

客户

CUSTOMER: _____

NA CHUANG ELECTRONICS CO.,LTO

承認書

SPECIFICATION FOR APPROVAL

Hyncdz[®]

產品名稱： 铝电解电容器
客戶物料編號： HY2W330M160200CD288
承制方型號： 450V33 μ F 16X20
日期：
物料环保标准： ROHS



承制方確認

拟制	审核	批准
黄烈群		涂斯淇

使用方確認

	审核	批准
		

承制方:

地址:

電話:

傳真:

簽認后, 敬請返回一份, 多謝!

1、概述 SCOPE

本承认书规定了径向引出铝电解电容器的技术规范.

This specification covers miniature single-ended aluminum electrolytic capacitors.

2、参考标准 APPLICABLE SPECIFICATION

本承认书参考 JIS C5141 制定.

JIS C5141 Characteristics as specified in this specification.

3、工作温度范围 OPERATING TEMPERATURE RANGE

工作温度范围是电容器在施加额定工作电压条件下,可以长期可靠工作的环境温度范围.

$$-40\sim+105^{\circ}\text{C}(\leq 100\text{V}) \quad -25\sim+105^{\circ}\text{C}(\geq 160\text{V})$$

Operating temperature range is the range of ambient temperature at which the capacitor can be operated continuously at rated voltage.

$$-40\sim+105^{\circ}\text{C}(\leq 100\text{V}) \quad -25\sim+105^{\circ}\text{C}(\geq 160\text{V})$$

4、品质保证项目 CONTENTS OF QUALITY ASSURANCE

4.1、如果没有其他规定,标准的测试、检验环境条件如下所示:

环境温度: 15 至 35°C

相对湿度: 45 至 75%

大气压力: 86Kpa 至 106Kpa

如果对测试结果有异议,可以在以下条件测试:

环境温度: $20\pm 2^{\circ}\text{C}$

相对湿度: 60 至 70%

大气压力: 86Kpa 至 106Kpa

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows.

Ambient temperature : 15 to 35°C

Relative humidity : 45 to 75%

Air pressure : 86kpa to 106kpa

If there may be doubt on the results, measurements shall be made within the following limits.

Ambient temperature : $20\pm 2^{\circ}\text{C}$

Relative humidity : 60 to 70%

Air pressure : 86Kpa to 106Kpa

铝电解电容器使用注意事项

IMPORTANT INFORMATION ON THE APPLICATION OF ALUMINUM ELECTROLYTIC CAPACITORS

- (1). 直流铝电解电容应按正确的极性使用 DC electrolytic capacitors are polarized

当直流铝电解电容器按反极性接入电路时，电容器会导致电子线路短路，由此产生的电流会引致电容器损坏。若电路中有可能在负引线施加正极电压，请选无极性产品。

When reverse voltage is applied on DC electrolytic capacitor, the capacitor will become short-circuited please use no polarized capacitors in the circuit be damage due to abnormal current flows through the capacitors since the circuit where the positive voltage may be applied to the cathode terminal.

- (2). 在额定工作电压以下作用 Use capacitor within rated voltage

当电容器上所施加电压高于额定工作电压时，电容器的漏电流将上升，其电气特性将在短时间内劣化直至损坏。请注意电压峰值勿超出额定工作电压。

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

- (3). 作快速充放电使用 Charge and discharge application.

当常规电容器被用作快速充电用途。其使用寿命可能会因为容量下降，温度急剧上升等而缩减。

When aluminum electrolytic capacitors for general purpose are employed in rapid charge and discharge application, its life expectancy may be shortened by capacitance decrease, heat rise, etc.

- (4). 电容器贮存 Store the capacitor.

当铝电解电容器作了长期贮存后，其漏电流通常升高，贮存温度愈高，漏电流上升愈快。因此应注意贮存环境的选择，在电容器上施加电压后，漏电流值将不断下降，在铝电解电容器的漏电流值上升对电路有不良影响的，请在使用前充电处理。

Increased leakage current is common in aluminum capacitors which have been stored for long period of time. The Higher the storage temperature, the higher the leakage current decreases gradually as voltage is applied to the capacitor. In cases where increased leakage current causes problems in the circuit, apply voltage (aging) before using.

- (5). 施加纹波电流应少于额定值 Ripple current applied to capacitor should not exceed the rated value.

施加纹波电流超过额定值后，会导致电容器体过热，容量下降，寿命缩短。所施加纹波电压的峰值应少于额定工作电压。

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

- (6). 使用环境温度 Ambient temperature.

铝电解电容器的使用寿命会受到环境温度的影响。据科学统计，使用环境温度下降 10℃ 其使用寿命

命增加 1 倍。

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

(7). 引出线强度 Lead stress

当拉力施加到电容器引出线，该拉力将作用于电容器内部，这将导致电容器内部短路，开路或漏电流上升。在电容器焊装到电路板，请勿强烈摇动电容器。

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

(8). 焊接过程耐热性 Heat resistance at the soldering process

铝电解电容器装至电路板进行浸焊或波焊时，其塑料套管可能因焊接时间过长、温度过高而发生破裂或二次收缩。

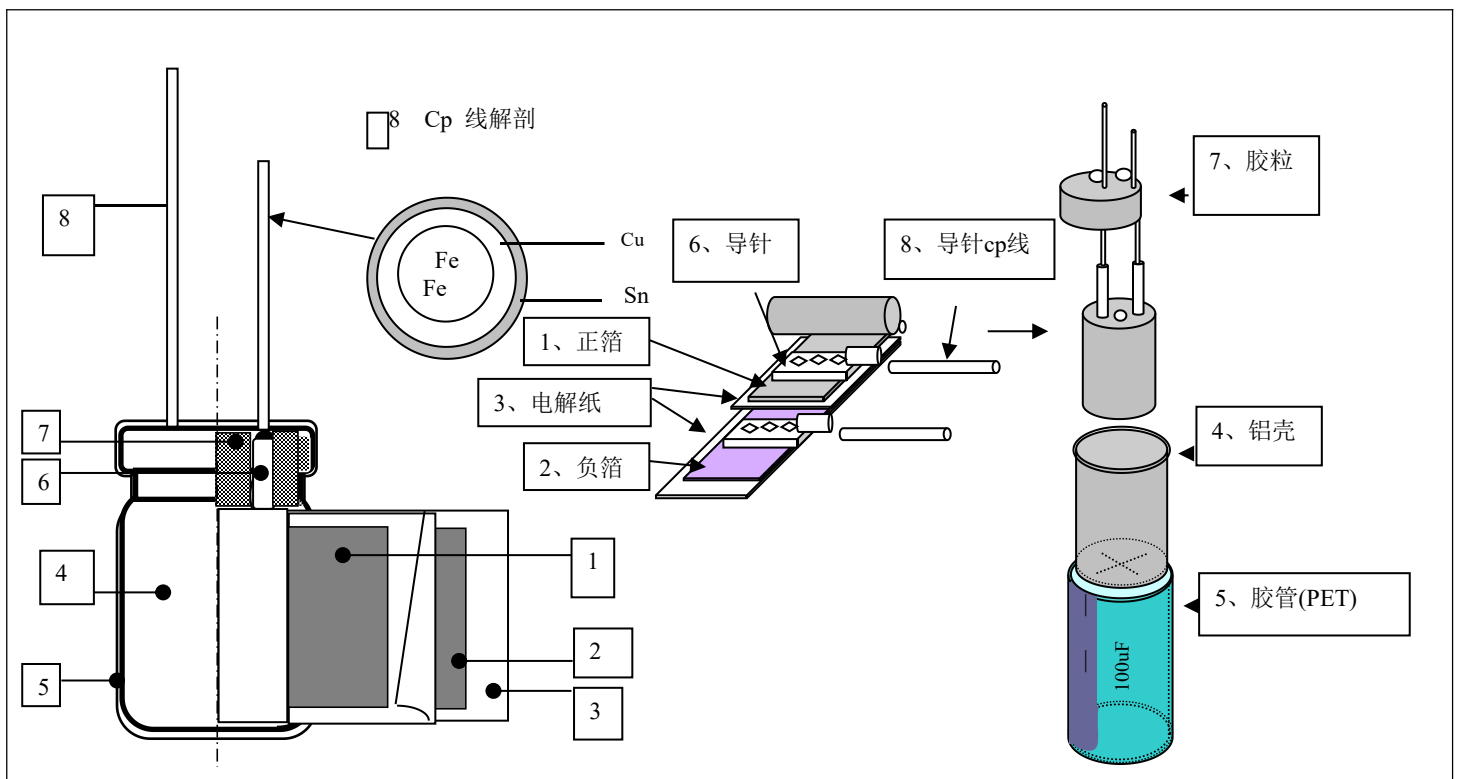
In the dip soldering process of PC board with aluminum electrolytic capacitors mounted, secondary shrinkage or crack of PVC sleeve may be observed when solder temperature is too high or dipping time is too long.

(9). 电路板的安装孔孔距及安装位置 Hole pitch and position of PC board.

电路板安装孔的设计应与产品说明书的引线脚距相一致，如果将电容器强行插入孔距不配套的电路板，那么会有应力作用于引出线，这将导致短路或漏电流上升。

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

产品结构图



CD288 (G) Series

CD288 系列 105℃

特点

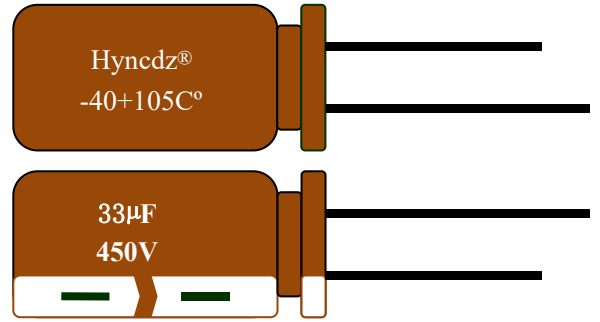
- ◆ 适用于通讯设备、开关电源等电路中。
- ◆ 105℃负荷寿命达5000小时。
- ◆ 安全防爆阀设计。

CD288 Series 105℃

Features

- ◆ Used in communication equipments, switching power supply, etc.
- ◆ Load life 5000 hours at 105℃
- ◆ Safety vent construction design.

技术要求 Specifications



项目Item	特性Performance Characteristics															
使用温度范围 Operating Temperature Range	-40to+105℃								-25to+105℃							
额定电压范围 Rated Voltage Range	6.3to100VDC								160to500VDC							
电容量范围 Capacitance Range	0.1to4700 µ F								0.47to220 µ F							
电容量允差 Capacitance Tolerance	±20% (100Hz or 120Hz, +20℃)															
漏电流Leakage Current (+20℃, 最大max)	I ≤ 0.01CV或3 (µ A) 额定工作电压充电1分钟后读数, 取大者 I ≤ 0.01CV or 3 (µ A) After 1minutes, whichever is greater measured with rated working voltage applied								I ≤ 0.03CV+10 (µ A) 额定工作电压充电1分钟后读数, 取大者 I ≤ 0.03CV+10 (µ A) After 1minutes, whichever is greater measured with rated working voltage applied							
损耗角正切值 Dissipation Factor (tg δ)	工作电压Working Voltabe (VDC)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
	D.F(%)最大	18	16	14	12	10	9	8	8	8	8	12	12	15	17	17
	容量>1000 µ F时, 每增加1000 µ F D.F值增加2%(100Hz or 120Hz, +20℃) For capacitance 1000 µ F, Add 2% per another 1000 µ F (100Hz or 120Hz, +20℃)															
低温特性 Low Temperature Characteristics (120Hz)	阻抗比, 最大Impedance ratio ,max															
	工作电压Working Voltage(VDC)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
	Z - 25℃ / Z+20℃	4	3	3	3	3	3	2	2	2	2	2	2	6	7	7
Z - 40℃ / Z+20℃	8	6	4	3	3	3	3	3								
	容量>1000 µ F时, 每增加1000 µ F, Z - 25℃ / Z+20℃值增加0.5%, Z - 40℃ / Z+20℃值增加1% Fpr capacitance>1000 µ F, and 0.5% per another 1000 µ F for Z-25℃/Z+20℃, add 1% per another 1000 µ F for Z-40℃ /Z+20℃															
负荷寿命Load Life	试验条件								Test conditions							
	持续时间:5000小时								Duration time: 5000hours							
	环境温度:+105℃								Ambient timperature: +105℃							
	施加电压:额定工作电压(VDC)								Applied voltage: Rated Working Voltage(DVC)							
	试验后要求:室温下恢复16小时,+20℃测试								After test requirements: Resumde 16 hours at normal temperature							
	电容量变化:≤20%规定值								Capacitance change:≤20% of the initial measured value							
	损耗角正切值:≤200%初始值								Dissipation Factor:≤200% of the initial specified value							
漏电流:≤规定值								Leakage Current:≤The initial specified value								
储存寿命Shelt Life	试验条件								Test conditions							
	持续时间:1000小时								Duration time: 1000hours							
	环境温度:+105℃								Ambient temperature:+105℃							
	施加电压:无								Applied voltage: None							
	试验后要求:室温下恢复16小时,+20℃测试								After test requirements: Resumed 16 hours at normal timperature							
	电容量变化:≤20%规定值								Capacitance change:≤20% of the initial measured value							
	损耗角正切值:≤200%初始值								Dissipation Factor:≤200% of the initial specified value							
漏电流:≤200%规定值								Leakage Current:≤200% of the initial specified value								

CD288 (G) Series

纹波电流频率调整系数

Multiplier for ripple current vs. frequency

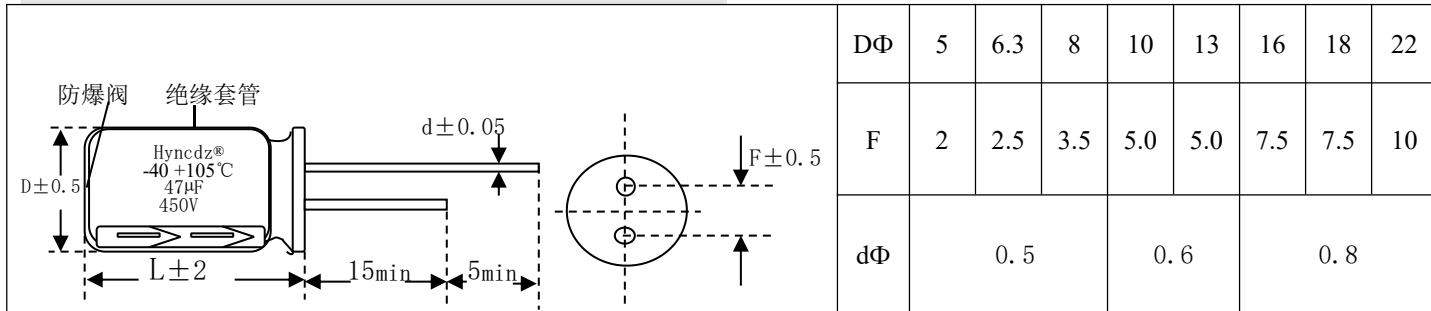
容量 (μF) / Hz	60(50)	120	400	1K	10K	50K~100K
≤10	0.8	1	1.30	1.30	1.65	1.70
10~100	0.8	1	1.23	1.23	1.48	1.53
100~1000	0.8	1	1.16	1.16	1.35	1.38
>1000	0.8	1	1.11	1.11	1.25	1.28

纹波电流温度调整系数

Multiplier for ripple current vs. temperature

温度℃	45	60	70	85	105
系数	2.10	1.90	1.40	1.25	1.00

尺寸图Diagram of Dimension (≥DΦ8以上设有防爆阀)



套管标识说明: (其它类同)

Hyncdz®	±20%	105℃	33UF	450V	CD11GS	套管颜色
商标	(M) 容值偏差	使用温度	标称容量	工作电压	高频低阻	棕底白字

尺寸表 Case Size

wv μF	D x L(mm)														
	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
0.47						5x11	5x11	5x11	5x11	5x11	5x11	6.3x12	6.3x12	8x12	8x12
1						5x11	5x11	5x11	6.3x11	6.3x12	6.3x12	6.3x12	6.3x12	8x12	8x12
2.2						5x11	5x11	5x11	6.3x11	6.3x12	6.3x12	8x12	8x12	8x12	8x12
3.3						5x11	5x11	5x11	6.3x11	6.3x12	8x12	8x12	8x12	8x12	8x12
4.7						5x11	5x11	5x11	6.3x11	8x12	8x12	8x12	8x12	10x13	10x13
6.8						5x11	5x11	5x11	6.3x11	8x12	8x12	8x12	10x13	10x17	10x20
10			5x11	5x11	5x11	5x11	5x11	6.3x11	8x12	10x13	10x17	10x13	10x17	10x17	13x20
15			5x11	5x11	5x11	5x11	6.3x12	6.3x11	8x12	10x17	10x17	10x13	10x17	10x20	16x20
22		5x11	5x11	5x11	5x11	5x11	6.3x12	8x12	10x13	10x17	10x17	10x17	13x21	13x21	18x25
33	5x11	5x11	5x11	5x11	5x11	5x11	8x12	8x12	10x17	13x21	13x21	13x21	16x21	16x20	18x30
47	5x11	5x11	5x11	5x11	5x11	6.3x11	8x12	8x12	10x17	13x21	13x21	16x21	16x25	18x25	
68	5x11	5x11	5x11	5x11	6.3x11	6.3x11	8x12	10x17	13x21	13x25	13x25	16x25	18x25	18x25	
82	5x11	5x11	5x11	5x11	6.3x11	8x12	8x12	10x17	13x21	16x25	16x25	18x25	18x25		
100	5x11	5x11	5x11	6.3x11	6.3x11	8x12	8x12	10x17	13x21	16x25	16x25	18x25	18x30		
120	5x11	6.3x7	6.3x11	6.3x11	8x12	10x13	10x17	10x20	16x25	16x25	16x25	18x30	18x35		
150	6.3x7	6.3x7	6.3x11	6.3x11	8x12	10x13	10x17	10x20	16x25	16x30	16x30	18x35	18x35		
220	6.3x7	6.3x7	6.3x11	6.3x11	8x12	10x13	10x17	13x21	18x30	18x30	18x30				
330	6.3x7	6.3x7	6.3x11	8x12	10x13	10x17	10x20	13x25							
470	6.3x7	6.3x11	8x12	8x12	10x17	10x20	13x21	16x25							
680	8x12	8x12	8x12	10x17	10x20	13x21	16x25	18x35							
1000	8x12	8x12	8x16	10x20	13x21	13x25	16x25	18x35							
2200	10x17	10x17	10x20	13x21	16x25	16x30	18x35								
3300	10x20	10x20	13x21	16x25	16x30	18x35									
4700	13x21	13x25	13x25	16x25	18x30										

尺寸多样, 未能尽录。

检验项目	检验标准	AQL		不良数	不良原因	判定
		Ac	Re			
外观检查	外观无异常、标志清晰、无可见损伤、尺寸符合《尺寸图》要求	0	1	0	/	OK
静电容量 (C)	26.4~39.6 μ F	0	1	0	/	OK
损失角正切值(DF)	$\leq 17\%$	0	1	0	/	OK
漏电流 (充电 1 分钟)	$\leq 445.5 \mu$ A	0	1	0	/	OK
可焊性	引出端有良好的镀层焊料	0	1	0	/	OK
引出端抗拉力、折弯强度	外观无异常、无可见损伤、电气特性稳定	0	1	0	/	OK
耐焊接热	外观无可见损伤，容值变化率 $\leq 5\%$	0	1	0	/	OK
压力释放	防爆阀打开、无爆炸、无燃烧	0	1	0	/	OK
振动	外观无可见损伤、无漏液，容值变化率 $\leq 5\%$	0	1	0	/	OK

检验员：黄烈群

审核：涂斯淇