客户

CUSTOMER:_____

NA CHUAN 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: HY1H330M050110GT

承制方型號 ： 50V33UF 5X11

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:

郵 編:

签认后,敬请返回一份,多谢!

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 C5141Characteristics 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~+105℃(≤100V)　　-25~+105℃(≥160V)

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

-40~+105℃(≤100V)　　-25~+105℃(≥160V)

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℃

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±2℃

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℃

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±2℃

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 ELECTROL YTIC 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 becomes 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。

I creased leakage current is common in aluminum capacitors which have been stored for long period of tine. 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). 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.

(7). 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。

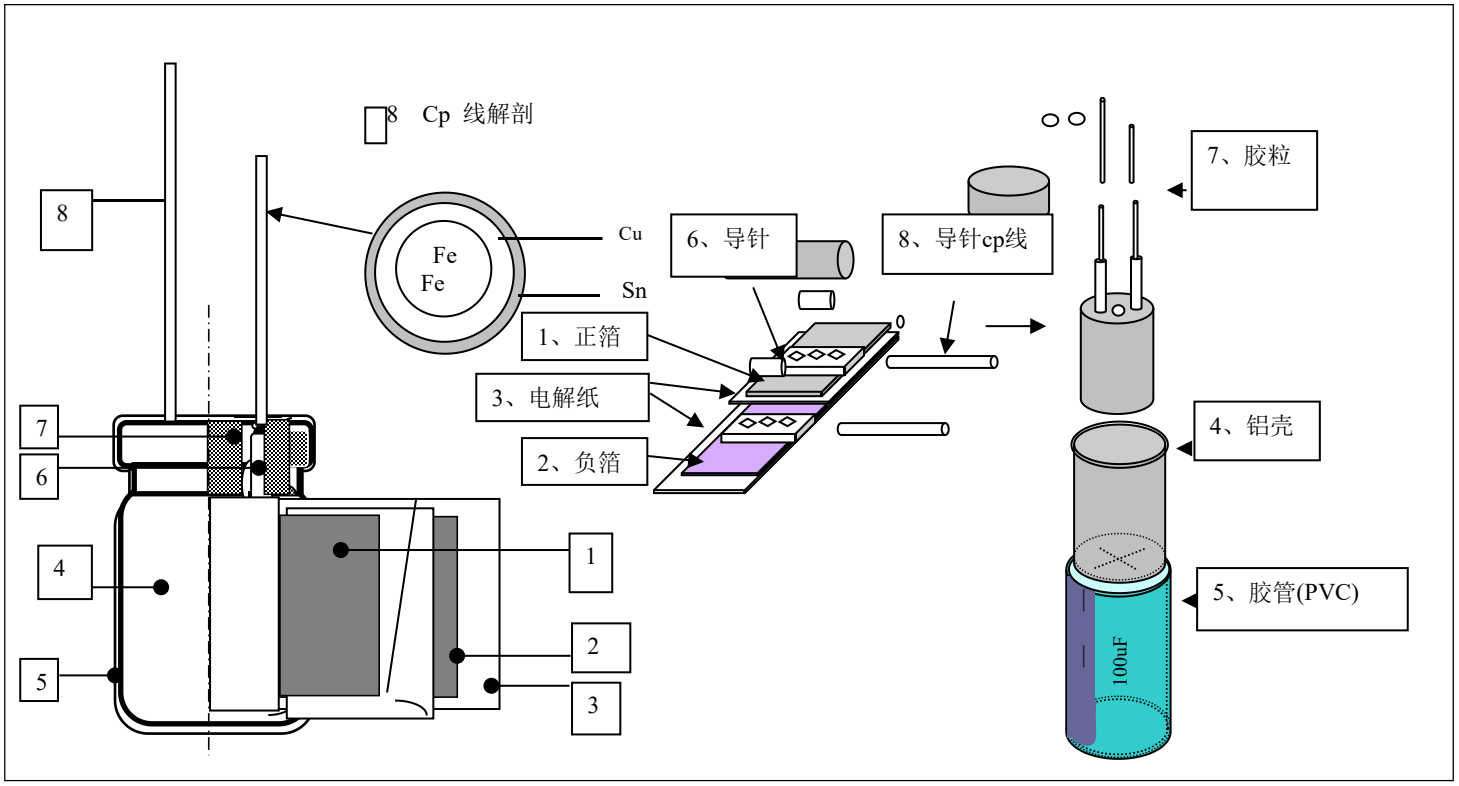
In the dip soldering process of PC board with aluminum electrolytic capacitors mounted, secondary shrinkage or crack of PVC sleeve may be observed when solder temperature is too high or dipping time is too long.

(8). 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



ALUMINIUM ELECTROLYTIC CAPACITOR

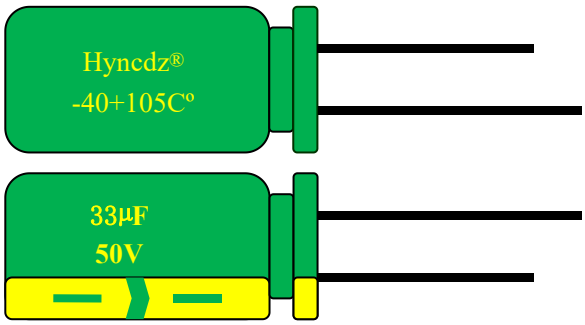
铝电解电容器

COMPOSITION LIST(物质成份表)

MATERIALS （材料名称）		COMPOSITION OF MATERIALS （材料成分表）	
SLEEVE TUBE （套管）		POLYETHYLENE TEREPHTHALATE PET （PVC 聚对苯二甲酸乙二酯）	90%
		STABILILER（稳定剂）	0.2%
		润滑剂（LUBRICANT） 颜料（PIGMENT） 强韧剂（TOUGHENER）	0.15% 1.0% 8.65%
RUBBER (胶粒)		EPDM(三元乙丙胶)	40%
		CLAY(白土)	45%
		CARBON(碳烟)	9.0%
		OTHER(其它)	6.0%
LEAD WIRE (导针)	AL-WIRE (铝线)	AL (铝)	99.91%
		Si (硅)	0.03%
		Fe 铁)	0.05%
		Cu (铜)	0.01%
	TIN PLATED COPPER COVERED SLEEL WIRE(镀锡铜包钢线)	Fe (铁)	71.35%
		Cu (铜)	20%
		Sn (锡)	8.65%
AL-CASE(铝壳)		AL (铝)	99.3%
		Cu (铜)	0.20%
		Mn (锰)	0.20%
		Zn (锌)	0.20%
		OTHER(其它)	0.1%
ALUMINUM FOIL(铝箔)		AL (铝)	99.98%
		Al_2O_3 (三氧化二铝)	0.02%
PAPER(电解纸)		CELLULOSE (纸纤维素)	100%
ELECTROLYTE(电解液)		ETHYL GLYCL(乙二醇)	50%
		AMMONIUM ADIPATE(已二酸铵)	机密
		ADIPIC ACID(已二酸)	机密
		AMMOUIUN BENZOATE(安息香酸铵)	机密
		CITRIC ACID(柠檬酸)	机密
		PARA-NITORO BENZOIE ACID (对硝基安息香酸)	机密
		AMMDIHYDROGEN PHOSPHLATE (磷酸二氰氨)	机密
		PURE WATER 、 AMMONIUM ACETATE （纯水、甲酸铵）	机密

CD11GT（G） Series

CD11GT 系列 105℃ 低阻抗品



特点

- ◆ 适用于通信设备、开关电源、工业测量仪器等电路中。
- ◆ 105℃负荷寿命达2000小时。
- ◆ 安全防爆阀设计。

CD11GT Series Low Impedance Fearures

- ◆ Used in communication equipments、switching power supply、Industrial measuring instruments ,etc.
- ◆ Load life 2000 hours at 105℃.
- ◆ Safety vent construction design .

技术要求 Specifications

<table>
<tr><td>项目Item</td><td colspan="2">特性Performance Characteristics</td></tr>
<tr><td>使用温度范围
Operating Temperature Range</td><td>-40to+105℃</td><td>-25to+105℃</td></tr>
<tr><td>额定电压范围
Rated Voltage Range</td><td>10to100VDC</td><td>160to450VDC</td></tr>
<tr><td>电容量范围
Capacitance Range</td><td>0.47to4700μF</td><td>0.47to220μF</td></tr>
<tr><td>电容量允差
Capacitance Tolerance</td><td colspan="2">±20%（100Hz or120 Hz，+20℃）</td></tr>
<tr><td>漏电流Leakage Current
（+20℃，最大max）</td><td>I≤0.02CV或2（μA）额定工作电压充电2分钟后读数，取大者 After2 minutes,whichever is greater measured with rated working voltage applied</td><td>I≤0.03CV（μA））额定工作电压充电2分钟后读数，取大者 After2 minutes,whichever is greater measured with rated working voltage applied</td></tr>
<tr><td>损耗角正切值
Dissipation Factor
（tgδ）</td><td colspan="2">
<table>
<tr><td>工作电压WorkingVoltabe(VDC)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr>
<tr><td>D.F(%)最大</td><td>16</td><td>14</td><td>12</td><td>10</td><td>9</td><td>8</td><td>8</td><td>8</td><td>8</td><td>12</td><td>12</td><td>15</td><td>17</td></tr>
</table>
容量>1000μF时 ，每增加1000μF D.F值增加2%(100Hz or 120Hz，+20℃)
For capacitance1000μF,Add 2%per another 1000μF (100Hz or 120Hz，+20℃)
</td></tr>
<tr><td>低温特性
Low Temperature Characteristics
（120Hz）</td><td colspan="2">阻抗比，最大Impedance ratio ,max
<table>
<tr><td>工作电压Working Voltage(VDC)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr>
<tr><td>Z-25℃ /Z+20 ℃</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>6</td><td>7</td></tr>
<tr><td>Z-40℃ /Z+20 ℃</td><td>6</td><td>4</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
容量>1000μF时 ，每增加1000μF ，Z-25℃ /Z+20 ℃值增加0.5%, Z-40℃ /Z+20 ℃值增加1% Fpr capacitance>1000μF , and 0.5% per another 1000μF for Z-25℃/Z+20℃, add 1% per another 1000μF for Z-40℃/Z+20℃</td></tr>
<tr><td rowspan="6">负荷寿命Load Life</td><td>试验条件 持续时间:
负荷寿命 2000h</td><td>Test conditions Duration time:
LoadLife 2000h</td></tr>
<tr><td>环境温度:+105℃</td><td>Ambient timperature: +105℃</td></tr>
<tr><td>施加电压:额定工作电压(VDC)</td><td>Applied voltage: Rated Working Voltage(DVC)</td></tr>
<tr><td>试验后要求:室温下恢复16小时,+20℃测试</td><td>After test requirements: Resumde 16 hours at normal temperature</td></tr>
<tr><td>电容量变化:≤±25%规定值</td><td>Capacitance change:≤±25% of the initial measured value</td></tr>
<tr><td>损耗角正切值:≤200%初始值</td><td>Dissipation Factor:≤200% of the initial specified value</td></tr>
<tr><td rowspan="6">储存寿命Shelt Life</td><td>漏电流:≤规定值</td><td>Leakage Current:≤The initial specified value</td></tr>
<tr><td>试验条件</td><td>Test conditions</td></tr>
<tr><td>持续时间:500小时</td><td>Duration time: 500hours</td></tr>
<tr><td>环境温度:+105℃</td><td>Ambient temperature:+105℃</td></tr>
<tr><td>施加电压:无</td><td>Applied voltage: None</td></tr>
<tr><td>试验后要求:室温下恢复16小时,+20℃测试</td><td>After test requirements: Resumed 16 hours at normal timperature</td></tr>
<tr><td>电容量变化:≤±20%规定值</td><td>Capacitance change:≤±20% of the initial measured value</td></tr>
<tr><td>损耗角正切值:≤200%初始值</td><td>Dissipation Factor:≤200% of the initial specified value</td></tr>
<tr><td>漏电流:≤200%规定值</td><td>Leakage Current:≤200% of the initial specified value</td></tr>
</table>

CD11GT（G） Series

纹波电流频率调整系数

Multiplier for ripple current vs.frequency

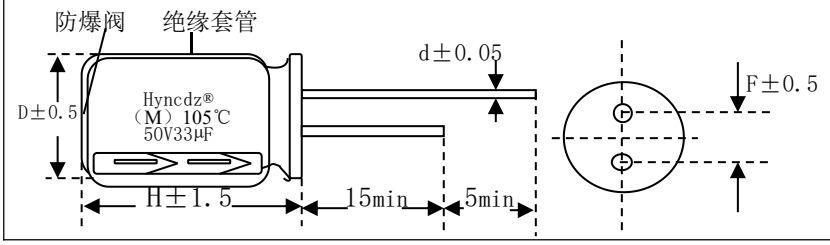
容量（μF）/ Hz		60(50)	120	400	1K	10K	50K~100K
系数	≤10	0.47	0.59	0.76	0.85	0.97	1
	10~100	0.52	0.62	0.80	0.89	0.97	1
	100~1000	0.58	0.72	0.84	0.90	0.98	1
	>1000	0.63	0.78	0.87	0.91	0.98	1

纹波电流温度调整系数

Multiplier for ripple current vs.temperature

温度℃	45	60	75	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）



DΦ	5	6.3	8	10	13	16	18	22
F	2	2.5	3.5	5.0	5.0	7.5	7.5	10
dΦ	0.5			0.6		0.8		

套管标识说明：(其它类同)

Hyncdz®	±20%	105℃	33UF	50V	CD11GT	套管颜色
商标	（M）容值偏差	使用温度	标称容量	电压	高频低阻	绿底金字

尺寸表 Case Size　　D x L(mm)

WV（SV） / μF	10			16			25			35		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impdeance	Size	Ripple	Impdeance
10							5x11	85	2.56	5x11	105	2.37
22	5x11	98	2.70	5x11	100	2.60	5x11	125	1.95	5x11	150	1.50
33	5x11	100	2.60	5x11	114	2.00	5x11	155	1.42	5x11	180	1.21
47	5x11	150	1.34	5x11	155	1.10	5x11	205	1.1	6.3x11	280	0.80
68	5x11	170	1.05	5x11	195	0.69	6.3x11	280	0.65	6.3x11	350	0.52
100	5x11	210	0.80	5x11	265	0.50	6.3x11	320	0.35	6.3x11	450	0.25
120	5x11	250	0.75	6.3x11	270	0.47	6.3x11	380	0.33	8x12	510	0.220
150	5x11	250	0.61	6.3x11	290	0.41	8x12	410	0.31	8x12	540	0.191
220	6.3x11	340	0.35	6.3x11	400	0.25	8x12	550	0.15	8x12	750	0.114
330	6.3x11	460	0.27	6.3x11	590	0.156	8x12	820	0.114	8x16	1050	0.079
470	6.3x11	580	0.25	8x12	750	0.124	8x12	1200	0.076	10x17	1200	0.065
680	8x12	765	0.11	8x12	1100	0.092	10x17	1320	0.065	10x20	1570	0.056
1000	8x12	1040	0.076	10x17	1350	0.065	10x17	1650	0.045	13x21	1900	0.052
1500	10x17	1400	0.062	10x17	1630	0.056	10x20	2210	0.038	13x21	2270	0.046
2200	10x17	1755	0.041	10x20	2000	0.038	13x21	2650	0.036	16x25	2850	0.034
3300	10x20	1900	0.031	13x21	2790	0.033	16x25	3240	0.026	16x30	3100	0.026
4700	13x21	2100	0.030	13x25	2880	0.026	16x25	3650	0..024	18x30	3500	0.024
6800	16X25	2650	0.026	16X25	3200	0.024	16X30	3850	0.024			
10000	16X25	2850	0.024	16X30	3550	0.024						

Ripple Current(mA,rms)at 105℃ 100KHZ

Max Impedance(Ω)at 25℃ 100KHZ

CD11GT（G） Series

尺寸表 Case Size　　D x L(mm)

WV（SV） / μF	50			63			100			160		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impdeance	Size	Ripple	Impdeance
0.47	5x11	25	5.40	5x11	25	5.40	5x11	20	5.90			
1	5x11	40	4.00	5x11	33	4.00	5x11	30	4.40			
2.2	5x11	55	2.80	5x11	45	2.80	5x11	42	3.30	6.3x12	55	5.21
3.3	5x11	60	2.20	5x11	58	2.20	5x11	55	2.80	8x12	70	4.31
4.7	5x11	90	2.00	5x11	65	2.00	5x11	72	2.60	8x12	72	4.16
5.6	5x11	105	1.93	5x11	95	1.90	5x11	100	2.33	10x13	91	3.61
6.8	5x11	110	1.89	5x11	100	1.82	6.3x11	115	1.95	8x12	100	3.12
10	5x11	120	1.82	6.3x11	110	1.75	6.3x11	130	1.77	8x12	100	2.69
22	5x11	135	1.35	6.3x11	240	0.80	6.3x11	220	0.85	10x13	205	1.30
33	5x11	250	0.80	8x12	270	0.61	8x12	320	0.69	10x17	260	1.10
47	6.3x11	280	0.65	8x12	300	0.56	10x13	370	0.58	10x17	320	0.91
68	6.3x11	375	0.33	8x12	480	0.21	10x17	470	0.35	13x20	410	0.56
100	8x12	480	0.17	8x12	610	0.14	10x17	560	0.30	13x25	500	0.47
120	10x12	530	0.156	10x13	620	0.125	10x20	660	0.22	16x25	520	0.35
150	10x13	590	0.132	10x17	700	0.111	13x21	780	0.174	13x36	660	0.26
220	10x13	930	0.096	10x17	1100	0.080	13x21	880	0.13	16x36	820	0.19
330	10x17	1150	0.065	10x20	1250	0.055	13x25	1440	0.10			
470	10x20	1590	0.055	13x21	1620	0.053	16x25	1650	0.09			
680	13x21	1930	0.044	16x25	1950	0.043	16x30	1790	0.080			
1000	13x25	2300	0.036	16x325	2350	0.034	18x35	1930	0.066			
1500	16x25	2750	0.034	18x35	2710	0.031						
2200	16x30	3040	0.032	18x35	2850	0.030						
3300	18x36	3100	0.025									

WV（SV） / μF	200			250			400			450		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impdeance	Size	Ripple	Impdeance
1				6.3x12	50	16.54	8x12	36	26.5	10X13	41	27.35
2.2	6.3x12	55	15.18	8x12	72	14.12	8x14	65	19.58	10X16	60	20.25
3.3	8x12	71	14.25	8x12	75	13.85	10x16	86	17.01	10X20	89	19.65
4.7	10x13	85	14.12	10x13	100	12.95	10x17	120	16.82	10X25	130	17.01
5.6	10x13	92	13.55	10x13	105	12.72	10x25	130	16.81	13X20	140	16.92
6.8	10x16	115	12.71	10x16	140	11.86	10x25	160	15.55	13X20	145	15.05
10	10x16	132	12.02	10x20	160	11.4	13x20	245	14.32	13X25	165	14.78
15	10x20	158	11.96	13x21	185	11.4	13x25	305	9.25	13X25	255	9.83
22	10x20	205	11.20	13x21	185	11.3	13x25	305	8.65	13X25	255	8.80
33	13x20	330	10.62	13x25	260	10.9	16x18	335	6.21	16X25	360	6.20
47	13x20	400	6.51	13x25	405	6.45	18x25	560	5.92	16X35	550	6.02
68	13x20	540	5.35	13x25	490	5.38	18x25	750	4.75	18X36	700	4.78
100	16x32	700	3.19	16x32	675	3.25	22x32	950	2.52			
120	16x32	820	2.17	16x36	730	2.24						
150	16x36	840	1.16	18x36	750	1.23						
220	18x41	1080	1.14	18x41	910	1.20						

Ripple Current(mA,rms)at 105℃ 100KHZ

Max Impedance(Ω)at 25℃ 100KHZ

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 μF	0	1	0	/	OK
损失角正切值(DF)	≤ 9 %	0	1	0	/	OK
漏电流（充电 2 分钟）	≤ 33 uA	0	1	0	/	OK
外套绝缘电阻	≥ 100 mΩ	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≤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≤5%	0	1	0	/	OK

检验员：黄烈群　　审核：**涂斯淇**