度 90 ~ 95%, 不施加电压 21 天 IEC 68-2 Test Ca: 21 days at 40°C, RH 90 to 95%, no voltage applied	无可见损伤和电解液漏出, 且标志清晰。 No visible damage, no leakage of electrolyte, marking legible.	
		△C/C	≤±10%
		tgδ	≤120%初始规定值 Initial specified value
			≤120%初始规定值 Initial specified value
振动 Resistance to vibration	IEC 68-2 试验 Fc: 频率范围 10 ~ 55Hz, 振幅为 0.75mm, 持续时间为 3×2 小时。 IEC 68-2 Test Fc; Frequency: 10 ~ 55Hz; Amplitude: 0.75mm; 3 direction, 2 hours per direction.	无可见损伤和电解液漏出, 且标志清晰, 电容量变化率≤±5%。 No visible damage, no leakage of electrolyte, marking legible, △C/C≤±5%。	



为使您获得电解电容器的最佳性能和延长电解电容器的使用寿命，在使用电解电容器前，请务必阅读本注意事项。

Upon using Aluminum Electrolytic Capacitors, please proper handling and observing to following important points will insure optimum capacitor performance and long life.

#### 1. 直流电解电容器是有极性的 DC electrolytic capacitors are polarized.

确定极性，极性标志在电容器的基体上。以免因极性反可能引起电路短路或电容器损坏，当极性不固定或不确定的，使用双极性电容器。注意直流电解电容器不能使用于交流。

Make sure of the polarity .The polarity is marked on the body of the capacitor. Application of the reversed voltage may cause a short circuit or damage to the capacitor. Use bipolar capacitors when the polarity is not determined or unknown. Note that DC electrolytic capacitors can not be used for AC application.

#### 2. 双极性电容器 Bipolar capacitors

只适用于脉动电路和极性反转电路中，不适用于纯交流和高纹波电路中。

They are used only in pulse circuits as well as polarity reverse circuits but not applicable in pure AC or high ripple current.

#### 3. 使用电压不要大于额定电压 DO not apply voltage greater than rated voltage .

使用电压大于额定电压，漏电流会增大，可能损坏电容器。建议工作电压为额定电压的百分之七十~八十，电容器在建议的工作电压下使用可延长电容器的寿命。

If a voltage exceeding the rated voltage is applied, the leakage current will increase, which damage the capacitor. Recommended working voltage is 70 to 80 percent of rated voltage. Using capacitors at recommended working voltage prolong capacitor life.

#### 4. 不要使过量的纹波电流通过电容器 Do not allow excessive ripple current through the capacitor.

流过电容器的纹波电流超过许可值，将会引起电容器发热，电容量减少，损害电容器。通过电容器的纹波电流不要大于允许值，一般不超过额定值的 80%。

The flow of ripple current over permissible ripple current will cause heat of the capacitor, which may decrease the capacitance and damage the capacitor. Ripple current on the capacitor must be at or bellow allowable level, generally not more than 80% of the rated current.

#### 5. 快速的充放电电路中，使用专门设计的电容器 Use specially designed capacitors for the circuits where charge and discharge are frequency repeated.

在经受快速的周期性充放电电路中，电容器可能受损害，它的寿命因容量下降、温升等原因而缩短，在这种电路中，一定要使用专门设计的电容器。

In the circuit subjected to rapid charge and discharge cycles, capacitors may be damaged, its life may be shortened by capacitance decrease, heat rise, etc. Be sure and use special capacitors in these applications.

#### 6. 工作温度范围 Operating temperature range.

电容器的特性随工作温度而变化，在温度较高的情况下，容量、漏电流增大， $\text{tg}\delta$ 减少；在低温情况下，容量和漏电流下降， $\text{tg}\delta$ 增大。电容器在较低的温度下使用会确保延长寿命。

The characteristics of capacitors change with the operating temperature. The capacitance and leakage current increase and  $\text{tg}\delta$  decrease at higher temperatures. The capacitance and leakage current decrease and  $\text{tg}\delta$  increase at lower temperature. Usage at lower temperature will ensure longer life.

#### 7. 使用温度与寿命的关系 Relationship between temperature and life.

电容器的寿命与其使用的温度有关，一般来说，使用温度降低 10°C，其寿命是额定温度下的 2 倍，计算公式如下：

Life of capacitors has relationship with its used temperature .Generally, if the used temperature is reduced 10°C, life is prolonged twice at rated temperature. Here is calculating format:

$$L_2 = L_1 \times 2^{\frac{T_1-T_2}{10}}$$

L1—额定温度下的寿命

L2—实际温度下的寿命

Life at rated temperature

Life at actual temperature

T1—额定使用温度

T2—实际使用温度

Rated used temperature

Actual used temperature

**8.核对工作频率 Check operating frequency.**

电解电容器的电容量通常是在 100Hz 或 120Hz 下测得的。然而要记住容量随频率的升高而下降，tgδ随频率的升高而增大，并使周围温度升高。

The capacitance of electrolytic capacitors is usually measured at 100Hz or 120Hz. However, remember that capacitance decrease and tgδ increase as the applied frequency becomes higher whereas the ambient temperature becomes higher.

**9.长时间存放的电容器，在使用前加额定直流电压处理 Apply rated DC voltage treatment to the capacitors which have been stored for a long time.**

长时间的存放，实际对电容器的容量和 tgδ没有多大的影响，然而往往会使漏电流增大，耐压降低。

长时间存放后的电容器处理，首先逐渐施加直流电压至额定电压，然后再使用。

Long periods of storage have virtually no effect on a capacitor's capacitance and tgδ. Such periods tend, however, to increase leakage current and decrease withstand voltage.

After removing capacitors from long-duration storage, First apply a gradually increasing DC voltage to rated voltage and then use them.

**10.电容器外壳与阴极端是不绝缘的 The capacitor case is not insulated from the cathode terminal.**

电容器的外壳与阴极端是通过电解液连接的，如果电容器的外壳必须与线路绝缘，则电容器的安装位置处，一定要采取绝缘措施。

The capacitor's case and cathode terminal connect through the electrolyte. If the case is to be completely insulated, that insulation must be at the capacitor's mounting point.

**11.电容器的端子或引线不要施加过大的力 Do not apply excessive force to the terminals and leads.**

过大的力施加到端子或引线上，可能引起引线的断裂或端子分裂，转而会引起内部连接的破坏。

The excessive strong force applied to the terminals and lead wires may cause leads to break or terminals to separate and, in turn, cause the internal contact to fail.

**12.浸焊料后，线路板的清洗 Cleaning of the circuit board after solder dipping.**

清洗线路板以去除焊剂或其它附着物。为了保护塑料套管，印刷标志以及封口材料不被破坏，电容器不能用卤化物或类似溶剂作为电容器清洗用，如三氯乙烯，二甲苯或酮类等。

建议使用的清洗溶剂为：甲醇，异丙醇，乙醇，异丁醇，石油醚，丙醇和一般的洗涤剂。

Cleaning circuit boards to remove flux or other extraneous matter. To ensure protection for sleeve, marking and sealing materials on capacitor body, capacitor should never be washed or cleaned by halogen agents or solvents such as trichlorethylene, xylem or acetone etc.

Recommended cleaning solvents. Methanol, isopropanol ethanol, isobutanol, petroleum ether, propane and/or commercial detergents.

**13.焊接时注意温度和持续的时间 Be cautious of the temperature and duration when soldering.**

烙铁应与电容器的塑料绝缘套管保持一定的距离。当电容器浸于焊料槽时，建议温度在 260°C 以内，时间不要超过 10 秒钟，以避免电容器元件受损。

Soldering irons should be kept away from the vinyl-insulated sleeves of capacitor. When the capacitor dipped in solder bath, recommendable within 260°C and 10 seconds to avoid damage of capacitor unit.

**14.印刷线路板上孔的布局 Hole positions on the circuit board.**

设计印刷线路板时，安装孔距应等于引线间距，当孔距大于或小于引线间距时，安装电容器时，将有应力作用到引线上，可能引起短路，电路损坏，漏电流增大。另外，焊料可能通过所打的孔及后加工零件的引线孔溅落到塑料套管上，造成损伤，所以要认真考虑孔的布局。

When designing a circuit board, space the position holes equally to the space between lead wires. When the spacing is either greater than or less than the capacitor's leads, mounting the capacitor will apply to the leads, causing short circuits, broken circuits, and increased current.

Otherwise, through-holes on the circuit board as well as lead holes of post-process parts can result in solder splashing onto the vinyl sleeve, causing damage. Consider hole position.

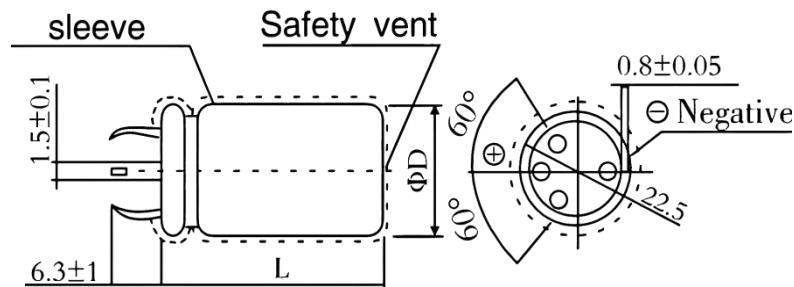
## Features

- ◎ 2000h at +85°C, 焊针型, Snap-in Type
- ◎ 四角焊针型, 高可靠性 Snap-in terminal (4 pins), High reliability

## Specifications

Item	Characteristics													
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85					-25 ~ +85								
额定电压 Rated Voltage (V)	10 ~ 100					160 ~ 450								
标称容量 Nominal capacitance ( $\mu\text{F}$ )	220 ~ 100,000													
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$													
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01CV$ or $1.5\text{mA}$ , which is smaller. (at 20°C ,after 5 minutes)													
损耗角正切值 Dissipation Factor(20°C,120Hz)	$\frac{\text{WV(V)}}{\text{Cap}(\mu\text{F})}$	10~16	25	35~50	63	80~100	$\frac{\text{WV(V)}}{\phi(\text{mm})}$	160~200	250~500					
	$\leq 2700$	-	-	0.2	0.15	0.15	$\phi(\text{mm})$	35						
	3300~4700	-	0.35	0.25	0.2	0.15								
	5600~6800	0.4	0.35	0.3	0.2	0.2								
	$\geq 8200$	0.4	0.35	0.35	0.25	-								
耐久性 Load Life(+85°C)	时间 time			2000 小时 2000 hours										
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
高温贮存 Shelf Life(+85°C)	时间 time			500 小时 500 hours										
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.													

Dimensions mm



Frequency Coefficient

$\frac{\text{Frequency(Hz)}}{\text{Voltage}}$	50	120	1k	10k	20k
10 ~ 50	0.95	1.00	1.10	1.15	1.15
63 ~ 100	0.95	1.00	1.16	1.30	1.33
160 ~ 500	0.95	1.00	1.20	1.50	1.55

Temperature Coefficient

$\frac{\text{Frequency(Hz)}}{\text{Voltage}}$	+40	+60	+70	+85
< 160	2.10	1.80	1.50	1.00
$\geq 160$	1.70	1.50	1.30	1.00

## Standard Ratings

WV(V)	10		16		25		35		50		63		80		100	
ΦDxL (mm)	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
35x30	47000	6.0	33000	5.6	18000	4.4	12000	3.6	8200	3.0	5600	3.3	3900	3.2	2200	2.5
35x35	56000	6.8	39000	6.3	22000	5.0	15000	4.1	10000	3.4	6800	3.7	4700	3.6	3300	3.1
35x40	68000	7.7	47000	7.2	33000	6.5	18000	4.7	12000	3.8	8200	3.8	5600	3.5	3900	3.4
35x45	82000	8.7	56000	8.0	39000	7.5	22000	5.3	15000	4.5	10000	4.3	-	-	-	-
35x50	-	-	68000	8.5	47000	8.0	27000	6.0	18000	4.8	12000	4.8	6800	4.1	4700	4.0
35x60	-	-	82000	9.2	56000	8.4	33000	6.6	22000	5.0	15000	5.2	10000	5.0	6800	4.6
35x70	-	-	-	-	82000	8.9	39000	7.2	27000	5.2	18000	5.6	12000	5.4	8200	5.0
35x80	-	-	100000	10.6	100000	9.2	47000	8.0	33000	5.5	22000	6.0	15000	5.8	10000	5.5
WV(V)	160		180		200		250		315		350		400		450	
ΦDxL (mm)	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
35x30	1000	2.7	820	2.5	820	2.5	680	2.6	390	1.6	330	1.6	270	1.5	220	1.3
35x35	1200	3.0	1000	2.8	1000	2.8	820	2.6	470	1.8	390	1.8	330	1.7	270	1.5
35x40	1500	3.5	1200	3.1	1200	3.2	1000	3.0	560	2.0	470	2.0	470	1.8	330	1.7
35x45	1800	3.9	1500	3.6	-	-	1200	3.4	680	2.3	560	2.3	560	2.1	390	1.9
35x50	2200	4.5	1800	4.1	1500	3.8	1500	3.8	1000	2.9	680	2.6	680	2.3	470	2.2
35x60	3300	5.0	2200	4.5	2200	4.2	1800	4.3	1200	3.4	1000	2.9	1000	2.6	680	2.6
35x70	3900	5.4	2700	4.9	2700	4.6	-	-	1500	3.8	1200	3.3	1200	3.0	820	2.9
35x80	4700	5.8	3300	5.3	3300	5.0	2200	4.8	1800	4.2	1500	3.7	1500	3.4	1000	3.2

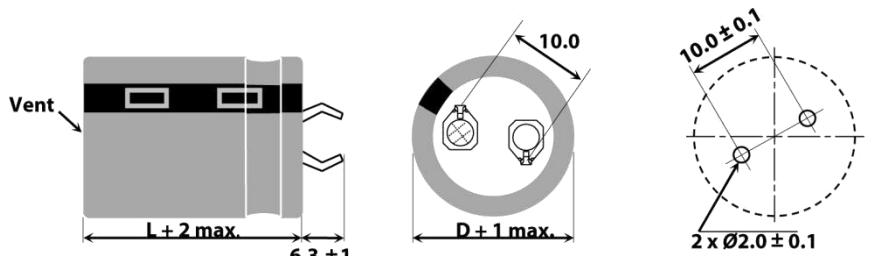
(Rip.=Ripple current: 85°C, 100Hz or 120Hz)

**Features**

- ◎ 2000h at +85°C, 焊针型, Snap-in Type
- ◎ 宽电压, 大容量。Wide Voltage, Large capacitance

**Specifications**

Item	Characteristics												
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85					-25 ~ +85							
额定电压 Rated Voltage (V)	10 ~ 400					450 ~ 500							
标称容量 Nominal capacitance ( $\mu$ F)	100 ~ 100,000												
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$												
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)												
损耗角正切值 Dissipation Factor(20°C,120Hz)	WV(V) Cap( $\mu$ F)	10~16	25	35~50	63	80~100	WV(V) $\phi$ (mm)	160~200	250~500				
	$\leq 2700$	-	-	0.2	0.15	0.15	22 ~ 30	0.1	0.15				
	3300~4700	-	0.35	0.25	0.2	0.15	35	0.12	0.15				
	5600~6800	0.4	0.35	0.3	0.2	0.2							
	$\geq 8200$	0.4	0.35	0.35	0.25	-							
耐久性 Load Life(+85°C)	时间 time			2000 小时 2000 hours									
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
高温贮存 Shelf Life(+85°C)	时间 time			500 小时 500 hours									
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.												

**Dimensions mm****PC Board Mounting Holes****Frequency Coefficient**

Frequency(Hz) Voltage	50,60	120	300	1k	$\geq 10k$
10 ~ 50	0.88	1.00	1.04	1.15	1.15
63 ~ 100	0.80	1.00	1.17	1.32	1.45
160 ~ 500	0.80	1.00	1.16	1.30	1.42

**Temperature Coefficient**

Frequency(Hz) Voltage	+40	+60	+70	+85
< 160	2.10	1.80	1.50	1.00
$\geq 160$	1.70	1.50	1.30	1.00

## Standard Ratings

WV (SV)	Cap.	Max	Typ	Ripple	Size φDxL
		ESR	ESR	Current	
20°C 120Hz	85°C 120Hz				
V	μF	mΩ	mΩ	Arms	mm
10(13)	15000	36	29	3.1	22x30
	22000	25	20	4.1	22x40
	33000	17	13	4.6	25x40
	47000	12	9.1	6	25x50
	56000	9.5	7.6	6.8	30x50
	68000	7.9	6.3	7.7	35x40
	82000	6.5	5.2	8.7	35x50
16(20)	8200	65	52	2.2	22x30
	10000	54	43	2.6	22x40
	15000	36	29	3.3	25x50
	22000	25	20	4.2	30x40
	33000	17	13	5.6	30x50
	47000	12	9.1	7	30x50
	56000	9.5	7.6	8	35x50
	68000	8	5.4	9.2	35x50
	82000	5.5	3.6	10.5	35x70
	100000	3	2.1	11.7	35x80
25(32)	8200	57	46	2.6	22x40
	10000	47	38	2.9	22x40
	15000	31	25	3.7	25x40
	22000	22	17	5	30x40
	33000	15	12	6.5	35x40
	47000	10	8	8.8	35x50
	56000	5	4	9.5	35x60
35(44)	2200	100	95	0.9	22x30
	3300	100	81	1.8	22x40
	4700	71	57	2.2	25x30
	5600	72	57	2.3	25x30
	6800	59	47	2.6	25x40
	8200	57	46	2.8	25x40
	10000	47	38	3.2	30x40
	12000	39	31	3.5	30x40
	15000	31	25	4.1	30x50
	18000	26	21	4.6	30x50
	22000	22	17	5.3	35x50
	33000	19	13	6.1	35x60
	47000	15	9	7.8	35x80
	3300	100	81	2	25x40
50(63)	4700	71	57	2.4	25x40
	5600	72	57	2.5	25x50
	6800	59	47	2.8	30x50
	8200	57	46	3.2	30x50
	10000	47	38	3.4	30x50

WV (SV)	Cap.	Max	Typ	Ripple	Size φDxL
		ESR	ESR	Current	
20°C 120Hz	85°C 120Hz				
V	μF	mΩ	mΩ	Arms	mm
50(63)	12000	39	31	3.8	30x50
	15000	31	25	4.5	30x50
	18000	25	19	5.6	35x50
	22000	19	13	6.8	35x50
63(79)	2200	91	73	2	22x30
	3300	81	65	2.3	22x40
	4700	56	45	3	25x40
	5600	48	38	3.1	25x50
	6800	40	32	3.6	25x50
	8200	41	33	3.8	30x40
	10000	34	27	4.3	35x50
	12000	28	23	4.8	35x60
	15000	22	18	5.5	35x60
	18000	16	14	6.2	35x80
80(100)	22000	12	10	7.3	35x80
	1500	133	107	1.7	22x40
	2200	91	73	2.2	25x40
	3300	61	49	2.8	25x50
	4700	43	34	3.6	30x50
	5600	48	38	3.8	30x50
	6800	40	32	4.1	30x60
	8200	41	33	4.7	35x50
	10000	34	27	5.2	35x50
	12000	28	23	5.8	35x70
100(125)	15000	22	18	6.4	35x80
	1000	200	160	1.4	22x30
	1200	166	133	1.6	22x40
	1500	133	107	1.8	22x40
	2200	91	73	2.2	25x40
	3300	61	49	3	30x50
	4700	43	34	4	30x60
	5600	32	21	5.2	35x50
	6800	21	16	6.5	35x60
	8200	15	8	7	35x60
160(200)	10000	7	4	8.2	35x70
	470	283	226	1.6	22x40
	560	237	190	1.9	22x40
	680	196	157	2.1	22x50
	820	162	130	2.4	25x40
	1000	133	107	2.7	25x50
	1500	89	71	3.7	30x40
	2200	73	58	4.5	35x50
	2700	59	45	5.7	35x50

## Standard Ratings

WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
160(200)	3300	45	32	6.9	35x60
	3900	33	19	7.8	35x70
	4700	20	8	8.9	35x80
200(250)	220	600	483	1.1	22x30
	330	402	322	1.4	22x30
	470	283	226	1.8	22x40
	560	237	190	2	22x50
	680	196	157	2.3	22x50
	820	162	130	2.6	25x50
	1000	133	107	3.1	30x45
	1200	111	89	3.4	30x50
	1500	107	85	3.8	35x50
	1800	90	76	4.5	35x50
	2200	72	60	5.1	35x50
	2700	58	47	6.3	35x60
	3300	43	32	7	35x80
	220	905	724	1.1	22x30
250(300)	330	603	483	1.4	22x40
	470	424	339	1.8	25x40
	560	356	285	2	25x50
	680	293	235	2.3	25x50
	820	243	195	2.6	30x40
	1000	199	160	3	30x50
	1200	166	133	3.4	35x50
	1500	137	118	3.8	35x60
	1800	112	91	4.5	35x70
	2200	88	72	5	35x80
315(365)	220	905	724	1.1	22x40
	330	603	483	1.4	25x50
	470	424	339	1.8	30x45
	560	356	285	2	30x50
	680	293	235	2.3	35x40
	820	228	196	2.8	35x45
	1000	156	147	3.2	35x50
350(400)	220	905	724	1.2	25x40
	330	603	483	1.6	25x40
	470	424	339	2	25x50
	560	356	285	2.3	30x50
	680	293	235	2.6	35x50
	820	243	195	2.8	35x50
	1000	198	145	3.2	35x60
	1200	137	98	3.4	35x70
	1500	89	47	3.6	35x80

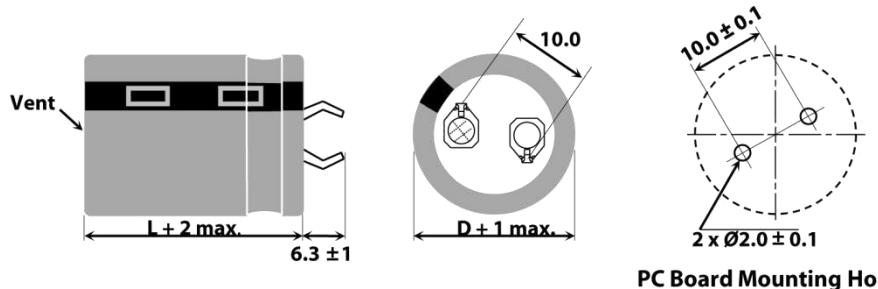
WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
400(450)	100	1990	1592	0.7	22x30
	120	1658	1327	0.8	22x30
	150	1327	1062	0.9	22x35
	220	905	724	1.1	22x40
	330	603	483	1.6	25x50
	470	424	339	2.1	30x45
	560	356	285	2.3	35x45
	680	293	235	2.7	35x50
	820	242	194	3.1	35x60
	1000	199	107	3.7	35x60
	1200	147	58	4.3	35x70
	1500	96	17	4.9	35x80
450(500)	1800	56	12	5.4	40x80
	2200	25	8	6.2	40x100
	100	1990	1592	0.73	22x30
	150	1327	1062	1.0	22x40
	220	905	724	1.2	25x40
	330	603	480	1.7	30x50
	470	424	339	2.2	35x50
	560	356	285	2.4	35x50
500(550)	680	293	235	2.8	35x60
	820	242	194	3.2	35x70
	1000	199	107	4.2	35x80
	1200	145	37	4.6	35x80
	100	1990	1592	0.9	25x30
	150	1327	1062	1.2	25x50
	220	905	724	1.6	30x50
	330	603	483	2.0	35x50

**Features**

- ◎ 2000h at +105°C, 焊针型, Snap-in Type
- ◎ 宽电压, 大容量, 宽温度。Wide Voltage, Large capacitance, Wide temperature range

**Specifications**

Item	Characteristics											
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105				-25 ~ +105							
额定电压 Rated Voltage (V)	16 ~ 100				160 ~ 500							
标称容量 Nominal capacitance ( $\mu$ F)	100 ~ 100,000											
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$											
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)											
损耗角正切值 Dissipation Factor(20°C,120Hz)	Rated voltage (V)	16	25	35	50	63~100	160~400	400~500				
	$\tan\delta$	0.5	0.4	0.35	0.3	0.2	0.15	0.2				
耐久性 Load Life(+105°C)	时间 time	2000 小时 2000 hours										
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
高温贮存 Shelf Life(+105°C)	时间 time	500 小时 500 hours										
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.											

**Dimensions mm****Frequency Coefficient**

Frequency(Hz) Voltage(v)	50,60	120	300	1k	$\geq 10k$
10 ~ 50	0.94	1.00	1.06	1.14	1.22
63 ~ 100	0.86	1.00	1.16	1.33	1.51
160 ~ 500	0.80	1.00	1.16	1.30	1.44

**Temperature Coefficient**

Temperature(°C)	+40	+55	+70	+85	105
Coefficient	2.7	2.5	2.1	1.7	1

## Standard Ratings

WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
16(20)	10000	66	46	1.99	22x30
	12000	55	39	2.28	22x40
	15000	44	31	2.64	22x50
	18000	37	26	3.04	25x40
	22000	30	21	3.4	25x40
	27000	25	17	3.81	25x50
	33000	20	14	4.3	30x45
	39000	17	12	4.74	30x50
	47000	14	10	5.27	30x50
	56000	11	8	5.79	35x50
	68000	9	6	6.58	35x50
	82000	6	4	7.2	35x70
25(32)	100000	4	2	8.35	35x80
	8200	65	45	2.14	22x30
	10000	53	37	2.4	22x40
	12000	44	31	2.69	25x50
	15000	35	25	3.13	30x40
	18000	30	21	3.54	30x50
	22000	24	17	4.24	30x50
	27000	20	14	4.75	35x40
	33000	16	11	5.39	35x50
	39000	12	9	5.83	35x60
	47000	9	6	6.24	35x70
35(44)	4700	99	69	1.78	22x40
	5600	83	58	2.02	22x40
	6800	68	48	2.28	22x40
	8200	57	40	2.6	25x40
	10000	46	33	2.92	25x40
	12000	39	27	3.28	30x40
	15000	31	22	3.74	30x50
	18000	26	18	4.16	30x50
	22000	21	15	4.92	30x50
	27000	16	12	5.61	35x50
	33000	12	9	6.23	35x60
	47000	8	7	6.86	35x80
50(63)	3300	121	84	2	22x30
	4700	85	59	2.56	22x40
	5600	71	50	2.81	25x40
	6800	59	41	3.37	25x40
	8200	49	34	3.71	25x50
	10000	40	28	4.09	30x50
	12000	33	23	4.5	30x50
	15000	26	17	4.95	30x50

WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
50(63)	18000	19	12	5.5	35x50
	22000	12	7	6.12	35x50
	2200	121	84	1.73	22x30
	3300	80	56	2.32	22x40
	4700	57	40	2.88	25x40
	5600	47	33	3.28	25x50
	6800	39	27	3.73	25x50
	8200	32	23	4.16	30x40
	10000	27	19	4.69	35x50
	12000	22	15	5.28	35x60
	15000	17	11	5.69	35x60
	18000	10	7	6.1	35x80
80(100)	1500	177	124	1.61	22x40
	2200	121	84	2.09	25x40
	3300	80	56	2.76	25x50
	4700	57	40	3.56	30x50
	5600	47	33	3.87	30x50
	6800	39	27	4.19	30x60
	8200	29	20	4.78	35x50
	10000	18	13	5.51	35x50
	12000	8	6	6.28	35x70
100(125)	1000	265	186	1.54	22x30
	1200	221	155	1.74	22x40
	1500	177	124	1.99	22x40
	2200	121	84	2.57	25x40
	3300	80	56	3.32	30x50
	4700	57	40	4.14	30x60
	5600	35	24	4.89	35x50
	6800	20	14	5.67	35x60
160(200)	8200	8	6	6.3	35x60
	470	424	296	1.52	22x40
	560	355	249	1.62	22x40
	680	293	205	1.7	22x50
	820	243	170	1.98	25x40
	1000	199	139	2.04	25x50
200(250)	1500	133	93	2.46	30x40
	2200	91	63	3.1	35x50
	3300	60	42	4.33	35x60
	3900	27	19	5.56	35x70
	220	905	633	1.08	22x30
	330	603	422	1.3	22x30
	470	424	296	1.5	22x40
	560	355	249	1.58	22x50

## Standard Ratings

WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C	120Hz	105°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
200(250)	680	293	205	1.7	22x50
	820	243	170	1.87	25x50
	1000	199	139	2.2	30x50
	1200	166	116	2.22	30x50
	1500	133	93	2.6	35x50
	1800	111	77	2.7	35x60
	2200	91	63	3.2	35x60
	2700	68	47	3.89	35x70
250(300)	220	905	633	11.0	22x30
	330	603	422	1.2	22x40
	470	424	296	1.3	25x40
	560	355	249	1.59	25x50
	680	293	205	1.7	25x50
	820	243	170	1.83	30x40
	1000	199	139	1.9	30x50
	1200	166	116	2.1	35x50
	1500	133	93	2.7	35x60
	1800	111	77	2.92	35x70
	2200	86	59	3.5	35x80
	220	905	498	0.91	22x40
315(365)	330	603	332	1.1	25x50
	470	424	233	1.28	30x45
	560	355	196	1.5	30x50
	680	293	161	1.85	35x40
	820	242	133	2.1	35x50
	1000	199	109	2.42	35x60
	220	905	498	1.0	25x40
350(400)	330	603	332	1.16	25x40
	470	424	233	1.4	25x50
	560	355	196	1.51	30x50
	680	293	161	1.9	35x50
	820	242	133	2.25	35x50
	1000	199	109	2.5	35x60
	1200	145	76	2.87	35x70
	1500	101	42	3.1	35x80
	220	905	498	1.0	25x40
400(450)	330	603	332	1.16	25x40
	470	424	233	1.4	25x50
	560	355	196	1.51	30x50
	680	293	161	1.9	35x50
	820	242	133	2.25	35x50
	1000	199	109	2.5	35x60
	1200	145	76	2.87	35x70
	1500	101	42	3.1	35x80
400(450)	100	1990	1035	0.6	22x30
	120	1659	863	0.6	22x30
	150	1327	690	0.7	22x35
	220	905	471	0.9	22x40
	330	603	314	1.11	25x50
	470	424	220	1.3	30x45
	560	355	185	1.5	35x45
	680	293	153	1.9	35x50

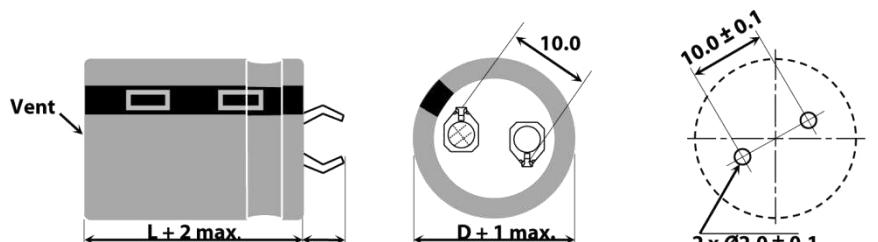
WV (SV)	Cap.	Max ESR	Typ ESR	Ripple Current	Size φDxL
		20°C	120Hz	105°C 120Hz	
V	μF	mΩ	mΩ	Arms	mm
400(450)	820	242	126	2.2	35x60
	1000	199	109	2.6	35x70
	1200	145	86	3	35x80
	100	2654	1327	0.7	22x30
	150	1769	885	0.82	22x40
450(500)	220	1206	603	0.94	25x40
	330	804	402	1.15	30x50
	470	565	282	1.5	35x50
	560	473	237	1.7	35x50
	680	391	196	2	35x60
500(550)	820	324	162	2.2	35x70
	1000	265	139	2.6	35x80
	100	2654	1327	0.67	25x40
	150	1769	885	0.85	25x50
	220	1206	603	1.12	30x50
550(600)	330	804	402	1.4	35x50
	470	565	282	1.8	35x60
	560	473	237	1.9	35x70
	680	391	196	2.2	35x80

**Features**

- ◎ 3000h at +85°C, 焊针型, Snap-in Type
- ◎ 高纹波电流 High ripple current

**Specifications**

Item	Characteristics												
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105					-25 ~ +105							
额定电压 Rated Voltage (V)	16 ~ 200					250 ~ 450							
标称容量 Nominal capacitance ( $\mu$ F)	39 ~ 22,000												
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$												
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)												
损耗角正切值 Dissipation Factor(20°C,120Hz)	Rated voltage (V)	16	25	35	50	63	80	100	160~450				
	$\tan\delta$	0.5	0.4	0.35	0.3	0.25	0.2	0.2	0.16				
耐久性 Load Life(+85°C)	时间 time			3000 小时 3000 hours									
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
高温贮存 Shelf Life(+85°C)	时间 time			500 小时 500 hours									
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
	试验后：施加标称电压 30 分钟，于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.												

**Dimensions mm****PC Board Mounting Holes****Frequency Coefficient**

Frequency(Hz) Voltage(v)	50	60	120	1k	10k
16 ~ 100	0.88	0.90	1.00	1.15	1.15
160 ~ 250	0.85	0.88	1.00	1.15	1.20
400 ~ 450	0.88	0.90	1.00	1.10	1.15

**Temperature Coefficient**

Temperature(°C)	+40	+55	+70	+85
Coefficient	2.10	1.80	1.51	1.00

**Standard Ratings**

(Rip.=Ripple current: 85°C, 100Hz or 120Hz)

WV(V)	16		25		35		50		63		80		100	
ΦDxL (mm)	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x25	4700	1.4	3300	1.3	2200	1.1	1200	0.96	820	0.92	560	0.76	390	0.64
22x30	6800	1.8	4700	1.6	2700	1.3	1800	1.2	1200	1.2	820	0.96	560	0.80
22x35	8200	2.0	5600	1.8	3900	1.6	2200	1.4	1500	1.3	1000	1.10	680	0.92
22x40	10000	2.3	6800	2.0	4700	1.9	2700	1.6	1800	1.5	1200	1.20	820	1.00
22x50	15000	2.9	10000	2.6	6800	2.4	-	-	2200	1.7	1800	1.60	1200	1.30
25x25	6800	1.8	4700	1.6	3300	1.3	1800	1.2	1200	1.1	820	0.96	560	0.80
25x30	10000	2.2	5600	1.8	3900	1.6	2700	1.5	1500	1.3	1000	1.10	680	0.92
25x35	12000	2.5	8200	2.2	5600	2.0	3300	1.8	1800	1.5	1500	1.40	1000	1.10
25x40	15000	2.9	10000	2.6	6800	2.3	-	-	-	-	1800	1.60	-	-
25x50	18000	3.3	12000	2.9	8200	2.7	5600	2.5	3300	2.2	2200	1.80	1500	1.50
30x25	10000	2.3	6800	2.0	4700	1.9	2700	1.6	1500	1.4	1200	1.30	820	1.00
30x30	12000	2.6	8200	2.3	5600	2.1	3300	1.8	2200	1.7	1500	1.50	1000	1.20
30x35	18000	3.3	12000	2.9	8200	2.9	4700	2.3	2700	2.0	1800	1.60	1200	1.40
30x40	22000	3.7	15000	3.3	10000	3.0	5600	2.5	3300	2.3	2200	1.90	1500	1.60
30x50	-	-	18000	3.8	12000	3.4	6800	2.9	4700	2.8	3300	2.30	2200	2.00
35x25	12000	2.7	8200	2.4	5600	2.2	3300	1.8	2200	1.8	1500	1.50	1000	1.30
35x30	18000	3.4	12000	3.0	8200	2.8	4700	2.4	2700	2.1	2200	1.90	1200	1.40
35x35	22000	3.9	15000	3.5	10000	3.1	5600	2.7	-	-	2700	2.20	1800	1.80
35x40	-	-	18000	3.9	12000	3.5	6800	3.0	4700	2.9	3300	2.40	2200	2.00
35x50	-	-	-	-	18000	4.5	10000	3.8	6800	3.6	4700	3.20	2700	2.30

WV(V)	160		180		200		250		315		350		400		450	
ΦDxL (mm)	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.	Cap	Rip.
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x25	180	0.65	180	0.65	150	0.60	100	0.45	56	0.34	56	0.37	39	0.32	56	0.30
22x30	270	0.83	220	0.75	220	0.76	150	0.58	82	0.43	82	0.47	56	0.39	68	0.31
22x35	330	0.94	270	0.86	270	0.87	180	0.65	120	0.53	100	0.53	68	0.45	100	0.45
22x40	390	1.10	390	1.10	330	0.99	220	0.75	150	0.61	120	0.60	82	0.51	120	0.55
22x50	560	1.3	470	1.2	470	1.2	330	0.96	180	0.71	180	0.78	120	0.64	150	0.60
25x25	270	0.82	220	0.75	220	0.76	150	0.58	82	0.42	68	0.43	56	0.40	82	0.35
25x30	390	1.0	330	0.96	270	0.87	220	0.73	120	0.53	100	0.54	68	0.46	100	0.45
25x35	470	1.20	390	1.10	390	1.10	270	0.83	150	0.62	120	0.61	100	0.57	120	0.55
25x40	560	1.3	470	1.2	470	1.3	330	0.95	-	-	180	0.77	120	0.63	150	0.60
25x50	820	1.70	680	1.50	560	1.40	470	1.20	270	0.89	220	0.89	150	0.75	220	0.80
30x25	390	1.1	330	1.0	270	0.92	220	0.77	120	0.56	100	0.57	82	0.53	120	0.55
30x30	560	1.30	470	1.20	390	1.10	270	0.88	180	0.71	150	0.72	100	0.61	150	0.60
30x35	680	1.5	560	1.4	560	1.4	390	1.1	220	0.80	180	0.82	150	0.77	180	0.70
30x40	820	1.70	680	1.60	680	1.60	470	1.20	270	0.92	220	0.93	180	0.87	220	0.80
30x50	1000	2.0	1000	2.0	820	1.8	560	1.4	390	1.20	330	1.2	220	1.0	330	1.0
35x25	470	1.30	390	1.20	390	1.20	270	0.93	180	0.74	150	0.77	100	0.65		
35x30	680	1.6	560	1.5	560	1.5	390	1.2	220	0.84	220	0.97	150	0.83	220	0.80
35x35	820	1.80	820	1.80	680	1.70	470	1.30	330	1.10	270	1.10	180	0.93	270	0.90
35x40	1000	2.0	1000	2.1	820	1.9	560	1.5	390	1.2	330	1.3	220	1.1	330	1.00
35x50	1500	2.60	1200	2.40	1200	2.40	820	1.90	470	1.40	470	1.60	330	1.30	390	1.20

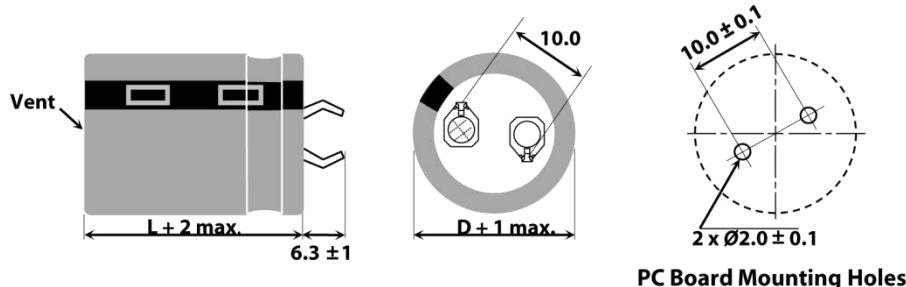
## Features

- ◎ 3000h at +105°C, 焊针型, Snap-in Type
- ◎ 宽温度, 长寿命, 高纹波电流 Wide temperature, Long life, High ripple current

## Specifications

Item	Characteristics											
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105				-25 ~ +105							
额定电压 Rated Voltage (V)	16 ~ 200				250 ~ 450							
标称容量 Nominal capacitance ( $\mu$ F)	68 ~ 47000											
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$											
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)											
损耗角正切值 Dissipation Factor(20°C,120Hz)	Rated voltage (V)	16	25	35	50	63~100	160~400	400~450				
	$\tan\delta$	0.5	0.4	0.35	0.3	0.2	0.15	0.2				
耐久性 Load Life(+105°C)	时间 time		3000 小时 3000 hours									
	容量变化率 Capacitance change		$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current		$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor		$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
高温贮存 Shelf Life(+105°C)	时间 time		500 小时 500 hours									
	容量变化率 Capacitance change		$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value									
	漏电流 Leakage current		$\leq$ 初始规定值 Not more than the Initial specified value									
	损耗角正切值 Dissipation factor		$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value									
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.											

## Dimensions mm



## Frequency Coefficient

Frequency(Hz) Voltage(v)	50	120	1k	10k	20k
$\leq 100$	0.95	1.00	1.10	1.15	1.15
160 ~ 250	0.87	1.00	1.11	1.18	1.20
350 ~ 450	0.80	1.00	1.14	1.14	1.20

## Temperature Coefficient

Temperature(°C)	+40	+55	+70	+85	+105
Coefficient	2.70	2.50	2.10	1.70	1.00

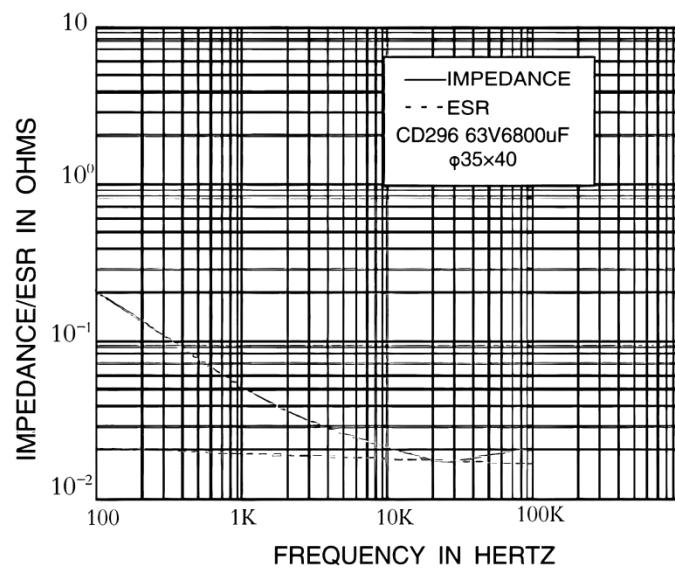
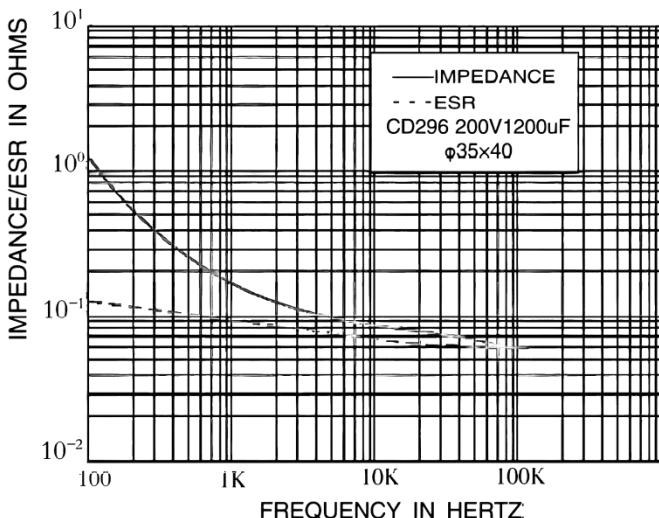
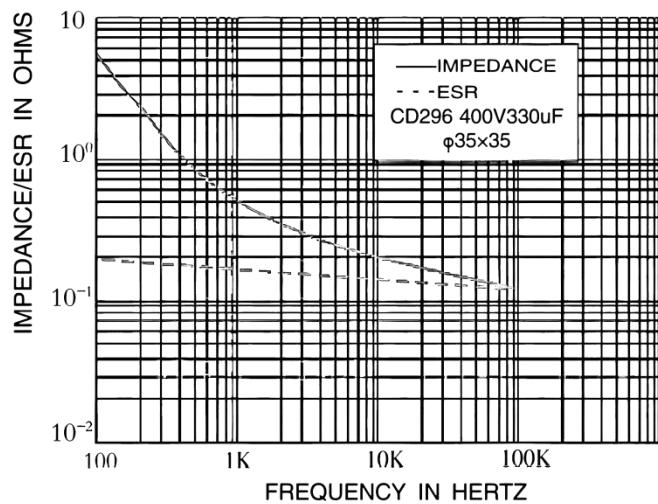
**Standard Ratings**

(Rip.=Ripple current: 85°C, 100Hz or 120Hz)

WV(V)	16		25		35		50		63		80		100	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple								
	μF	(A)	μF	(A)	μF	(A)								
22x30	10000	1.99	6800	1.91	3900	1.65	2700	1.70	1800	1.52	1200	1.39	820	1.35
22x35	12000	2.28	8200	2.14	5600	2.02	3300	1.98	2200	1.73	1500	1.61	1000	1.54
22x40	15000	2.64	10000	2.40	6800	2.28	3900	2.25	2700	1.97	1800	1.83	1200	1.74
22x45	18000	2.98	12000	2.69	-	-	4700	2.56	-	-	2200	2.09	1500	1.99
22x50	-	-	-	-	8200	2.67	6800	2.89	3300	2.32	-	-	-	-
25x25	1000	1.99	6800	1.91	4700	1.78	2700	1.70	1800	1.52	1200	1.39	820	1.35
25x30	12000	2.3	8200	2.16	5600	2.04	3300	2.00	2200	1.75	1500	1.62	1000	1.56
25x35	15000	2.68	10000	2.44	6800	2.31	3900	2.28	2700	1.99	2200	2.01	1200	1.76
25x40	18000	3.04	12000	2.74	8200	2.60	5600	2.81	3300	2.27	-	-	1500	2.03
25x45	22000	3.40	15000	3.15	10000	2.92	-	-	3900	2.54	2700	2.43	1800	2.28
25x50	27000	3.81	18000	3.54	12000	3.26	6800	3.37	4700	2.88	3300	2.76	2200	2.57
30x30	18000	3.00	10000	2.70	8200	2.56	4700	2.58	3300	2.24	2200	2.10	1500	2.00
30x35	22000	3.39	15000	3.13	10000	2.92	5600	2.95	3900	2.55	2700	2.43	1800	2.27
30x40	27000	3.83	18000	3.54	12000	3.28	6800	3.39	4700	2.90	3300	2.78	2200	2.59
30x45	33000	4.3	22000	4.24	15000	3.74	8200	3.71	5600	3.28	3900	3.12	2700	2.94
30x50	39000	4.74	-	-	-	-	10000	4.09	6800	3.73	4700	3.56	3300	3.32
35x30	27000	3.75	15000	3.22	12000	3.20	6800	3.31	4700	2.83	3300	2.71	2200	2.52
35x35	33000	4.24	22000	3.96	15000	3.69	8200	3.66	5600	3.24	3900	3.07	2700	2.90
35x40	39000	4.72	-	-	18000	4.16	10000	4.07	6800	3.71	4700	3.50	3300	3.31
35x45	47000	5.27	27000	4.75	-	-	12000	4.50	8200	4.16	5600	3.87	3900	3.69
35x50	-	-	33000	5.39	22000	4.92	-	-	10000	4.69	6800	4.19	4700	4.14

WV(V)	160		180		200		250		350		400		450	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x30	390	1.43	330	1.30	330	1.30	220	1.10	100	0.70	82	0.56	100	0.70
22x35	470	1.52	470	1.50	390	1.41	270	1.13	120	0.73	120	0.64	120	0.73
22x40	560	1.62	560	1.62	470	1.50	330	1.20	150	0.79	150	0.70	150	0.78
22x45	680	1.70	-	-	560	1.58	390	1.26	180	0.81	-	-	68	0.65
22x50	820	1.81	680	1.76	680	1.68	470	1.37	220	0.93	180	0.78	100	0.70
25x25	470	1.55	390	1.35	330	1.35	220	1.15	100	0.70	82	0.65	120	0.73
25x30	560	1.73	470	1.62	470	1.47	330	1.30	150	0.82	120	0.70	150	0.82
25x35	680	1.81	560	1.69	560	1.65	390	1.41	180	0.89	150	0.73	180	0.87
25x40	820	1.98	680	1.72	680	1.80	470	1.52	220	0.97	180	0.82	220	0.94
25x45	1000	2.04	820	1.78	-	-	560	1.59	-	-	220	0.87	150	0.83
25x50	1200	2.12	1000	1.91	820	1.87	680	1.66	270	1.01	270	0.94	180	0.86
30x30	820	1.98	680	1.74	680	1.82	470	1.36	180	0.90	180	0.83	220	0.95
30x35	1000	2.14	820	1.85	820	1.99	560	1.57	270	1.05	220	0.86	270	1.11
30x40	1200	2.22	1000	2.01	-	-	680	1.76	-	-	270	0.95	330	1.15
30x45	1500	2.46	1200	2.19	1000	2.17	820	1.73	330	1.16	330	1.11	220	0.91
30x50	-	-	1500	2.36	1200	2.22	1000	1.87	390	1.26	390	1.15	270	1.13
35x30	1200	2.40	1000	2.16	820	2.07	560	1.56	270	1.01	270	0.91	330	1.26
35x35	1500	2.53	1200	2.34	1000	2.22	820	1.82	330	1.16	330	1.13	390	1.31
35x40	-	-	1500	2.56	1200	2.42	1000	1.99	390	1.26	390	1.26	470	1.50
35x45	1800	2.98	1800	2.67	1500	2.59	1200	2.10	470	1.35	470	1.31	560	1.61
35x50	2200	3.10	-	-	1800	2.70	-	-	560	1.51	560	1.50	680	1.72

## Typical Curves



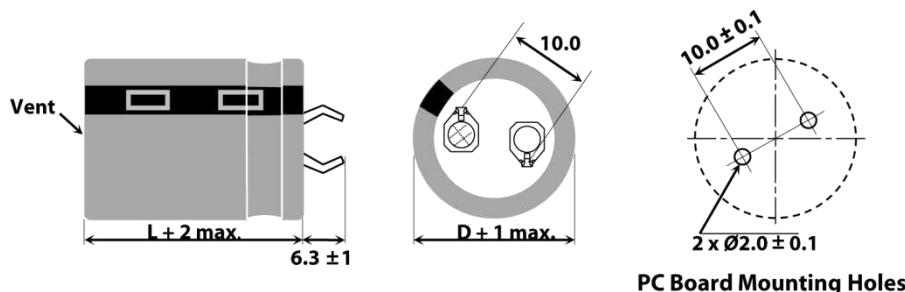
## Features

- ◎ 5000h at +85°C, 焊针型, Snap-in Type
- ◎ 高纹波电流,长寿命 High ripple current, Long life

## Specifications

Item	Characteristics									
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85					-25 ~ +85				
额定电压 Rated Voltage (V)	16 ~ 400					450				
标称容量 Nominal capacitance ( $\mu$ F)	68 ~ 22000									
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$									
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)									
损耗角正切值 Dissipation Factor(20°C,120Hz)	Rated voltage (V)	10	16	25	35	50	63~100	160~250	315~450	
	$\tan\delta$	0.8	0.6	0.5	0.4	0.3	0.2	0.15	0.15	
耐久性 Load Life(+85°C)	时间 time	5000 小时 5000 hours								
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value								
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value								
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value								
高温贮存 Shelf Life(+85°C)	时间 time	500 小时 500 hours								
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value								
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value								
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value								
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.									

## Dimensions mm



## Frequency Coefficient

Frequency(Hz) Voltage(v)	50	120	1k	10k	20k
$\leq 50$	0.95	1.00	1.10	1.15	1.15
63 ~ 100	0.95	1.00	1.16	1.30	1.33
$\geq 160$	0.90	1.00	1.20	1.50	1.55

## Temperature Coefficient

Frequency(Hz) Coefficient	+40	+55	+70	+85
Voltage(v)	<160	2.10	1.80	1.51
	$\geq 160$	1.70	1.50	1.30

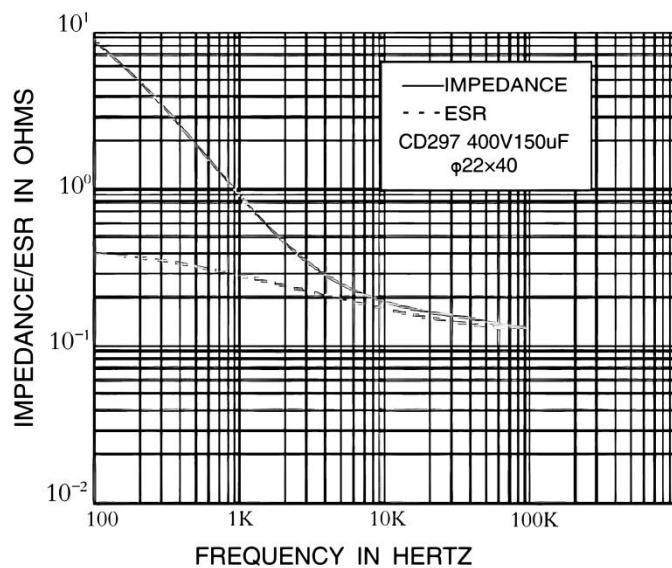
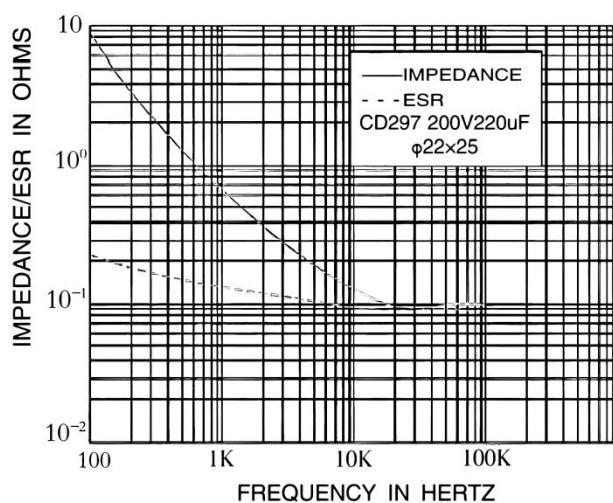
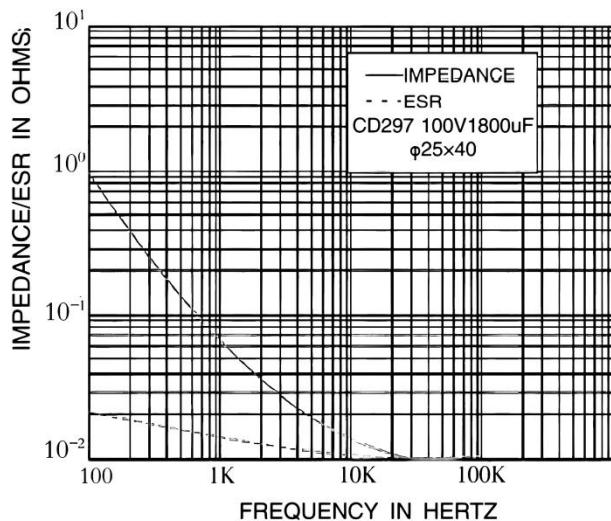
## Standard Ratings

(Rip.=Ripple current: 85°C, 100Hz or 120Hz)

WV(V)	10		16		25		35		50		63		80		100	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple										
	μF	(A)	μF	(A)	μF	(A)										
22x30	15000	3.2	10000	2.6	6800	2.3	3900	2.1	2700	1.9	2200	2.0	1200	1.5	820	1.2
22x35	18000	3.6	12000	2.9	8200	2.6	5600	2.3	3900	2.1	2700	2.2	1800	1.9	1200	1.6
22x40	22000	4.0	15000	3.3	10000	2.9	6800	2.9	4700	2.4	3300	2.3	2200	2.1	1500	1.8
22x45	-	-	18000	3.8	12000	3.3	-	-	-	-	3900	2.5	-	-	-	-
22x50	-	-	22000	4.2	-	-	8200	2.8	5600	2.5	-	-	2700	2.5	1800	2.1
25x25	15000	3.1	10000	2.6	6800	2.3	4700	2.2	2700	1.9	2200	2.0	1500	1.7	1000	1.4
25x30	18000	3.6	15000	3.3	10000	2.8	5600	2.3	3900	2.1	2700	2.3	1800	1.9	1200	1.6
25x35	22000	4.1	18000	3.7	12000	3.2	6800	2.6	4700	2.4	3300	2.3	2200	2.2	1500	1.7
25x40	-	-	22000	4.2	15000	3.7	8200	2.8	5600	2.5	3900	2.6	2700	2.5	1800	2.0
25x45	-	-	-	-	-	-	1000	3.1	6800	2.8	5600	3.1	3300	2.8	2200	2.2
25x50	-	-	-	-	18000	4.3	12000	3.5	8200	3.2	-	-	3900	3.1	2700	2.6
30x30	-	-	22000	4.2	12000	3.4	8200	2.8	5600	2.5	3900	2.6	2700	2.5	1800	2.1
30x35	-	-	-	-	18000	4.2	10000	3.2	6800	2.8	5600	3.2	3300	2.8	2200	2.3
30x40	-	-	-	-	22000	4.8	12000	3.5	8200	3.0	6800	3.6	3900	3.2	2700	2.7
30x45	-	-	-	-	-	-	15000	4.1	10000	3.4	-	-	4700	3.6	3300	3.0
30x50	-	-	-	-	-	-	18000	4.6	12000	3.8	8200	3.7	5600	3.5	3900	3.4
35x30	-	-	-	-	18000	4.4	12000	3.6	8200	3.0	5600	3.3	3900	3.2	2200	2.5
35x35	-	-	-	-	22000	5.0	15000	4.1	10000	3.4	6800	3.7	4700	3.6	3300	3.1
35x40	-	-	-	-	-	-	18000	4.7	12000	3.8	8200	3.8	5600	3.5	3900	3.4
35x45	-	-	-	-	-	-	22000	5.3	-	-	10000	4.3	-	-	-	-
35x50	-	-	-	-	-	-	-	-	15000	4.5	12000	4.8	6800	4.1	4700	4.0

WV(V)	160		180		200		250		315		350		400		450	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x30	390	1.5	330	1.4	330	1.4	220	1.1	150	0.85	120	0.82	100	0.70	68	0.57
22x35	560	1.9	470	1.7	390	1.6	270	1.2	180	0.96	150	0.94	120	0.79	100	0.72
22x40	680	2.1	560	1.9	470	1.8	330	1.4	220	1.1	180	1.1	150	0.90	120	0.80
22x45	-	-	-	-	560	2.0	390	1.6	270	1.2	220	1.2	180	1.0	-	-
22x50	820	2.5	680	2.3	-	-	470	1.8	-	-	-	-	220	1.1	150	0.95
25x25	390	1.5	390	1.5	330	1.4	220	1.1	150	0.85	120	0.81	100	0.70	-	-
25x30	560	1.9	470	1.7	390	1.6	330	1.4	180	0.96	150	0.94	150	0.89	100	0.73
25x35	680	2.2	560	2.0	560	2.0	390	1.6	220	1.1	220	1.2	180	1.0	120	0.83
25x40	820	2.4	680	2.2	680	2.3	470	1.8	270	1.3	-	-	220	1.2	150	0.95
25x45	1000	2.7	820	2.5	-	-	560	2.0	330	1.4	270	1.4	270	1.3	180	1.1
25x50	1200	3.1	1000	2.9	820	2.6	-	-	390	1.6	330	1.6	-	-	220	1.2
30x25	560	2	470	1.8	470	1.9	330	1.5	220	1.1	180	1.1	150	0.95	-	-
30x30	680	2.5	680	2.3	560	2.1	470	1.8	270	1.6	220	1.2	180	1.1	150	0.98
30x35	1000	2.8	820	2.6	680	2.4	560	2.0	330	1.4	270	1.4	220	1.2	180	1.1
30x40	1200	3.2	1000	2.9	820	2.7	680	2.3	390	1.6	390	1.7	270	1.4	220	1.3
30x45	1500	3.7	1200	3.3	1000	3.1	820	2.6	170	1.8	470	2.0	330	1.6	270	1.4
30x50	-	-	-	-	1200	3.4	-	-	560	2.0	-	-	390	1.8	-	-
35x30	1000	2.7	820	2.5	820	2.5	680	2.4	390	1.6	330	1.6	270	1.6	220	1.3
35x35	1200	3	1200	3.1	1000	2.8	820	2.6	470	1.8	390	1.8	330	1.7	270	1.5
35x40	1500	3.5	-	-	1200	3.2	1000	3.0	560	2.0	470	2.0	390	1.8	-	-
35x45	1800	3.9	1500	3.6	-	-	1200	3.4	680	2.3	560	2.3	470	2.1	390	1.9
35x50	2200	4.5	1800	4.1	1500	3.8	-	-	-	-	680	2.6	560	2.3	470	2.2

## Typical Curves



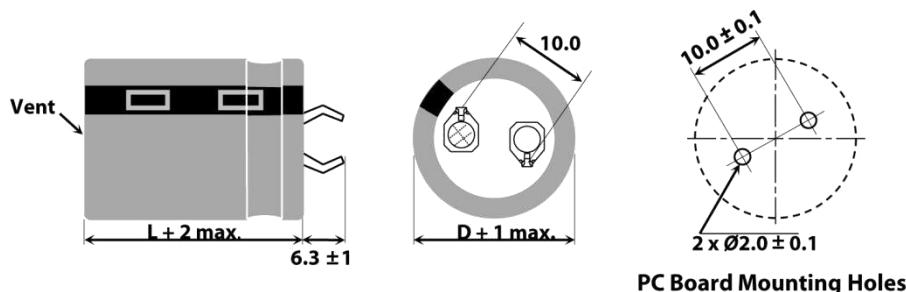
## Features

- ◎ 5000h at +105°C, 焊针型, Snap-in Type
- ◎ 宽温度, 长寿命 Wide temperature, Long life

## Specifications

Item	Characteristics															
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105						-25 ~ +105									
额定电压 Rated Voltage (V)	10~100						160~450									
标称容量 Nominal capacitance ( $\mu$ F)	68~56000															
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$															
漏电流 Leakage current ( $\mu$ A)	$I \leq 0.01CV$ or 1.5mA, which is smaller. (at 20°C ,after 5 minutes)															
损耗角正切值 Dissipation Factor(20°C,120Hz)	WV (V)	10	16	25	35	50	63	80	100	160~250	315~450					
	$\tan\delta$	0.55	0.5	0.45	0.4	0.35	0.3	0.25	0.2	0.15	0.2					
耐久性 Load Life(+105°C)	时间 time				5000 小时 5000 hours											
	容量变化率 Capacitance change				$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value											
	漏电流 Leakage current				$\leq$ 初始规定值 Not more than the Initial specified value											
	损耗角正切值 Dissipation factor				$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value											
高温贮存 Shelf Life(+105°C)	时间 time				500 小时 500 hours											
	容量变化率 Capacitance change				$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value											
	漏电流 Leakage current				$\leq$ 初始规定值 Not more than the Initial specified value											
	损耗角正切值 Dissipation factor				$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value											
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.															

## Dimensions mm



## Frequency Coefficient

Frequency(Hz) Voltage(v)	50	60	120	1k	10k
16 ~ 100	0.88	0.90	1.00	1.15	1.15
160 ~ 250	0.85	0.88	1.00	1.15	1.20
400 ~ 450	0.88	0.90	1.00	1.10	1.15

## Temperature Coefficient

Temperature(°C)	+40	+55	+70	+85	+105
Coefficient	2.10	1.80	1.51	1.00	0.80

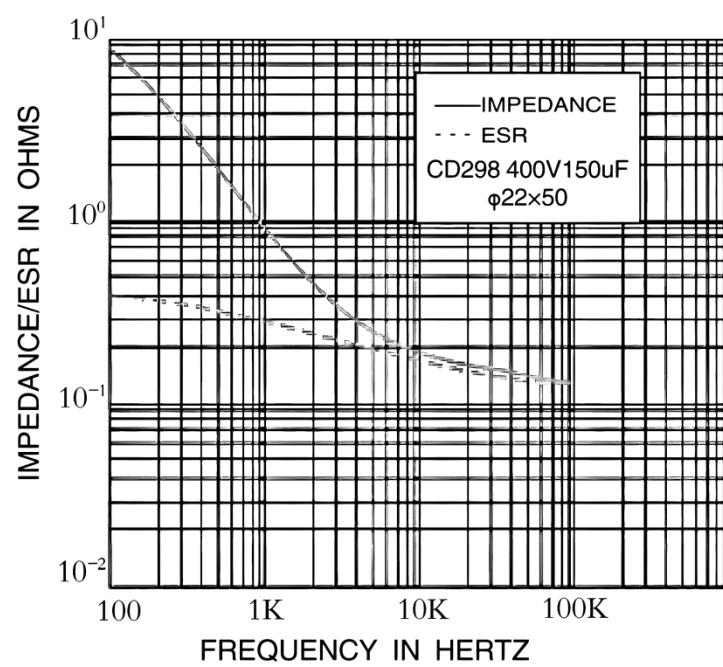
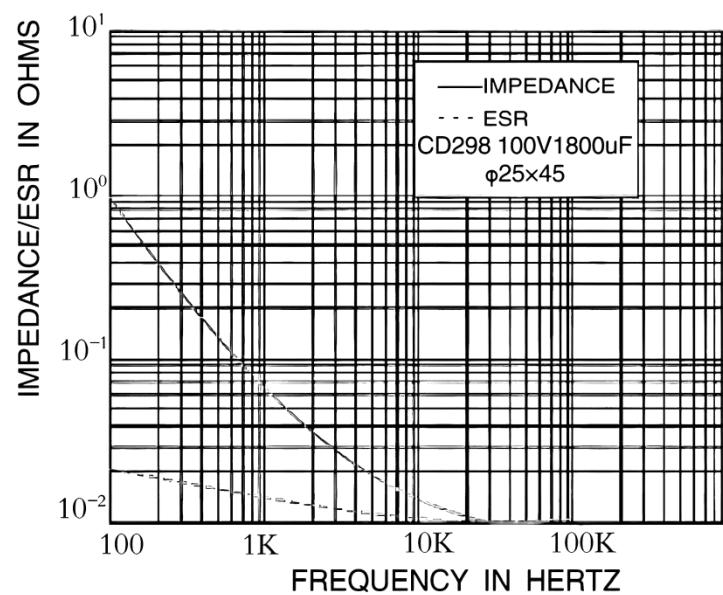
## Standard Ratings

Ripple current: 105°C, 100Hz or 120Hz

WV(V)	10		16		25		35		50		63		80		100	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple										
	µF	(A)	µF	(A)	µF	(A)										
22x30	10000	1.65	6800	1.66	4700	1.55	3300	1.54	2200	1.52	15200	1.41	1000	1.29	680	1.19
22x35	12000	1.85	10000	2.08	5600	1.77	3900	1.77	2700	1.77	1800	1.62	1200	1.48	820	1.33
22x40	15000	2.12	12000	2.36	6800	2.02	4700	2.01	3300	2.02	2200	1.85	1500	1.70	1000	1.56
22x45	18000	2.40	15000	3.69	8200	2.27	5600	2.25	3900	2.27	2700	2.10	1800	1.91	1200	1.76
22x50	-	-	-	-	10000	2.56	6800	2.49	-	-	-	-	-	-	1500	2
25x25	12000	1.82	8200	1.67	5600	1.56	3900	1.55	2200	1.46	1500	1.38	1200	1.32	820	1.26
25x30	15000	2.11	10000	2.07	6800	1.88	4700	1.87	2700	1.76	1800	1.63	1500	1.74	1000	1.52
25x35	18000	2.32	12000	2.37	8200	2.18	5600	2.18	3900	2.20	2700	2.03	1800	1.86	1200	1.76
25x40	22000	2.59	15000	2.72	10000	2.53	6800	2.45	4700	2.43	3300	2.33	-	-	1500	2.03
25x45	27000	3.01	18000	3.06	12000	2.79	8200	2.80	5600	2.72	3900	2.58	2200	2.22	1800	2.29
25x50	33000	3.43	22000	3.39	-	-	-	-	-	-	-	-	-	-	-	-
30x30	22000	2.73	15000	2.54	10000	2.38	6800	2.28	3900	2.09	2700	2.01	2200	2.02	1200	1.76
30x35	27000	3.13	18000	3.02	12000	2.70	8200	2.69	5600	2.58	3900	2.46	2700	2.50	1800	2.19
30x40	33000	3.53	22000	3.46	15000	3.13	10000	3.04	6800	3.01	4700	2.82	3300	2.69	2200	2.52
30x45	39000	3.78	27000	3.88	18000	3.52	12000	3.38	-	-	5600	3.22	3900	2.94	2700	2.86
30x50	47000	4.58	33000	4.33	22000	3.92	-	-	8200	3.63	-	-	-	-	-	-
35x30	27000	3.05	18000	3.09	12000	2.76	10000	2.78	5600	2.35	3900	2.31	2700	2.18	1800	2.05
35x35	33000	3.49	27000	3.85	18000	3.50	12000	3.30	6800	2.91	4700	2.77	3300	2.60	2200	2.48
35x40	39000	3.96	33000	4.33	22000	3.95	15000	3.88	8200	3.36	5600	3.20	3900	3.00	2700	2.87
35x45	47000	4.60	39000	4.96	-	-	18000	4.40	10000	3.79	6800	3.61	4700	3.44	3300	3.25
35x50	56000	5.06	47000	5.49	27000	4.72	-	-	12000	4.06	8200	3.94	5600	3.72	3900	3.56

WV(V)	160		180		200		250		315		350		400		450	
ΦDxL (mm)	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple
	µF	(A)	µF	(A)	µF	(A)	µF	(A)	µF	(A)	µF	(A)	µF	(A)	µF	(A)
22x30	270	0.76	270	0.76	220	0.70	180	0.64	82	0.38	82	0.40	68	0.38	68	0.38
22x35	330	0.90	330	1.90	270	0.83	220	0.76	120	0.48	120	0.52	100	0.46	82	0.44
22x40	470	1.11	390	1.03	330	0.95	270	0.88	150	0.56	150	0.59	120	0.53	100	0.5
22x45	560	1.26	470	1.17	470	1.17	330	1.01	180	0.63	180	0.68	-	-	-	-
22x50	680	1.44	560	1.32	-	-	390	1.13	220	0.72	220	0.78	150	0.63	120	0.58
25x25	330	0.84	270	0.76	270	0.76	180	0.62	100	0.41	100	0.47	82	0.41	-	-
25x30	390	0.97	330	0.90	330	0.92	220	0.76	120	0.49	120	0.53	100	0.48	82	0.45
25x35	470	1.14	390	1.05	390	1.06	270	0.92	180	0.62	150	0.60	120	0.55	100	0.52
25x40	680	1.42	560	1.32	470	1.22	390	1.14	220	0.71	180	0.70	150	0.65	120	0.58
25x45	820	1.63	680	1.51	560	1.39	470	1.29	270	0.81	220	0.82	180	0.72	150	0.66
25x50	-	-	820	1.71	680	1.58	560	1.45	330	0.92	270	0.94	220	0.79	180	0.74
30x30	470	1.17	470	1.17	470	1.17	330	1.00	180	0.63	180	0.71	120	0.56	120	0.58
30x35	680	1.50	560	1.33	560	1.38	390	1.15	220	0.74	220	0.82	180	0.74	1502	0.68
30x40	820	1.66	820	1.74	680	1.61	560	1.48	270	0.85	270	0.93	220	0.85	180	0.77
30x45	1000	1.89	1000	2.01	820	1.85	680	1.71	390	1.04	330	1.05	270	0.98	220	0.88
30x50	1200	2.16	1200	2.25	1000	2.11	820	1.94	470	1.15	390	1.18	330	1.12	270	0.99
35x30	820	1.63	680	1.49	680	1.49	470	1.24	270	0.75	270	0.90	220	0.89	180	0.77
35x35	1000	1.89	820	1.75	820	1.75	560	1.49	330	0.90	330	1.01	270	0.96	220	0.88
35x40	1200	2.23	1000	2.07	1000	2.07	680	1.74	390	1.05	390	1.13	330	1.12	270	1.02
35x45	1500	2.61	1200	2.23	1200	2.38	1000	2.20	470	1.18	470	1.26	390	1.27	330	1.15
35x50	1800	2.97	1500	2.76	1500	2.76	-	-	560	1.34	560	1.39	470	1.33	390	1.28

## Typical Curves



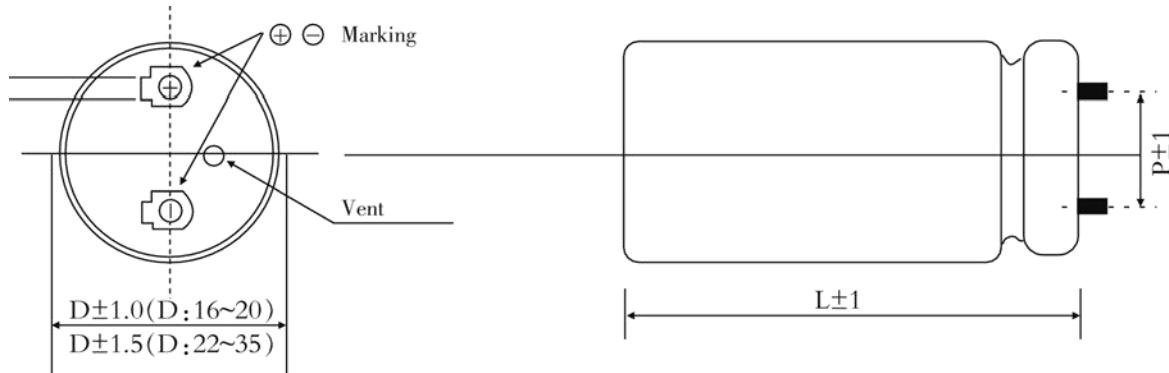
## Features

- ◎ Lug type, High stability
- ◎ Low leakage current reduces battery consumption
- ◎ Used for photo flash

## Specifications

项目 Item	特性 Characteristics								
使用温度范围 Operating temperature range(°C)	- 20 ~ +55								
额定电压范围 Rated voltage range(V)	330, 360								
标称电容量范围 Nominal capacitance range(μF)	150~1500								
标称电容量允许偏差 Capacitance tolerance(%)	-10% ~ +20% (25°C,120Hz)								
漏电流 Leakage current (μA)	$I \leq 1 \times C$ (20°C, 5 minutes) Max. C: Nominal Capacitance (μF)								
损耗角正切值 Dissipation factor (tgδ) (25°C,120Hz)	150~600μF : $\leq 0.1$ 700~1500μF : $\leq 0.15$								
充放电特性 Charge and discharge	+15°C ~ +35°C, 施加额定电压, 充放电间隔 30 秒, 共 5000 次, 放电负载 0.7 ~ 1.0Ω 氙气管。 Charge and discharge at rated voltage at +15°C ~ +35°C in every 30 seconds for 5000 times via Xe flash tube with discharge resistance of 0.7 ~ 1.0Ω. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">容量变化率 Capacitance change</td> <td style="padding: 2px;">±15%初始测量值以内 Within±15% of the initial value</td> </tr> <tr> <td style="padding: 2px;">漏电流 Leakage current</td> <td style="padding: 2px;">≤200%初始规定值 Not more than 200% of the Initial specified value</td> </tr> <tr> <td style="padding: 2px;">损耗角正切值 Dissipation factor</td> <td style="padding: 2px;">≤200%初始规定值 Not more than 200% of the Initial specified value</td> </tr> </table>	容量变化率 Capacitance change	±15%初始测量值以内 Within±15% of the initial value	漏电流 Leakage current	≤200%初始规定值 Not more than 200% of the Initial specified value	损耗角正切值 Dissipation factor	≤200%初始规定值 Not more than 200% of the Initial specified value		
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漏电流 Leakage current	≤200%初始规定值 Not more than 200% of the Initial specified value								
损耗角正切值 Dissipation factor	≤200%初始规定值 Not more than 200% of the Initial specified value								
高温贮存 Shelf life (+55°C±2°C)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">测试时间 Test time</td> <td style="padding: 2px;">500 小时 500 hours</td> </tr> <tr> <td style="padding: 2px;">容量变化率 Capacitance change</td> <td style="padding: 2px;">±10%初始测量值以内 Within±10% of the initial value</td> </tr> <tr> <td style="padding: 2px;">漏电流 Leakage current</td> <td style="padding: 2px;">≤200%初始规定值 Not more than 200% of the Initial specified value</td> </tr> <tr> <td style="padding: 2px;">损耗角正切值 Dissipation factor</td> <td style="padding: 2px;">≤200%初始规定值 Not more than 200% of the Initial specified value</td> </tr> </table> <p>试验后：施加标称电压 30 分钟，于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.</p>	测试时间 Test time	500 小时 500 hours	容量变化率 Capacitance change	±10%初始测量值以内 Within±10% of the initial value	漏电流 Leakage current	≤200%初始规定值 Not more than 200% of the Initial specified value	损耗角正切值 Dissipation factor	≤200%初始规定值 Not more than 200% of the Initial specified value
测试时间 Test time	500 小时 500 hours								
容量变化率 Capacitance change	±10%初始测量值以内 Within±10% of the initial value								
漏电流 Leakage current	≤200%初始规定值 Not more than 200% of the Initial specified value								
损耗角正切值 Dissipation factor	≤200%初始规定值 Not more than 200% of the Initial specified value								

## Dimensions



**Standard Ratings****●330WV.DC(350SV.DC)**

Capacitance (μF)	ΦD (mm)	16	18	20	22	25	30	35
(μF)	P	6.0	6.0	8.0	8.0	10.0	10.0	10.0
150	L (mm)	30	25	-	-	-	-	-
180		35	25	-	-	-	-	-
200		35	30	25	-	-	-	-
250		45	35	30	25	-	-	-
300		50	40	35	30	-	-	-
350		55	45	40	30	-	-	-
400		-	50	45	35	30	-	-
450		-	60	50	40	35	-	-
500		-	-	55	45	35	-	-
600		-	-	60	50	40	30	-
700		-	-		60	45	35	-
800		-	-	-	-	50	40	-
900		-	-	-	-	55	45	-
1000		-	-	-	-	60	45	40
1200		-	-	-	-	-	55	45
1300		-	-	-	-	-	60	50
1500		-	-	-	-	-	65	60

**●360WV.DC(390SV.DC)**

Capacitance (μF)	ΦD(mm)	16.0	18.0	20.0	22.0	25.0	30.0	35.0
(μF)	P	6.0	6.0	8.0	8.0	10.0	10.0	10.0
150	L(mm)	35	30	25	-	-	-	-
180		40	35	30	-	-	-	-
200		45	35	30	25	-	-	-
250		50	45	35	30	-	-	-
300		-	50	40	35	30	-	-
350		-	-	45	40	35	-	-
400		-	-	50	45	35	-	-
450		-	-	-	50	40	-	-
500		-	-	-	56	45	35	-
600		-	-	-	-	50	40	-
700		-	-	-	-	60	45	-
800		-	-	-	-	-	50	40
900		-	-	-	-	-	55	45
1000		-	-	-	-	-	60	50
1200		-	-	-	-	-	70	55.0
1300		-	-	-	-	-	-	60
1500		-	-	-	-	-	-	70

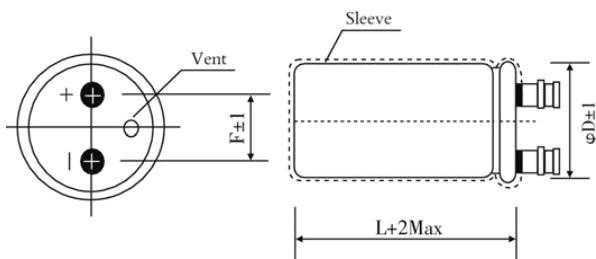
## Features

- ◎ 2000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ 宽电压, 大容量, 低损耗。Wide Voltage, Large capacitance, Low Loss
- ◎ 适用于 UPS 不间断电源, 空调逆变器等。Used in UPS and air conditioners etc.

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85	-25 ~ +85
额定电压 Rated Voltage (V)	10 ~ 250	350 ~ 500
标称容量 Nominal capacitance ( $\mu\text{F}$ )	1,000 ~ 2,500,000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01CV$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	Less than values shown in the standard ratings	
耐久性 Load Life(+85°C)	时间 time	2000 小时 2000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+85°C)	时间 time	500 小时 500 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.	

## Dimensions



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz) Voltage	50,60	120	300	1k	$\geq 10k$
10 ~ 50	0.95	1.00	1.04	1.10	1.15
63 ~ 100	0.90	1.00	1.06	1.16	1.30
160 ~ 500	0.80	1.00	1.10	1.25	1.50

## Temperature Coefficient

Temperature(°C)	40	60	70	85
Coefficient	2.70	2.00	1.70	1.00

## Standard Ratings

WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	-	mΩ	Arms	mm
10(13)	100000	1.50	9	8.9	51x80
	220000	1.50	8	11.5	51x120
	330000	1.50	7	15.6	65x100
	470000	1.50	6	16.8	65x120
	560000	2.00	5	19.2	77x120
	820000	2.00	4	24.5	77x145
	1000000	2.00	4	26.8	90x155
16(20)	100000	1.00	9	9.6	51x80
	220000	1.50	8	15.5	51x120
	330000	2.00	6	16.5	65x100
	470000	2.00	6	21.5	65x120
	560000	2.00	5	23.8	77x145
	820000	2.00	5	26.7	77x185
	1000000	2.00	4	28.5	77x185
	2000000	2.00	4	30.6	90x235
	2500000	2.00	3	32.3	101x250
25(30)	82000	0.60	5	10.4	36x80
	100000	0.80	4	10.3	51x80
	120000	0.80	4	11.7	51x100
	150000	0.80	3	14.1	51x120
	220000	1.00	3	16.1	65x120
	330000	1.00	2	21.9	77x120
	470000	1.20	2	25.6	77x145
35(44)	33000	0.40	9	7.2	36x70
	47000	0.50	8	8.7	36x80
	68000	0.60	6	9.8	51x80
	82000	0.60	5	11.6	51x80
	100000	0.60	4	13.3	51x80
	150000	0.80	4	14.9	65x100
	220000	0.80	3	20	77x120
	330000	1.00	2	23.5	77x145
	470000	1.00	2	29.6	77x145
	680000	1	1.7	31	101x250
50(63)	10000	0.30	26	4	36x50
	12000	.3	20	4.8	36x70
	15000	0.30	15	5.5	36x80
	18000	.35	13	6	51x80
	22000	0.40	11	6.3	51x80
	27000	.4	10	7	51x80
	33000	0.40	9	8.2	51x80
	47000	0.50	8	9.3	51x100
	68000	0.50	5	12	51x120
	100000	0.60	4	14.7	65x120

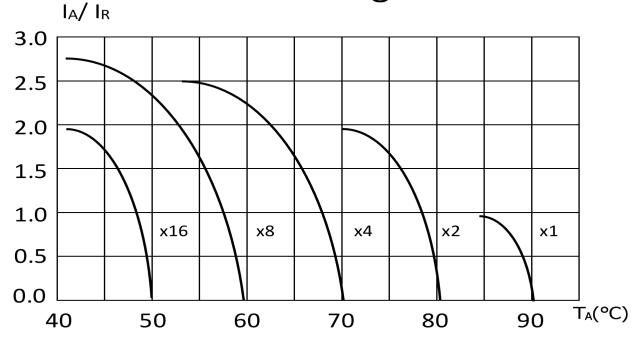
WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	-	mΩ	Arms	mm
50(63)	150000	0.60	3	19.3	77x120
	220000	0.60	2	21.4	77x145
	330000	0.70	2	23.6	77x185
	470000	0.70	1	25.8	90x145
63(79)	10000	0.25	23	4.9	36x70
	15000	0.30	16	5.9	36x80
	22000	0.30	13	7.8	51x80
	33000	0.40	8	8.4	51x80
	47000	0.40	6	11.3	51x100
	56000	0.40	6	12.8	51x120
	68000	0.50	5	12.7	65x100
	82000	0.50	4	14.5	65x120
	100000	0.50	4	16.7	77x120
	150000	0.50	2	22.4	77x145
	220000	0.60	2	26.2	90x145
	330000	0.60	2	28.9	90x185
80(100)	12000	0.25	15	5.9	36x80
	15000	0.25	12	6.8	51x80
	22000	0.30	10	8	51x80
	33000	0.30	7	10.5	51x120
	47000	0.30	5	13.6	65x100
	68000	0.40	4	15.4	77x120
	100000	0.40	3	20.5	77x120
100(125)	4700	0.25	26	3.5	36x60
	6800	0.25	22	4.5	36x70
	8200	0.25	20	5.1	36x80
	10000	0.25	19	5.9	36x80
	15000	0.25	12	7	51x80
	22000	0.25	8	10	65x100
	33000	0.25	6	11.9	65x120
	47000	0.35	5	14.2	77x145
	68000	0.35	3	18.8	77x145
	82000	0.35	3	20.5	77x185
120(150)	100000	0.35	3	24	77x185
	120000	0.35	3	26.2	90x235
	140000	0.35	3	30.5	101x250
160(200)	1000	0.25	39	4	36x60
	2200	0.25	33	4.8	36x70
	3300	0.25	27	5.2	36x80
	4700	0.25	21	5.9	51x80
	5600	0.25	19	7	51x80
	6800	0.25	16	7.8	51x100
	8200	0.25	14	9	51x120
	10000	0.25	13	10.4	65x100

## Standard Ratings

WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	-	mΩ	Arms	mm
160 (200)	12000	0.25	10	11.6	65x100
	15000	0.25	9	14.3	65x120
	18000	0.25	8	15.6	65x120
	22000	0.25	6	18.3	77x120
	33000	0.25	4	23.8	90x145
	47000	0.25	2	28.5	90x145
	56000	0.25	2	30.1	90x235
200 (250)	3300	0.25	24	4.9	51x80
	4700	0.25	20	6.4	51x100
	5600	0.25	18	7.6	51x120
	6800	0.25	14	8.8	65x100
	10000	0.25	9	10.4	77x120
	15000	0.25	7	14.4	77x120
	22000	0.25	4	19.6	77x145
	33000	0.25	3	25.3	90x155
	47000	0.25	2	28.2	90x185
250 (300)	2200	0.25	33	4	51x80
	3300	0.25	23	5.4	51x100
	4700	0.25	17	7.1	51x100
	6800	0.25	12	9.1	65x100
	10000	0.25	11	11.7	65x120
	15000	0.25	7	15.1	77x120
	22000	0.25	3	20.9	90x145
	27000	0.25	3	23.2	90x185
	33000	0.25	2	26.5	90x235
	47000	0.25	2	29.1	101x235
350 (400)	3300	0.25	32	7.9	51x120
	4700	0.25	25	10.3	65x120
	5600	0.25	22	11.4	77x120
	6800	0.25	17	13.1	77x145
	10000	0.25	12	18.1	90x155
	12000	0.25	10	20	90x155
	15000	0.25	8	24.5	90x185
	22000	0.25	6	28.2	90x235
	33000	0.25	4	31.3	101x250
400 (450)	2200	0.25	35	6.4	51x120
	3300	0.25	31	8.2	65x100
	4700	0.25	24	10.4	77x100
	5600	0.25	20	12.2	77x120
	6800	0.25	16	14.1	77x145
	8200	0.25	13	16.5	77x155
	10000	0.25	11	18.3	90x155
	12000	0.25	10	21.8	90x185

WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		85°C 120Hz	
V	μF	-	mΩ	Arms	mm
400	15000	0.25	8	26.3	90x235
	22000	0.25	6	29.5	90x235
	1000	0.25	82	3.5	51x80
	1500	0.25	58	5.1	51x100
	1800	0.25	46	5.9	51x120
	2200	0.25	33	6.3	65x100
	3300	0.25	30	8.7	65x120
	4700	0.25	24	10.9	77x120
	5600	0.25	16	12.8	77x145
	6800	0.25	14	15	77x145
450 (500)	8200	0.25	12	16.5	77x220
	10000	0.25	10	20	90x185
	12000	0.25	8	23.6	90x185
	15000	0.25	6	25	90x236
	1000	0.3	85	4.6	51x100
	1500	0.30	60	5.7	51x120
	2200	0.3	40	6.9	65x120
	3300	0.30	32	9.5	77x120
	4700	0.3	27	12	77x145
	5600	0.30	21	13.9	77x185
500 (550)	6800	0.3	18	16	90x155
	8200	0.30	14	17.5	90x185
	10000	0.3	10	22	90x235
	1000	0.3	85	4.6	51x100
	1500	0.30	60	5.7	51x120

Lifetime Diagram



$I_A$ =actual ripple current at 120Hz,  $I_R$ =rated ripple current at 120Hz, 105 °C  
Multiplier at useful Life as a function of ambient temperature and ripple load

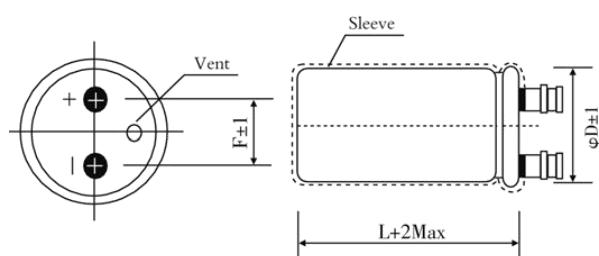
## Features

- ◎ 2000h at +105°C, 螺栓型 Screw Terminal Type
- ◎ 大容量, 高纹波电流 Large capacitance, high ripple current.
- ◎ 适用于变频器, 开关电源等 Used in inverters and power supplies etc.

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105	-25 ~ +105
额定电压 Rated Voltage (V)	25 ~ 100	160 ~ 500
标称容量 Nominal capacitance ( $\mu\text{F}$ )	1,000 ~ 680,000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01CV$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	Less than values shown in the standard ratings	
耐久性 Load Life(+105°C)	时间 time	2000 小时 2000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+105°C)	时间 time	500 小时 500 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.	

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz) Voltage	50,60	120	300	1k	$\geq 10\text{k}$
25 ~ 100	0.95	1.00	1.04	1.10	1.15
160 ~ 250	0.90	1.00	1.08	1.15	1.20
350 ~ 500	0.80	1.00	1.18	1.35	1.40

## Temperature Coefficient

Temperature(°C)		40	55	70	85	105
Coefficient	25~100V	4.90	3.90	3.00	1.80	1.00
	160~250V	3.80	3.30	2.50	2.00	1.00
	350~500V	2.40	2.30	2.10	2.00	1.00

## Standard Ratings

WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	-	mΩ	Arms	mm
25(30)	82000	0.60	6	10.8	51x80
	100000	0.60	5	11.3	51x100
	120000	0.80	4	11.9	51x120
	150000	0.80	4	12.9	65x100
	220000	1.00	3	14.8	65x120
	330000	1.00	2	19.9	77x120
	470000	1.20	1	20.3	77x145
	560000	1.5	1	21.5	77x185
	680000	1.8	1	22.6	90x155
35(44)	33000	0.40	7	6.7	36x80
	47000	0.45	6	8.1	51x80
	68000	0.50	5	10	51x80
	82000	0.55	5	11.5	51x100
	100000	0.60	4	12.1	51x100
	150000	0.70	3	13.8	65x120
	220000	0.70	2	17.6	77x120
	330000	0.80	2	18.9	77x145
	470000	0.85	1	19.8	90x145
50(63)	10000	0.25	22	4.1	36x50
	15000	0.30	14	4.9	36x80
	22000	0.35	10	5.9	51x80
	33000	0.40	7	7.8	51x80
	47000	0.40	6	9.5	51x100
	68000	0.45	5	11.6	65x100
	100000	0.50	4	14.1	77x120
	150000	0.50	3	18.9	77x145
	220000	0.55	2	19.8	77x145
63(79)	330000	0.55	1	20.6	90x145
	470000	0.60	1	21.9	90x185
	10000	0.25	20	4.4	36x80
	15000	0.25	14	5.7	51x80
	22000	0.30	10	6.8	51x80
	33000	0.30	7	9.2	51x100
	47000	0.35	6	10.9	51x100
	56000	0.35	6	12.1	51x120
	68000	0.40	5	13	65x100

WV (SV)	Cap.	tanδ	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	-	mΩ	Arms	mm
80(100)	12000	0.20	15	5.6	36x80
	15000	0.25	11	6.2	51x80
	22000	0.25	8	8.2	51x100
	33000	0.30	7	9.7	65x100
	47000	0.30	6	12.5	65x100
	56000	0.30	5	13.8	77x120
	68000	0.30	5	16.4	77x145
	100000	0.40	4	19.8	77x145
	4700	0.15	21	3.9	36x60
100(125)	6800	0.15	19	5	36x70
	8200	0.15	16	5.8	36x80
	10000	0.15	13	6.5	51x80
	15000	0.20	9	7.6	51x100
	22000	0.20	7	9.7	65x120
	33000	0.25	6	11.8	77x100
	47000	0.25	5	15	77x145
	68000	0.25	4	17.2	77x155
	82000	0.25	3	19.5	77x185
160(200)	100000	0.30	2	20.8	90x155
	120000	0.30	1	21.2	90x235
	150000	0.30	1	22.8	90x235
	2200	0.20	55	2.7	36x80
	4700	0.20	35	4.4	51x80
	5600	0.20	30	5.1	51x80
	6800	0.20	25	5.9	51x100
	10000	0.20	15	7.6	65x100
	12000	0.20	8	8.9	65x100
200(250)	15000	0.20	11	10.3	65x120
	18000	0.20	9	11.5	65x120
	22000	0.20	6	13.2	77x145
	33000	0.20	4	15.6	90x145
	47000	0.20	3	17.8	90x155
	56000	0.20	1	19.5	90x235
	3300	0.20	36	3.7	51x80
	4700	0.20	24	4.9	51x100
	5600	0.20	20	5.6	51x120

## Standard Ratings

WV (SV)	Cap.	Diss. Factor	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	-	mΩ	Arms	mm
250(300)	2200	0.2	28	3.1	51x80
	3300	0.2	20	4.2	51x100
	4700	0.2	15	5.4	51x100
	6800	0.2	10	6.9	65x100
	10000	0.2	8	9.3	65x120
	15000	0.2	6	12.2	77x145
	22000	0.2	4	13.5	90x155
	27000	0.2	2	14.7	90x185
	33000	0.2	1	16.1	90x235
350(400)	3300	0.2	30	8	51x120
	4700	0.2	23	11	65x120
	5600	0.2	20	12.1	77x120
	6800	0.2	15	13.5	77x145
	10000	0.2	12	18.6	90x155
	12000	0.2	10	21	90x155
	15000	0.2	8	26.1	90x185
	22000	0.2	6	29.6	90x235
	33000	0.2	4	31.5	101x250
400(450)	2200	0.2	30	4.5	51x120
	3300	0.2	20	6.2	65x100
	4700	0.2	13	8.7	77x120
	5600	0.2	12	9.3	77x145
	6800	0.2	11	10.7	77x145
	8200	0.2	10	12.3	90x145
	10000	0.2	9	14.1	90x155
	12000	0.2	9	15.8	90x185
	15000	0.2	6	17.5	90x235
	22000	0.2	6	19.2	90x235
	27000	0.2	4	21.6	101x250

Ripple Current: 105°C, 100Hz or 120Hz

WV (SV)	Cap.	Diss. Factor	Typ ESR	Ripple Current	Size φDxL
		20°C 120Hz		105°C 120Hz	
V	μF	-	mΩ	Arms	mm
450(500)	1000	0.2	90	4.2	51x80
	1500	0.2	54	5.7	51x100
	1800	0.2	45	6.8	51x120
	2200	0.2	33	7.3	65x100
	3300	0.2	22	10.1	65x120
	4700	0.2	15	12.6	77x120
	5600	0.2	11	15.8	77x145
	6800	0.2	9	17.2	77x145
	8200	0.2	8	19.1	77x220
500(550)	10000	0.2	6	20.9	90x185
	12000	0.2	4	22.6	90x185
	15000	0.2	3	24	90x236
	1000	0.3	85	4.6	51x100
	1500	0.3	60	5.7	51x120
	2200	0.3	40	6.9	65x120
	3300	0.3	32	9.5	77x120
	4700	0.3	27	12	77x145
	5600	0.3	21	13.9	77x185
	6800	0.3	18	16	90x155
	8200	0.3	14	17.5	90x185
	10000	0.3	10	22	90x235

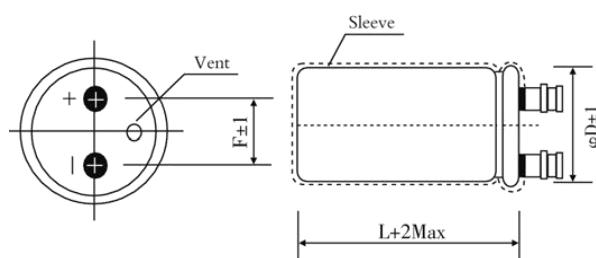
## Features

- ◎ CD92: 2000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ CD92H: 2000h at +105°C, 螺栓型, Screw Terminal Type
- ◎ 低电压, 大容量, 低损耗 Low voltage, Large capacitance, Low dissipation factor

## Specifications

Item	Characteristics											
使用温度范围 Operating Temperature Range(°C)	CD92: -40 ~ +85				CD92H: -40 ~ +105							
额定电压 Rated Voltage (V)	10 ~ 100											
标称容量 Nominal capacitance ( $\mu\text{F}$ )	2,200~470,000											
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$											
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01CV$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)											
损耗角正切值 Dissipation Factor(20°C,120Hz)	WV(V)	10	16	25	35~63	80	100					
	D=35	0.75	0.5	0.35	0.25	0.25	0.25					
	D=50	1	0.75	0.5	0.35	0.3	0.25					
	D=65	1.5	1	0.75	0.5	0.35	0.35					
	D=76	2	1.5	0.75	0.5	0.4	0.35					
耐久性 Load Life(+85°C)	时间 time	2000 小时 2000 hours										
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
高温贮存 Shelf Life(+85°C)	时间 time	500 小时 500 hours										
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value										
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value										
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value										
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.											

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Standard Ratings

WV(V)	10		16		25		35		50		63		80		100	
Cap (μF)	Size	Rip.														
	ΦDxL (mm)	(A)														
2200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36x50	2.1
3300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36x80	3.0
4700	-	-	-	-	-	-	-	-	-	-	36x50	3	36x80	3.4	36x100	3.9
6800	-	-	-	-	-	-	-	-	36x50	3.6	36x60	3.9	36x80	4.3	36x120	4.9
10000	-	-	-	-	-	-	36x50	4.3	36x60	4.7	36x80	5.1	36x80	6	51x80	6.0
15000	-	-	-	-	36x50	4.4	36x80	6.2	36x80	6.2	36x100	6.7	51x100	7	51x120	8.3
22000	-	-	36x50	4.5	36x80	6.3	36x100	8	36x80	7.3	51x80	7.4	65X100	7.8	65X120	9.1
33000	36x50	4.2	36x80	6.4	36x100	8.3	36x80	9	51x80	9	51x100	9.7	77x100	10.5	77x120	12.0
47000	36x80	6.2	36x100	8.2	36x80	8.9	51x80	11.5	51x100	11.5	60X100	10.5	77x120	13.5	-	-
68000	36x100	8	36x120	10.5	51x80	10.8	51x120	14.6	65X100	12.7	65X120	13.4	-	-	-	-
100000	36x120	10.4	51x80	10.7	51x120	148	65X100	15.4	77x120	16.6	-	-	-	-	-	-
150000	51x80	11.3	51x120	14.8	65X120	16.2	65X120	21.4	-	-	-	-	-	-	-	-
220000	51x120	15.5	65X120	17	77X120	21.2	-	-	-	-	-	-	-	-	-	-
330000	65X120	17	77x120	22.5	-	-	-	-	-	-	-	-	-	-	-	-
470000	77x120	21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Rip.= Ripple Current : 85°C(CD92H:105°C),100Hz or 120Hz

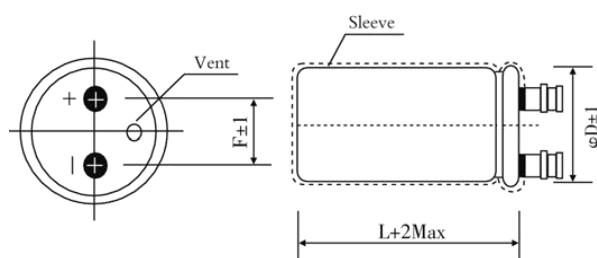
## Features

- ◎ 5000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ 长寿命, 高纹波电流 Long life, High ripple current
- ◎ 低阻抗 Low impedance

## Specifications

Item	Characteristics							
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85							
额定电压 Rated Voltage (V)	10 ~ 100							
标称容量 Nominal capacitance ( $\mu\text{F}$ )	1,000 ~ 220,000							
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$							
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.006CV + 4\text{mA}$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)							
损耗角正切值 Dissipation Factor(20°C,120Hz)	WV(V)		10	16	25	35~63	80	100
	tanδ	D=35	0.5	0.4	0.3	0.25	0.2	0.15
		D=50	0.75	0.5	0.4	0.3	0.25	0.2
		D=65	1	0.75	0.4	0.35	0.3	0.25
		D=76	1.5	1	0.75	0.5	0.4	0.35
耐久性 Load Life(+85°C)	时间 time			5000 小时 5000 hours				
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value				
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value				
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value				
高温贮存 Shelf Life(+85°C)	时间 time			500 小时 500 hours				
	容量变化率 Capacitance change			$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value				
	漏电流 Leakage current			$\leq$ 初始规定值 Not more than the Initial specified value				
	损耗角正切值 Dissipation factor			$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value				
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.							

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz)	50	100	400	1k	20k
Coefficient	0.70	1.00	1.08	1.10	1.15

## Standard Ratings

WV(V)	10			16			25			
	Cap (μF)	Size	Impedance	Ripple	Size	Impedance	Ripple	Size	Impedance	Ripple
		ΦDxL(mm)	Z(mΩ)	(A)	ΦDxL(mm)	Z(mΩ)	(A)	ΦDxL(mm)	Z(mΩ)	(A)
1000	-	-	-	-	-	-	-	-	-	-
1500	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-
3300	-	-	-	-	-	-	-	-	-	-
4700	-	-	-	-	-	-	36x60	23	5.2	
6800	-	-	-	-	-	-	36x60	21	5.2	
10000	-	-	-	36x60	20	6	36x80	15	6.7	
15000	36x60	20	6	36x80	14	7.5	36x100	11	9.7	
22000	36x80	14	7.5	36x100	10	10	51x80	9.5	12.5	
33000	36x100	10	10	51x80	9.5	13	51x100	8	18	
47000	51x80	9.5	14	51x100	8	18	65X100	5	27	
68000	51x100	8	18	65X100	5	28	65X100	5	27	
100000	65X100	5	30	65X100	5	28	77x100	4	37	
150000	65X100	5	30	77x100	4	37	-	-	-	
220000	77x100	4	37	-	-	-	-	-	-	

WV(V)	50			63			100			
	Cap(μF)	Size	Impedance	Ripple	Size	Impedance	Ripple	Size	Impedance	Ripple
		ΦDxL(mm)	Z(mΩ)	(A)	ΦDxL(mm)	Z(mΩ)	(A)	ΦDxL(mm)	Z(mΩ)	(A)
1000	-	-	-	-	-	-	36x60	67	3.0	
1500	-	-	-	-	-	-	36x60	60	3.3	
2200	-	-	-	36x60	33	3.7	36x80	42	4.6	
3300	36x60	32	4.5	36x60	30	3.7	36x100	28	6.5	
4700	36x60	33	4.5	36x80	21	5.2	51x80	25	7.4	
6800	36x80	23	6	36x100	15	7.5	51x100	18	9.9	
10000	36x100	17	7.5	51x80	14	9.5	65X100	11	15.0	
15000	51x80	13	10	51x100	10.5	13.5	65X100	10	15.8	
22000	51x100	10.5	15	65X100	6	21	77x100	8	20.5	
33000	65X100	6	21	65X100	6	22	-	-	-	
47000	65X100	6	22	77x100	4.5	30	-	-	-	
68000	77x100	4.5	30	-	-	-	-	-	-	

Ripple current: 85°C, 100Hz or 120Hz

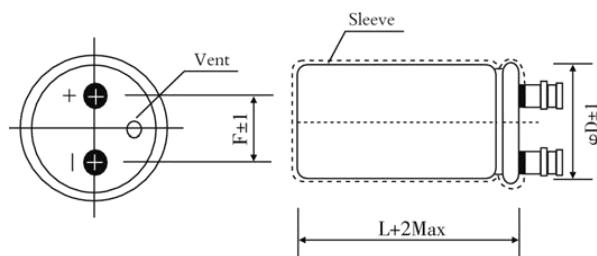
## Features

- ◎ 2000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ 中高压, 大容量, 高纹波电流。Medium and high Voltage, Large capacitance, High ripple current
- ◎ 适用于电焊机储能, UPS 等。Used in storing energy of electric welder and UPS etc.

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85	-25 ~ +85
额定电压 Rated Voltage (V)	160 ~ 250	350 ~ 450
标称容量 Nominal capacitance ( $\mu\text{F}$ )	220 ~ 18,000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.02\text{CV}$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	$\tan\delta \leq 0.25$	
耐久性 Load Life(+85°C)	时间 time	2000 小时 2000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+85°C)	时间 time	500 小时 500 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.	

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

**Standard Ratings**

WV(V)	160		200		250		350		400		450	
	Cap (μF)	ΦDxL (mm)	Ripple (A)	ΦDxL (mm)								
220	-	-	-	-	-	-	-	-	-	-	36x60	0.86
330	-	-	-	-	-	-	-	-	36x60	1.9	36x70	1.1
470	-	-	-	-	-	-	36x60	1.5	36x70	2.3	36x80	1.4
680	-	-	36x60	1.7	36x60	1.5	36x80	1.8	36x80	2.5	51x80	1.8
1000	36x60	1.7	36x70	2.3	36x80	1.9	51x80	2.3	51x80	2.8	51x100	2.4
1500	36x80	2.3	36x80	2.9	51x80	2.5	51x100	3.0	51x100	3.1	65x100	3.1
2200	36x80	2.9	51x80	3.8	51x100	3.5	65x100	3.9	65x120	3.8	65x120	4.0
3300	51x80	3.8	51x100	4.8	65x100	4.7	65x120	5.3	65x120	5.1	77x120	5.4
4700	51x100	4.8	65x100	6.3	65x120	5.7	77x120	7.0	77x120	6.7	77x140	6.2
6800	65x100	6.3	65x120	7.8	77x120	7.3	77x140	7.8	77x140	7.5	-	-
10000	65x120	7.8	77x120	10.6	77x140	8.2	-	-	-	-	-	-
15000	77x120	10.6	77x140	11.8	-	-	-	-	-	-	-	-
18000	77x140	11.8	-	-	-	-	-	-	-	-	-	-

Ripple current: 85°C, 100Hz or 120Hz

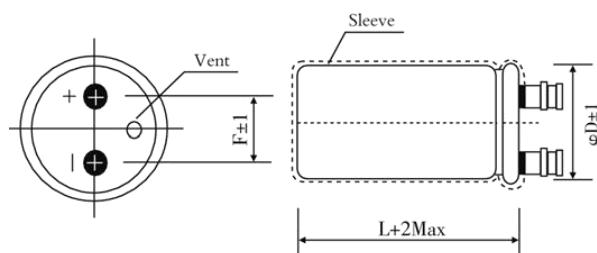
## Features

- ◎ 2000h at +105°C, 螺栓型, Screw Terminal Type
- ◎ 大容量, 高纹波电流。Large capacitance, high ripple current.
- ◎ 适用于变频器, 开关电源等。Used in inverters and power supplies etc.

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-25 ~ +105	
额定电压 Rated Voltage (V)	160 ~ 500	
标称容量 Nominal capacitance ( $\mu\text{F}$ )	270 ~ 39,000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.02CV$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	160~250 : $\tan\delta \leq 0.25$	350~450 : $\tan\delta \leq 0.2$
耐久性 Load Life(+105°C)	时间 time	2000 小时 2000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+105°C)	时间 time	500 小时 500 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.	

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz)	50,60	120	300	1k	$\geq 10\text{k}$
Coefficient	0.70	1.00	1.10	1.30	1.40

## Temperature Coefficient

Temperature(°C)	+70	+85	+105
Coefficient	2.10	1.70	1.00

## Standard Ratings

WV(V)	160		200		250		350		400		450		500	
Cap (μF)	ΦDxL (mm)	Ripple (A)												
270	-	-	-	-	-	-	-	-	-	-	36x53	3.7	36x53	3.7
330	-	-	-	-	-	-	-	-	36x53	4.1	36x83	4.9	36x83	4.9
389	-	-	-	-	-	-	36x53	4.5	36x83	5.3	36x83	4.3	36x83	4.3
470	-	-	-	-	-	-	36x83	5.8	36x83	5.8	36x83	5.6	36x83	5.6
560	-	-	-	-	-	-	36x83	6.4	36x100	6.4	36x100	6.9	36x100	6.9
680	-	-	-	-	-	-	36x83	7	36x100	7.6	36x100	7.6	36x100	7.6
820	-	-	-	-	-	-	36x100	8.3	36x100	8.3	51x80	8.6	51x80	8.6
1000	-	-	-	-	-	-	51x80	9.2	51x80	9.4	51x80	9.4	51x80	9.4
1200	-	-	-	-	-	-	51x80	10.3	51x80	10.3	51x100	11.4	51x100	11.4
1500	-	-	-	-	36x100	8.7	51x100	11.5	51x100	12.7	51x120	13.7	51x120	13.7
1800	-	-	-	-	36x100	9.5	51x100	13.9	51x100	13.9	51x145	15.8	51x145	15.8
2200	-	-	36x100	10.6	51x80	10.8	51x145	15.4	51x120	17.4	65x100	17.0	65x100	17.0
2700	-	-	36x121	12.7	51x80	12	51x145	19.3	51x145	18.8	65x100	20.2	65x100	20.2
3300	36x121	14	51x80	13.3	51x100	14.6	65x120	21.4	65x120	22.2	65x145	23.4	65x145	23.4
3890	51x80	14.4	51x80	14.4	51x120	17	65x145	24.2	65x145	25.4	77x100	25.6	77x100	25.6
4700	51x80	15.8	51x100	17.4	65x100	19.2	65x145	27.9	65x145	28.2	77x145	29.4	77x145	29.4
5600	51x100	19	51x120	20.4	65x100	21	77x120	30.7	77x145	32.2	77x157	34.6	77x157	34.6
6800	51x100	21	51x145	12.7	65x120	24.7	77x155	35.4	77x155	38.0	90x157	40.5	90x157	40.5
8200	51x120	24.7	65x100	25.4	65x120	27.1	77x155	41.7	90x157	44.4	90x157	44.6	90x157	44.6
10000	65x100	28	65x100	28	65x145	31.5	90x157	49	90x157	49.4	90x196	53.9	90x196	53.9
12000	65x100	30.6	77x100	32.6	77x120	34.8	90x157	54.1	90x196	59.1	90x236	63.8	90x236	63.8
15000	65x145	38.6	77x100	39	77x145	40.8	90x196	66.2	90x236	71.1	-	-	-	-
18000	65x145	42.2	77x145	44.6	77x155	57.8	86X236	76.9	-	-	-	-	-	-
22000	77x145	49.4	77x155	53	90x157	56.5	-	-	-	-	-	-	-	-
27000	77x145	54.7	90x145	58.2	-	-	-	-	-	-	-	-	-	-
33000	90x145	65.2	90x157	69	-	-	-	-	-	-	-	-	-	-
39000	90X157	75.3	-	-	-	-	-	-	-	-	-	-	-	-

Ripple current: 105°C, 100Hz or 120Hz

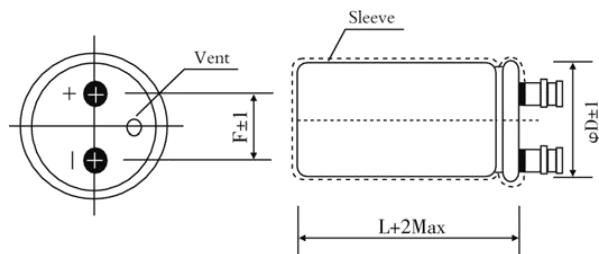
## Features

- ◎ 5000h at +105°C, 螺栓型, Screw Terminal Type
- ◎ 宽温度, 长寿命 Wide temperature, Long life

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-40 ~ +105	
额定电压 Rated Voltage (V)	350 ~ 500	
标称容量 Nominal capacitance ( $\mu\text{F}$ )	1,000 ~ 15,000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01CV$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	$\tan\delta \leq 0.15$	
耐久性 Load Life(+105°C)	时间 time	5000 小时 5000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+105°C)	时间 time	500 小时 500 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.	

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz)	50,60	120	300	1k	$\geq 10\text{k}$
Coefficient	0.70	1.00	1.10	1.30	1.40

## Temperature Coefficient

Temperature(°C)	+70	+80	+105
Coefficient	21	1.7	1.0

## Standard Ratings

WV(V)	350		400		450		500	
Cap(μF)	ΦDxL(mm)	Ripple(A)	ΦDxL(mm)	Ripple (A)	ΦDxL(mm)	Ripple (A)	ΦDxL(mm)	Ripple (A)
1000	51x80	3.9	51x80	3.9	51x100	4.2	51x100	4.2
1200	51x80	4.2	51x100	4.6	51X115	5.0	51X115	5
1500	51x100	5.2	51X115	5.6	51x120	5.9	51x120	5.9
1800	51x100	5.7	51x120	6.4	65x100	6.3	65x100	6.3
2200	51x120	7.1	65x100	6.9	65x120	7.4	65x120	7.4
2700	65x100	7.7	65x120	8.2	65x120	8.6	65x120	8.6
					77x120	8.7	77x120	8.7
3300	65x120	9.1	65x120	9.5	65X155	10.2	65X155	10.2
					77x120	10.1	77x120	10.1
3900	65x120	10.4	65X155	11.1	65X195	12.3	65X195	12.3
			77x120	10.4				
4700	65X155	12.2	65X196	13.4	77x145	12.9	77x145	12.9
	77x120	11.5	77x120	12.0				
5600	65X195	14.6	65X195	14.6	77X195	15.4	77X195	15.4
	77x120	13.1	77x145	14.0	90X157	14.9	90X157	14.9
6800	77x145	15.5	90X157	16.5	90X196	18.0	90X196	18
8200	90X157	18.1	90X157	18.1	90X196	19.8	90X196	19.8
10000	90X157	19.9	90X196	21.7	90X236	23.6	90X236	23.6
12000	90X196	23.8	90X236	25.8	-	-	-	-
15000	90X236	28.8	-	-	-	-	-	-

Ripple current: 105°C, 100Hz or 120Hz

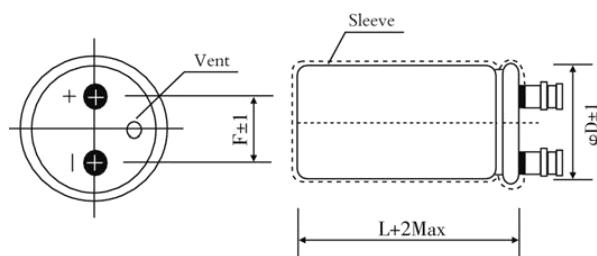
## Features

- ◎ 10000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ 大容量, 高纹波电流。Large capacitance, high ripple current.
- ◎ 适用于变频器, 开关电源等。Used in inverters and power supplies etc.

## Specifications

Item	Characteristics	
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85	
额定电压 Rated Voltage (V)	350 ~ 500	
标称容量 Nominal capacitance ( $\mu\text{F}$ )	1000 ~ 18000	
容量偏差 Capacitance Tolerance(20°C,120Hz)	$\pm 20\%$	
漏电流 Leakage current ( $\mu\text{A}$ )	$I \leq 0.01\text{CV}$ or 5mA, which is smaller. (at 20°C ,after 5 minutes)	
损耗角正切值 Dissipation Factor(20°C,120Hz)	$\tan\delta \leq 0.15$	
耐久性 Load Life(+85°C)	时间 time	10000 小时 10000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
高温贮存 Shelf Life(+85°C)	时间 time	1000 小时 1000 hours
	容量变化率 Capacitance change	$\pm 20\%$ 初始测量值以内 Within $\pm 20\%$ of the initial value
	漏电流 Leakage current	$\leq$ 初始规定值 Not more than the Initial specified value
	损耗角正切值 Dissipation factor	$\leq 200\%$ 初始规定值 Not more than 200% of the Initial specified value
试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.		

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Frequency Coefficient

Frequency(Hz)	50,60	120	300	1k	$\geq 10\text{k}$
Coefficient	0.70	1.00	1.10	1.30	1.40

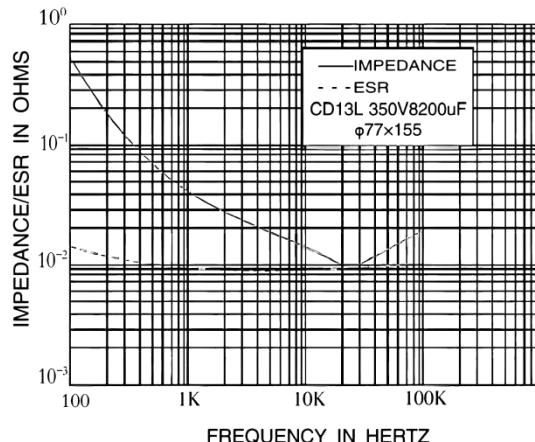
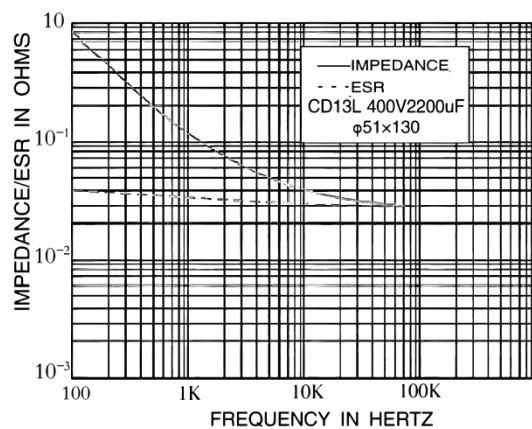
## Temperature Coefficient

Temperature(°C)	+40	+60	+85
Coefficient	1.89	1.67	1.00

## Standard Ratings

WV(V)	350		400		450		500	
Cap(μF)	ΦDxL (mm)	Ripple (A)	ΦDxL (mm)	Ripple (A)	ΦDxL (mm)	Ripple (A)	ΦDxL (mm)	Ripple (A)
1000	-	-	51x80	5.0	51x80	5.0	51x80	5
1200	51x80	5.5	51x80	5.5	51x100	6.0	51x100	6
1500	51x80	6.1	51x100	6.7	51x120	7.2	51x120	7.2
1800	51x100	7.4	51x100	7.4	51x130	8.3	51x130	8.3
2200	51x100	8.2	51x120	9.2	65x100	9.0	65x100	9
2700	51x130	10.2	65x100	9.9	65x120	10.7	65x120	10.7
3300	51x130	11.3	65x120	11.8	65x120	12.4	65x120	12.4
3900	65x120	12.8	65x120	13.5	65x155	14.5	65x155	14.5
					77x120	13.6	77x120	13.6
4700	65x120	14.8	65x155	15.9	65x196	17.5	65x196	17.5
			77x120	14.9	77x120	15.6	77x120	15.6
5600	65x155	17.3	65x196	19.1	77x145	18.3	77x145	18.3
	77x120	16.3	77x120	17.0				
6800	65x196	21.1	77x145	20.2	90x157	21.4	90x157	21.4
	77x120	18.8						
8200	77x145	22.1	90x157	23.5	90x157	23.5	90x157	23.5
10000	90x157	25.9	90x157	25.9	90x196	28.3	90x196	28.3
12000	90x157	28.4	90x196	31.0	90x236	33.6	90x236	33.6
15000	90x196	34.6	90x236	37.5	-	-	-	-
18000	90x236	41.4	-	-	-	-	-	-

Ripple current: 85°C, 100Hz or 120Hz



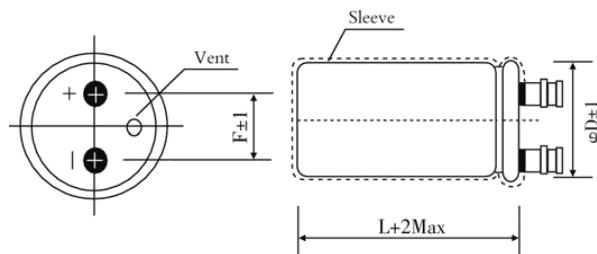
## Features

- ◎ 3000h at +85°C, 螺栓型, Screw Terminal Type
- ◎ 大容量, 高纹波电流。 Large capacitance, High ripple current
- ◎ 适用于汽车音响 Used for car audio system

## Specifications

Item	Characteristics		
使用温度范围 Operating Temperature Range(°C)	-40 ~ +85	容量偏差 Capacitance Tolerance(20°C,120Hz)	±20%
额定电压 Rated Voltage (V)	16, 20, 25	Max ESR(mΩ)(20°C,120Hz)	30
标称容量 Nominal capacitance (F)	0.5F ~ 2F	Max impedance(mΩ)(20°C,120Hz)	21
漏电流 Leakage current (μA)	$I \leq 3\sqrt{CV}$ (at 20°C ,after 5 minutes)		
耐久性 Load Life(+85°C)	时间 time	3000 小时 3000 hours	
	容量变化率 Capacitance change	±20%初始测量值以内 Within±20% of the initial value	
	漏电流 Leakage current	≤初始规定值 Not more than the Initial specified value	
高温贮存 Shelf Life(+85°C)	时间 time	1000 小时 1000 hours	
	容量变化率 Capacitance change	±20%初始测量值以内 Within±20% of the initial value	
	漏电流 Leakage current	≤初始规定值 Not more than the Initial specified value	
	试验后: 施加标称电压 30 分钟, 于 24 至 48 小时之间测试。 After test: UR to be applied for 30 minutes, 24 to 48 hours before measurement.		

## Dimensions mm



D	36	51	65	77	90	101
F	12.7	22	28.2	31.4	31.4	41.5

## Standard Ratings

WV	16			20			25		
	Cap (μF)	Size	Ripple	Dissipation Factor	Size	Ripple	Dissipation Factor	Size	Ripple
		DxL(mm)	(A)		DxL(mm)	(A)		DxL(mm)	(A)
500000	77X110	32	1.5	77X110	33	1.5	77x155	35	1.5
800000	77X155	38	2.0	77X220	39	2.0	90x157	40	2.0
1000000	77X220	40	2.5	90X157	42	2.5	90x196	45	2.5
1200000	77X220	45	2.5	90X196	47		90x196	50	2.5
1500000	90X196	48	3.0	90X236	50	3.0	90x236	56	3.0
2000000	90X236	56	3.0	100x236	58		100x236	62	3.0

Ripple current: 85°C, 100Hz or 120Hz. Dissipation Factor: 20°C,100Hz