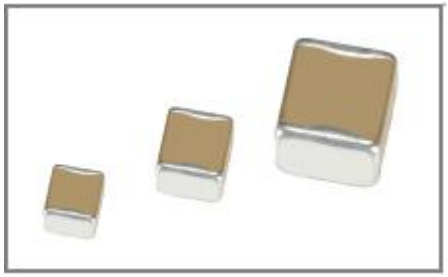
序号 No	目　录 TABLE OF CONTENTS

■ 安全规格认证多层片式陶瓷电容器
Safety-Rated Multi-layer Ceramic Capacitor



◆ 特征 Feature

* 新型独石结构，体积小，电容量高，能在高压下工作
  A New monolithic structure capacitor for small,high-capacitance capability of operating at high-Voltage levels.
* 符合 60384-14 标准。
  Available for equipment base on 60384-14 standard
* 仅用于回流焊接
  Only for reflow soldering
* 它们实用于薄型设备。
  Fit for use on thin type equipment.

◆ 应用范围 Application

* 适合于无变压器的 DAA 调制调解器线路滤波器及耦合用
  Ideal for use on line filters and couplings for DAA modems without transformers.
* 适合信息设备线路滤波器用。
  Ideal for use on line filters for information equipment.

◆型号表示法
How To Order

SC	安规电容器

05

尺寸规格 Size Code			
代号 Code	尺寸代码 Size Code	EIA	长×宽 (L×W) mm
08	1808	1808	4.50×2.00
12	1812	1812	4.50×3.20
11	2211	2211	5.70×2.80
20	2220	2220	5.70×5.00

CG

介质种类 Dielectric Code	
介质种类 Dielectric Code	介质材料 Dielectric
CG	C0G
B	X7R

102

标称容量 Nominal Capacitance	
表示方式 Express Method	实际值 Actual Value
0R5	0.5
1R0	1.0
102	10×10^2

注：头两位数字为有效数字，第三位数字为 0 的个数；R 为小数点。
Note: the first two digits are significant; third digit denotes number of zeros; R=decimal point.

K

代码 Code	误差 Tolerance
J	±5%
K	±10%
M	±20%

500

工作电压 Rated Voltage
交流 250V AC250V

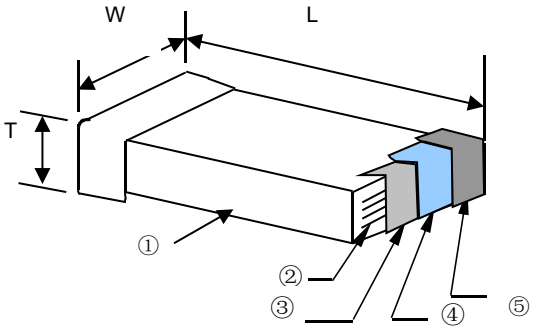
XA

安规类型 Sate Type	
代号 Code	类型 Type
XA	X1
XB	X2
YB	Y2

◆ 产品应用电压
Product application Voltage

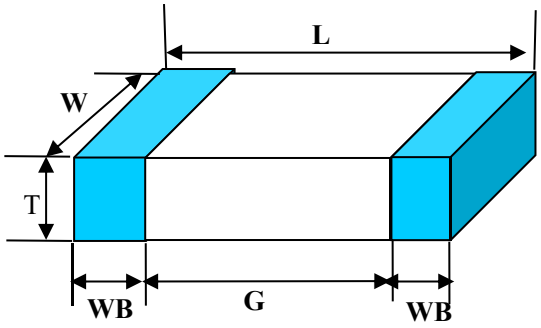
代号 Code	使用时的峰值脉冲电压 （kV） Peak pulse Voltage in use （kV）	耐久性试验前施加的峰值脉冲电压 （kV） Peak pulse Voltage applied before durability test （kV）
XA	2.5kV＜U≤4.0kV	C_R≤1.0μF, 4 C_R＞1.0μF,4/$\sqrt{C_R}$
XB	≤2.5kV	C_R≤1.0μF, 2.5 C_R＞1.0μF,2.5/$\sqrt{C_R}$
YB	150V≤U≤250V（AC）	5.0

◆产品结构
Product Structure



序号 NO	名称 Name
①	陶瓷介质 Ceramic dielectric
②	内电极 Inner electrode
③	外电极 Substrate electrode
④	镍层 Nickel Layer
⑤	锡层 Tin Layer

◆ 产品尺寸
Product Dimensions



型号 Type		尺寸 Dimensions (mm)					
尺寸代码 SizeCode	公制表示 Metric expression	L	W	T	WB	G	尺寸代码 Dimension code
1808	4520	4.60±0.40	2.00±0.20	1.60±0.3	≤0.7	≥4.0	HA
				2.00±0.3			HB
1812	4532	4.60±0.40	3.20±0.20	1.60±0.3	≤0.7	≥4.0	IB
				2.00±0.3			IC
2211	5728	5.70±0.40	2.80±0.30	1.60±0.3	≤1.0	≥4.0	KA
				2.00±0.3			KB
				2.50±0.3			KC
2220	5750	5.70±0.40	5.00±0.40	1.60±0.3	≤1.0	≥4.0	LA
				2.00±0.3			LB

备注：可根据客户的特殊要求设计符合客户需求的产品。

Note：We can design according to customer special requirements.

◆温度系数/特性

Temperature Coefficient /Characteristics

介质种类 Dielectric	参考温度点 Reference Temperature Point	标称温度系数 Temperature Coefficient	工作温度范围 Operation Temperature Range
C0G	25°C	0±30ppm/℃	-55℃～125℃
X7R	25°C	±15%	-55℃～125℃

◆ 容量范围及电压

Capacitance Range and Voltage

材料 Dielectric		X7R							
尺寸 Dimension		SC08			SC12		SC11	SC20	
系列/厚度 Series/Thickness		XA	XB	YB	XB	YB	YB	XB	YB
标称容量 Capacitance	100pF	HA	HA	HA	IB	IB	KA	LA	LA
	120pF	HA	HA	HA	IB	IB	KA	LA	LA
	150pF	HA	HA	HA	IB	IB	KA	LA	LA
	180pF	HA	HA	HA	IB	IB	KA	LA	LA
	220pF	HA	HA	HA	IB	IB	KA	LA	LA
	270pF	HA	HA	HA	IB	IB	KA	LA	LA
	330pF	HA	HA	HA	IB	IB	KA	LA	LA
	390pF	HA	HA	HA	IB	IB	KA	LA	LA
	470pF	HA	HA	HA	IB	IB	KA	LA	LA
	560pF	HA	HA	HA	IB	IB	KA	LA	LA
	680pF	HA	HA	HA	IB	IB	KA	LA	LA
	820pF	HA	HA	HA/HB*	IB	IB	KA	LA	LA
	1nF	HA	HA	HA*/HB	IB	IB/IC*	KA	LA	LA
	1.2nF	HB	HA	HB	IB	IB/IC*	KA	LA	LA
	1.5nF	HB	HA	HB	IB	IB*/IC	KA	LA	LA
	1.8nF	HB	HA	HB	IB	IC	KA	LA	LA
	2.2nF	HB	HA	HB	IB	IC	KA/KC	LA	LB
	2.7nF		HA		IB	IC	KB	LA	LB
	3.3nF		HA		IB	IC	KB	LA	LB
	3.9nF		HA		IB	IC		LA	LB
	4.7nF		HA		IB	IC		LA	LB
	5.6nF				IB			LA	
	6.8nF				IB			LA	
	8.2nF				IB			LA	
	10nF				IB			LA	
	12nF							LB	
	15nF							LB	

代码 Code	HA	HB	IB	IC	KA	KB	KC	LA	LB	备注 Note
T	1.60±0.3	2.00±0.3	1.60±0.3	2.00±0.3	1.60±0.3	2.00±0.3	2.50±0.3	1.60±0.3	2.00±0.3	加“*”为特殊品 Add "*" as special product.

材料 Dielectric		C0G			
尺寸 Dimension		SC08	SC12	SC11	SC20
系列/厚度 Series/Thickness		YB	YB	YB	YB
标称容量 Capacitance	5.6pF	HA	IB	KA	LA
	6.8pF	HA	IB	KA	LA
	8.2pF	HA	IB	KA	LA
	10pF	HA	IB	KA	LA
	12pF	HA	IB	KA	LA
	15pF	HA	IB	KA	LA
	18pF	HA	IB	KA	LA
	22pF	HA	IB	KA	LA
	27pF	HA	IB	KA	LA
	33pF	HA	IB	KA	LA
	39pF	HA	IB	KA	LA
	47pF	HA	IB	KA	LA
	56pF	HA	IB	KA	LA
	68pF	HA	IB	KA	LA
	82pF	HA	IB	KA	LA
	100pF	HA	IB	KA	LA
	120pF	HA	IB	KA	LA
	150pF	HB	IC	KA	LA
	180pF	HB	IC	KA	LA
	220pF	HB	IC	KA	LA
	270pF	HB	IC		LA
	330pF	HB	IC		LB
	390pF				LB
	470pF				LB

代码 Code	HA	HB	IB	IC	KA	LA	LB
T	1.60±0.3	2.00±0.3	1.60±0.3	2.00±0.3	1.60±0.3	1.60±0.3	2.00±0.3

◆ 可靠性测试方法

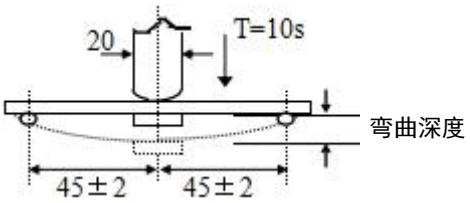
Reliability Test Methods

二类介质规格测容量前需去老化处理：测试温度：25℃±3℃，测试湿度：＜70%RH. 电容器 150℃热处理 1h±10min，放置 24±2h 后测量。

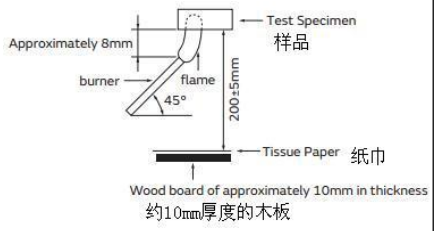
The second type of medium specification needs to be aged before measuring the capacity: test temperature: 25℃±3℃, test humidity: < 70%RH. The capacitors were heat treated at 150℃ for 1 hour ±10minutes and measured after 24±2 hours of placement.

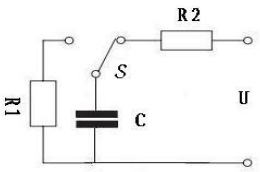
项目 Item	技术规格 Technical Specification		测试方法 Test Method and Remarks		
容量 Capacitance	Ⅰ类 Class Ⅰ	应符合指定的误差级别 Should be within the specified tolerance.	标称容量 Capacitance	测试频率 Measuring Frequency	测试电压 Measuring Voltage
			≤1000pF	1MHz±10%	1.0±0.2Vrms
			＞1000 pF	1KHz±10%	

<table>
<tr><td></td><td>II类
Class Ⅱ</td><td>应符合指定的误差级别
Should be within the specified tolerance.</td><td>测试温度：25℃±3℃ 测试频率：1KHz±10%
测试电压：1.0±0.2Vrms
Test Temperature：25℃±3℃ Test Frequency：1KHz±10%
Test Voltage：1.0±0.2Vrms</td></tr>
<tr><td rowspan="2">损耗角正切
(DF, tanδ)
Dissipation Factor</td><td>I类
Class Ⅰ</td><td>C＜30 pF，DF≤1/（400+20C）；
C≥30pF，DF≤0.1%</td><td>测试频率：1MHz±10% 测试电压：1.0±0.2Vrms
Test Frequency：1KHz ±10% Test Voltage：1.0± 0.2Vrms</td></tr>
<tr><td>II类
Class Ⅱ</td><td>DF≤2.5%</td><td>测试频率：1KHz±10% 测试电压：1.0±0.2Vrms
Test Frequency：1KHz ±10% Test Voltage：1.0± 0.2Vrms</td></tr>
<tr><td rowspan="2">绝缘电阻（IR）
Insulation Resistance</td><td>Ⅰ类
Class Ⅰ</td><td>C≤10 nF ， Ri ≥50000MΩ
C＞10 nF ， Ri•C_R ≥500S</td><td rowspan="2">测试电压：DC500±50V Measuring Voltage: DC500±50V
测试时间：60±5 s Duration: 60±5s
测试湿度：≤75% Test Humidity: ≤75%
测试温度： 25℃±3℃ Test Temperature: 25℃±3℃
测试充放电电流：≤50mA Test Current: ≤50mA</td></tr>
<tr><td>Ⅱ类
Class Ⅱ</td><td>C≤25 nF, Ri≥10000MΩ
C＞25 nF, Ri•C_R＞100S</td></tr>
<tr><td>介质耐电强度
(DWV)
Dielectric Withstanding Voltage</td><td colspan="2">无缺陷或异常
No defects or abnormalities</td><td>在端子间施加表中的电压 60±1S 时不应观察到任何故障，并且充电/放电电流不超过 50mA
No failure shoule be observed when Voltage in the table is applied between the terminations for 60 sec.provided the charge/discharge current is less than 50mA.
<table>
<tr><td colspan="2">测量电压
Test Voltage</td></tr>
<tr><td>XA、B</td><td>DC 1075V</td></tr>
<tr><td>YB、C</td><td>AC 1500V</td></tr>
</table></td></tr>
<tr><td rowspan="2">可焊性
Solderability</td><td colspan="2" rowspan="2">上锡率应大于 95%
外观：无可见损伤.
At least 95% of the terminal electrode is covered by new solder.
Visual Appearance: No visible damage.</td><td>将电容在 80~120℃的温度下预热 10~30 秒.
Preheating conditions:80 to 120℃; 10~30s.</td></tr>
<tr><td>无铅焊料：
浸锡温度：245±5℃
浸锡时间：2±0.5s
Lead-free soldering
Solder Temperature: 245±5℃
Duration: 2±0.5</td></tr>
<tr><td>耐焊接热
Resistance to Soldering Heat</td><td colspan="2">
<table>
<tr><td>项目
Item</td><td>C0G</td><td>X7R</td></tr>
<tr><td>ΔC/C</td><td>≤±2.5%或±0.25PF，取较大值
≤±2.5% or ±0.25PF，whichever is larger</td><td>±15%</td></tr>
<tr><td>DF</td><td colspan="2">同初始标准
Same to initial value.</td></tr>
<tr><td>IR</td><td colspan="2">同初始标准
Same to initial value.</td></tr>
<tr><td colspan="3">外观：无可见损伤 上锡率：≥95%
Appearance：
No visible damage.At least 95% of the terminal electrode is covered by new solder.</td></tr>
</table></td><td>将电容在 100~200℃的温度下预热 60-120 秒.
浸锡温度：265±5℃
浸锡时间：10±1s
然后取出溶剂清洗干净，在 10 倍以上的显微镜底下观察.
放置时间：24±2 小时 放置条件：室温
Preheating conditions: 100 to 200℃; 160-120S.
Solder Temperature: 265±5℃
Duration: 10±1s
Clean the capacitor with solvent and examine it with a 10X(min.) microscope.
Recovery Time: 24±2h
Recovery condition: Room temperature</td></tr>
</table>

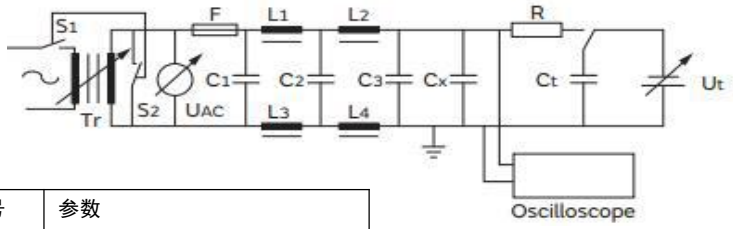
<table>
<tr><th>项目
Item</th><th>技术规格
Technical Specification</th><th>测试方法
Test Method and Remarks</th></tr>
<tr><td>脉冲电压
Impulse Voltage</td><td>无永久性击穿或飞弧。
No permanent breakdown or flashover。</td><td>每个电容器应承受 24 次相同极性的脉冲，脉冲间隔时间不应小于 10S，脉冲电压峰值如下表：
Each capacitor shall withstand 24 pulses of the same polarity, the pulse interval time shall not be less than 10S, and the peak value of pulse Voltage like the follow table：
<table>
<tr><th>Code</th><th>使用时的峰值脉冲电压 (kV)
Peak pulse Voltage in use (kV)</th></tr>
<tr><td>XA</td><td>4.0</td></tr>
<tr><td>XB</td><td>2.5</td></tr>
<tr><td>YB</td><td>5</td></tr>
</table></td></tr>
<tr><td>抗弯曲强度
Resistance to Flexure of Substrate (Bending Strength)</td><td>
<table>
<tr><th></th><th>C0G</th><th>X7R</th></tr>
<tr><td>ΔC/C：</td><td>≤±5%或±0.5pF ，取两者中最大者
≤±5% or ±0.5pF,whichever is larger.</td><td>≤±10%</td></tr>
<tr><td colspan="3">外观：无可见损伤.
Appearance: No visible damage.</td></tr>
</table></td><td>试验基板：PCB 弯曲深度：1mm
施压速度：1mm/sec.
应在弯曲状态下进行测量。
 

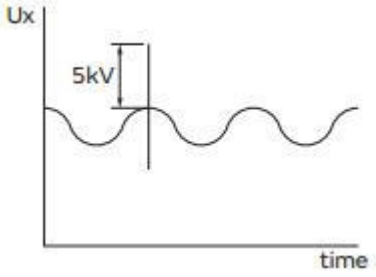
Test Board: PCB Warp: 1mm
Speed: 1mm/sec. Unit: mm
The measurement should be made with the board in the bending position.</td></tr>
<tr><td>温度循环
Temperature Cycle</td><td>
<table>
<tr><th>项目
Item</th><th>C0G</th><th>X7R</th></tr>
<tr><td>ΔC/C</td><td>≤±1%或±1PF，取较大值
≤±1% or ±1pF ，whichever is larger</td><td>≤±15%</td></tr>
<tr><td colspan="3">外观无可见损伤
No visible damage.</td></tr>
</table></td><td>初始测量 Initial Measurement
循环次数：5 次，一个循环分以下 4 步：
Cycling Times: 5 times, 1 cycle, 4 steps:
<table>
<tr><th>阶段
Step</th><th>温度（Temperature）</th><th>时间(Time)</th></tr>
<tr><td>1</td><td>下限温度(Low- category temp.)：
C0G/X7R:-55℃</td><td>30min</td></tr>
<tr><td>2</td><td>常温(Normal temp.)：+20℃</td><td>2～3min</td></tr>
<tr><td>3</td><td>上限温度(Up- category temp.)：
C0G/X7R: +125℃</td><td>30min</td></tr>
<tr><td>4</td><td>常温(Normal temp.)：+20℃</td><td>2～3min</td></tr>
</table>
试验后放置（恢复）时间：24±2h
Recovery time after test: 24±2h</td></tr>
<tr><td>耐湿负荷
Humidity load</td><td>
<table>
<tr><td>ΔC/C</td><td>C0G</td><td>≤±7.5%或±0.75pF, 取两者之中较大者
≤±7.5% or ±0.75pF, whichever is larger.</td></tr>
<tr><td></td><td>X7R</td><td>-12.5% ~ +12.5%</td></tr>
<tr><td>DF</td><td colspan="2">≤2 倍初始标准
Not more than twice of initial value.</td></tr>
<tr><td rowspan="2">IR</td><td>C0G</td><td>Ri≥5000MΩ或 Ri•C_R≥50S 取两者之中较小者.
Ri≥5000MΩ 或 Ri•C_R≥50S whichever is smaller.</td></tr>
<tr><td>X7R</td><td>Ri≥1000MΩ或 Ri•C_R≥10S 取两者之中较小者.
Ri≥1000MΩ 或 Ri•C_R≥10S whichever is smaller.</td></tr>
<tr><td colspan="3">外观：无损伤
Appearance: No visible damage.</td></tr>
</table></td><td>温度：40±2℃ 湿度：90~95%RH
电压：额定电压 时间：500 小时
放置条件：室温
放置时间：24±2h 小时
※ Pretreatment (ClassII) :After preheating at 140℃~150℃ for 1h±10min, place at room temperature for 24±2h.
Temperature: 40±2℃ Humidity: 90~95%RH
Voltage: Rated Voltage Duration: 500h
Recovery conditions: Room temperature
Recovery Time::24h±2h</td></tr>
<tr><td>端头结合强度
Termination Adhesion</td><td>外观无可见损伤
No visible damage.</td><td>施加的力：5N 时间：10±1S
Applied Force: 5N Duration: 10±1S</td></tr>
</table>

<table>
<tr><th>项目
Item</th><th>技术规格
Technical Specification</th><th>测试方法
Test Method and Remarks</th></tr>
<tr><td>稳态湿热
Damp heat, steady state</td><td>
<table>
<tr><td rowspan="2">ΔC/C</td><td>C0G</td><td>≤±2%或±0.2pF, 取两者之中较大者
≤±2% or ±0.2pF, whichever is larger.</td></tr>
<tr><td>X7R</td><td>-10% ~ +10%</td></tr>
<tr><td>DF</td><td colspan="2">≤2 倍初始标准
Not more than twice of initial value.</td></tr>
<tr><td rowspan="2">IR</td><td>C0G</td><td>Ri≥5000MΩ或 Ri•C_R≥50S 取两者之中较小者.
Ri≥5000MΩ 或 Ri•C_R≥50S whichever is smaller.</td></tr>
<tr><td>X7R</td><td>Ri≥1000MΩ或 Ri•C_R≥10S 取两者之中较小者.
Ri≥1000MΩ 或 Ri•C_R≥10S whichever is smaller.</td></tr>
<tr><td colspan="3">外观：无损伤 Appearance: No visible damage.</td></tr>
</table>
</td><td>温度：40±2℃
湿度：90~95%RH
时间：500 小时
放置条件：室温
放置时间：24±2 小时
Temperature: 40±2℃
Humidity: 90~95%RH
Duration: 500h
Recovery conditions: Room temperature
Recovery Time: 24h±2h</td></tr>
<tr><td>阻燃性测试
Passive Flammability</td><td>纸巾不被烧起来
The tissue paper shall not ignite.</td><td>试验电容器保持在火焰中最有利于燃烧的位置，如附图
每个样品只能暴露在火焰中一次。
火焰作用时间：30S
The capacitor under test shall be held in the flame in the position which the tissue paper shall not ignite. best promotes burning.
Each specimen shall only be exposed once to
 

the flame.
Time of exposure to flame : 30 s</td></tr>
<tr><td>充放电
Charge and discharge</td><td>
<table>
<tr><td rowspan="2">ΔC/C</td><td>C0G</td><td>≤±2%或±0.2pF, 取两者之中较大者
≤±2% or ±0.2pF, whichever is larger.</td></tr>
<tr><td>X7R</td><td>-10% ~ +10%</td></tr>
<tr><td>DF</td><td colspan="2">同初始标准
Same to initial value.</td></tr>
<tr><td rowspan="2">IR</td><td>C0G</td><td>Ri ≥ 2500MΩ 或 Ri • C_R ≥ 25S 取两者之中较小者.
Ri≥2500MΩ或 Ri•C_R≥25S whichever is smaller.</td></tr>
<tr><td>X7R</td><td>Ri≥1000MΩ或 Ri•C_R≥25S 取两者之中较小者.
Ri≥1000MΩ 或 Ri•C_R≥25S whichever is smaller.</td></tr>
<tr><td colspan="3">外观：无缺陷或异常
Appearance:No defects or abnormalities.</td></tr>
</table>
</td><td>如下图所示安放被测器件 C，承受 10000 次充放电循环：
充电电压：额定电压
充放电电流：≤1A
 

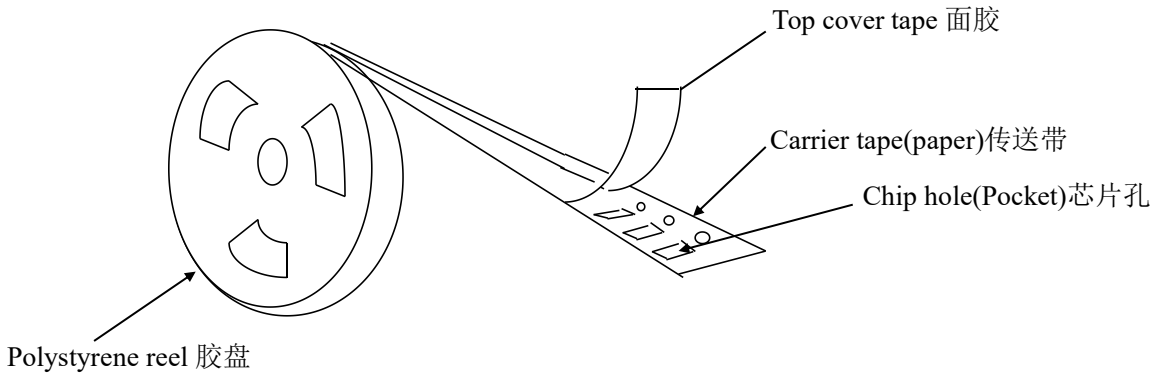
As shown in the following figure, the device under test C is placed and subjected to 10000 charge and discharge cycles。
Charge Voltage：Ur
Charge and discharge current：≤1A
<table>
<tr><th>代号
Code</th><th>参数
Parameter</th></tr>
<tr><td>C</td><td>样品电容 (Sample capacitance)</td></tr>
<tr><td>R1</td><td>放电限流电阻 Current-limiting resistor (discharge)</td></tr>
<tr><td>R2</td><td>充电限流电阻 Current-limiting resistor (charge)</td></tr>
<tr><td>U</td><td>充电电压 Charge Voltage</td></tr>
<tr><td>S</td><td>开关器件 Switching device</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>项目
Item</th><th>技术规格
Technical Specification</th><th>测试方法
Test Method and Remarks</th></tr>
<tr><td>自燃性测试
Active Flammability</td><td>纯棉纱不会燃烧
Cotton yarn will not burn</td><td>在产品外部包裹至少一层但不多于两层的纯棉纱，样品经受储能电容器 20 次的放电试验，连续放电之间每次间隔时间应为 5s，最后一次放电，交流电应保持 2 分钟。
At least one layer but not more than two layers of pure cotton yarn are wrapped outside the product, and the sample is subjected to the discharge test of the energy storage capacitor for 20 times. The interval between successive discharges should be 5s, and the last discharge should be kept with alternating current for 2 minutes.
 

<table>
<tr><th>代号
Code</th><th>参数
Parameter</th></tr>
<tr><td>C1,C2</td><td>1uF±10%</td></tr>
<tr><td>C3</td><td>0.033uF±5% 10kV</td></tr>
<tr><td>L1,L2,
L3,L4</td><td>1.5mH±20% 16A</td></tr>
<tr><td>Ct</td><td>3uF±5% 10Kv</td></tr>
<tr><td>R</td><td>100Ω±2%</td></tr>
<tr><td>Cx</td><td>样品电容
(Sample capacitance)</td></tr>
<tr><td>UAC</td><td>UR±5%</td></tr>
<tr><td>F</td><td>16A 保险丝（16A Fuse）</td></tr>
<tr><td>UR</td><td>额定电压 (Rated Voltage)</td></tr>
<tr><td>Ut</td><td>施加在储能钽电容器上的电压
(Voltage Applied to Tantalum Capacitors for Energy Storage)</td></tr>
</table>

</td></tr>
<tr><td>耐久性
Endurance</td><td>
<table>
<tr><td rowspan="2">ΔC/C</td><td>C0G</td><td>≤±3%或±0.3pF，取两者之中较大者
≤ ± 3% 或 ± 0.3pF, whichever is larger.</td></tr>
<tr><td>X7R</td><td>-20% ~ +20%</td></tr>
<tr><td>DF</td><td colspan="2">≤2 倍初始标准
Not more than twice of initial value.</td></tr>
<tr><td rowspan="2">IR</td><td>C0G</td><td>Ri≥4000MΩ或 Ri•C_R≥40S 取两者之中较小者.
Ri≥4000MΩ或 Ri•C_R≥40S whichever is smaller.</td></tr>
<tr><td>X7R</td><td>Ri≥2000MΩ或 Ri•C_R≥50S 取两者之中较小者.
Ri≥2000MΩ或 Ri•C_R≥50S whichever is smaller.</td></tr>
<tr><td colspan="3">外观：无损伤
Appearance: No visible damage.</td></tr>
</table>
</td><td>脉冲电压试验完成后的一周内进行.
温度：125℃（C0G X7R） 时间：1000 小时
充电电流：不应超过 50mA
施加电压：XA/XB：1.25 额定电压 YB：1.7 额定电压
电容器串联一个 47Ω±5%电阻器；每小时一次将电压升高至 1000V，持续时间 0.1s。放置条件：室温 放置时间：24±2h 小时
This test shall be conducted within one week after the completion of impulse Voltage test.
※ Pretreatment (ClassII) :After preheating at 140℃~150℃ for 1h±10min, place at room temperature for 24±2h.
Temperature：125℃（C0G X7R） Duration: 1000h
Charge/ Discharge Current: 50mA max.
Applied Voltage：XA/XB:1.25 Rated Voltage
YB: 1.7 Rated Voltage
The capacitor is connected in series with a 47 Ω±5% resistor. Raise the Voltage to 1000V once an hour for 0.1sec.
Recovery Conditions: Room Temperature
Recovery Time: :24h±2h</td></tr>
</table>

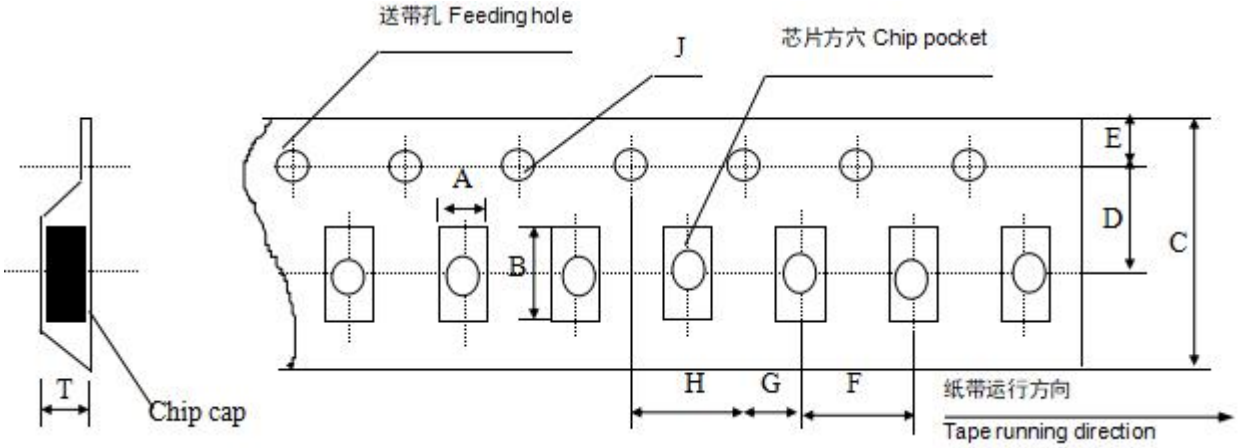
◆包装 Package

＊ 塑胶卷盘结构 Embossed Taping



＊ 塑胶带尺寸结构(适合‘SC08~SC20’型产品)

Dimensions of embossed taping for SC08~SC20 type



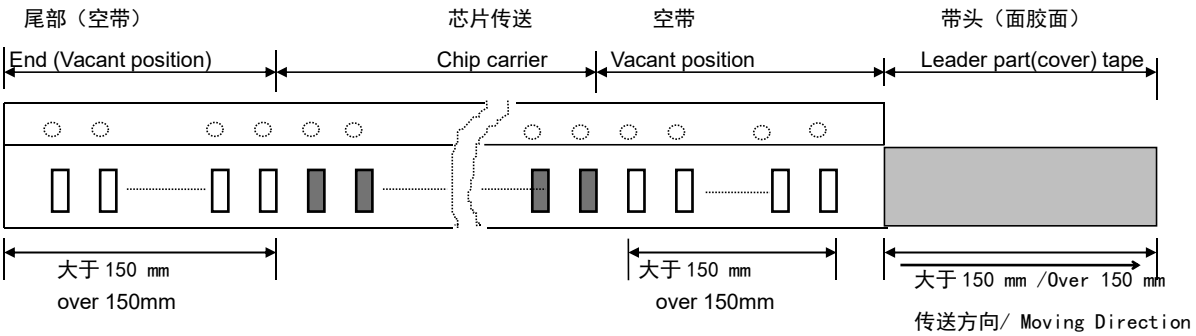
代号 Code / 规格 Tape size	A	B	C	D*	E	F	G*	H	J	T
SC08(1808)	2.20 ± 0.10	4.95 ± 0.10	12.00 ± 0.10	5.50 ± 0.05	1.75 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	1.55 -0/+0.05	3.0 Max
SC12(1812)	3.66 ± 0.10	4.95 ± 0.10	12.00 ± 0.10	5.50 ± 0.05	1.75 ± 0.10	8.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	1.55 -0/+0.05	4.0 Max
SC11(2211) SC20(2220)	6.2 ±0.1	6.7 ±0.1	12.00 ± 0.10	5.50 ± 0.05	1.75 ± 0.10	8.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	1.55 -0/+0.05	2.4 ± 0.10

备注：*表示此处对尺寸的要求非常精确。

Note：The place with “*” means where needs exactly dimensions.

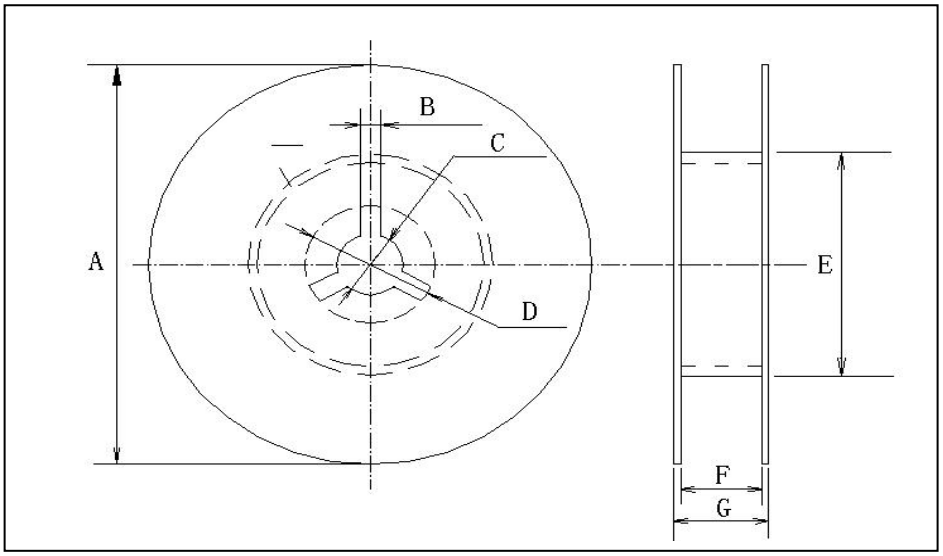
＊ 传送带的前后结构

Structure of leader part and end part of the carrier paper



* 卷盘尺寸

Reel Dimensions (unit: mm)



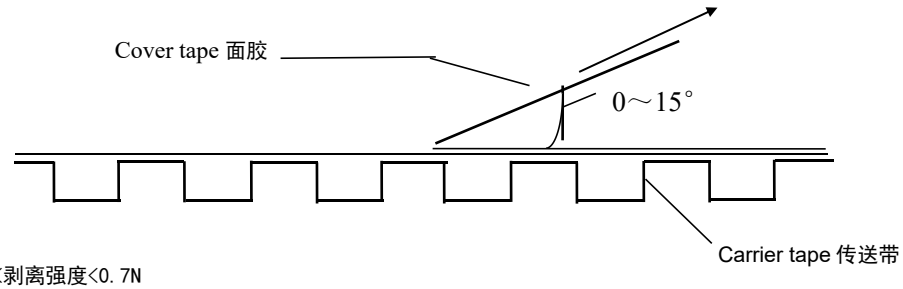
卷盘型号 Reel Code	A	B	C	D	E	F	G
7′REEL	φ178±2.0	3.0	φ13±0.5	φ21±0.8	φ50 或更大 φ50 or more	10.0±1.5	12max

* 关于卷带的说明：面胶剥离强度

Taping specification：top tape peeling strength

塑料胶盘 Embossed Taping

Cover tape peeling direction 面胶剥离方向



标准：0.1N<剥离强度<0.7N

Standard: 0.1N < peeling strength < 0.7N

* 包装数量

Packing Quantity

尺寸代码 SizeCode	厚度 Thickness	纸带卷盘（PT）	胶带卷盘（ET）
1808	1.60±0.3	——	2000
	2.00±0.3	——	1000
1812	1.60±0.3	——	1000
	2.00±0.3	——	500
2211	1.60±0.3	——	500
	2.00±0.3	——	500
	2.50±0.3	——	500
2220	1.60±0.3	——	500
	2.00±0.3	——	500

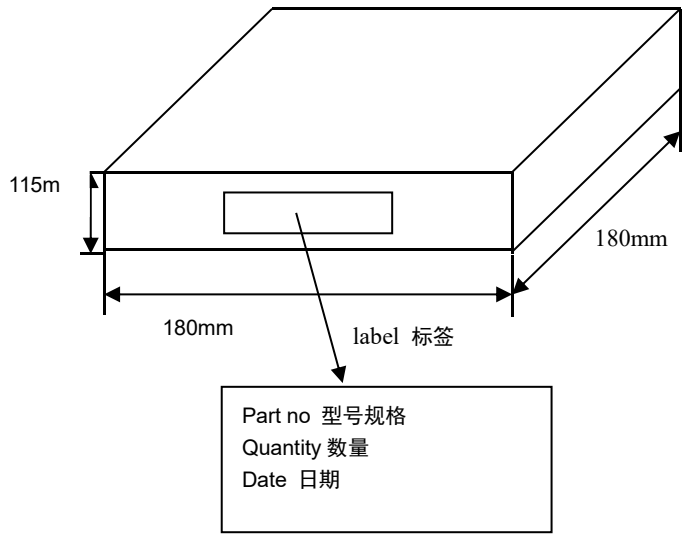
＊ 外包装

Outer packing

小包装 The first package

Quantity: 10 reels

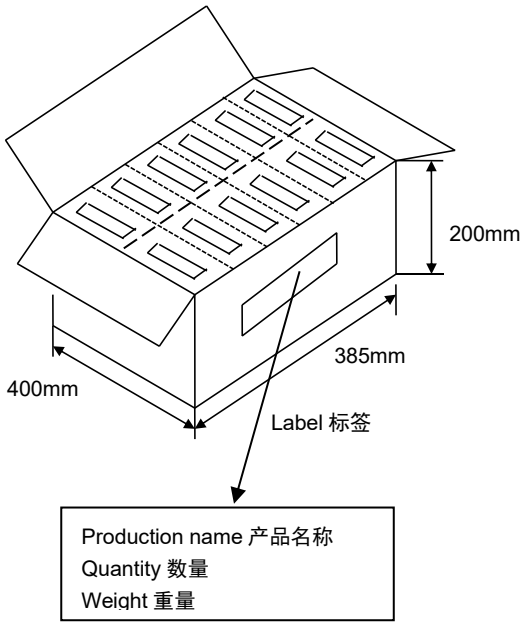
数量： 10 卷



大包装 The second package

Quantity: 6 cases

数量：6 盒



◆储存注意事项

*MLCC 的储存条件：相对湿度为 20~70%，储存温度为 5~40℃，建议温度低于 30℃。

*MLCC 的性能可能会受到储存条件的影响，交货后请立即使用。高温高湿条件、长期储存可能会导致包装材料变质、产品端头电极氧化。如自交付后已超过六个月，使用前检查包装、外观等。如果交付后超过一年，在使用前要检查可焊性。

＊ 不要将电容器存放在含有腐蚀性气体(例如硫化氢、二氧化硫、氯气、氨气等)的环境中。

＊ 不要在阳光直射下或高湿度条件下储存电容器。

◆ Storage Precautions

* Storage Conditions for MLCC: Relative humidity: 20~70%, storage temperature: 5~40℃, recommended temperature is below 30°C.

* The performance of MLCCs may be affected by storage conditions. Please use immediately after delivery. High temperature and high humidity conditions, or long-term storage, may lead to packaging material deterioration and oxidation of the product's end electrodes. If it has been over six months since delivery, check the packaging and appearance before use. If it has been over a year, check the solderability before use.

* Do not store capacitors in environments containing corrosive gases (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia, etc.).

* Do not store capacitors under direct sunlight or in high humidity conditions.

◆使用前注意事项

*安装前的信息

1、不要重复使用从设备上拆下的电容器。

2、确认额定容量、额定电压等电气特性。

3、确认施加电压下的电容特性。

4、确认使用下的机械应力。

5、确认长期存放的电容器的可焊性。

6、在测量电容之前，对长期存放的电容器进行热处理。

◆ Precautions Before Use

Pre-installation Information

1、Do not reuse capacitors removed from equipment.

2、Confirm electrical characteristics such as rated capacitance and rated Voltage.

3、Confirm the capacitor characteristics under applied Voltage.

4、Confirm the mechanical stress under use conditions.

5、Confirm the solderability of capacitors stored for long periods.
6、Perform heat treatment on capacitors that have been stored for a long time before measuring capacitance.

◆应用限制 Application Restrictions

1、我们的产品旨在用于一般消费电子设备(例如家用电器、办公设备、信息和通信设备，AV 设备、OA 设备、包括但不限于手机和 PC 等)，产品的设计基于正常操作和使用条件下的通用应用和标准用途。
2、不推荐用于下列高可靠性应用场景，包括但不限于：航天设备、医疗设备、航空设备、原子能设备、灾难预防设备、犯罪预防设备、电加热设备、燃烧设备、公共信息网络设备、数据处理设备、军事设备、发电控制设备、安全设备、车载设备、交通信号设备、运输设备和海底设备。
3、除非您事先获得风华的书面同意，否则风华不对您或第三方因将我们的产品用于第 2 点设备而产生的任何损害承担任何责任。
1、Our products are intended for use in general consumer electronic devices (such as household appliances, office equipment, information and communication devices, AV equipment, OA equipment, including but not limited to mobile phones and PCs), based on general applications and standard uses under normal operating and usage conditions.
2、Our products are not recommended for the following high-reliability application scenarios, including but not limited to: aerospace equipment, medical devices, aviation equipment, atomic energy equipment, disaster prevention equipment, crime prevention equipment, electric heating equipment, combustion equipment, public information network devices, data processing equipment, military equipment, power generation control equipment, safety equipment, vehicle-mounted devices, traffic signal equipment, transportation equipment, and underwater equipment.
3、Unless you have prior written consent from Fenghua, Fenghua is not liable for any damages caused to you or third parties by using our products in the devices mentioned in point 2.

* 焊接的条件与相关图表

Soldering Condition and Profile

为避免因温度的突然变化而引起的芯片开裂或局部爆炸的现象发生，请按有关温度曲线图表来进行.（请参考附页中的图表）

To avoid the crack problem by sudden temperature change, follow the temperature profile in the adjacent graph (refer to the graph in the enclosure page).

* 手工焊接

Manual Soldering

手工焊接很容易因为芯片局部受热不均而引起瓷体微裂或局部爆炸的现象，在焊接时，如果操作者不小心，会使烙铁头直接同电容芯片的瓷体部分接触，这样很容易使电容芯片因热冲击而受损或出现其他意外. 因此，使用电烙铁手工焊接时应仔细操作，并对电烙铁的尖端的选择和尖端温度控制应多加小心.

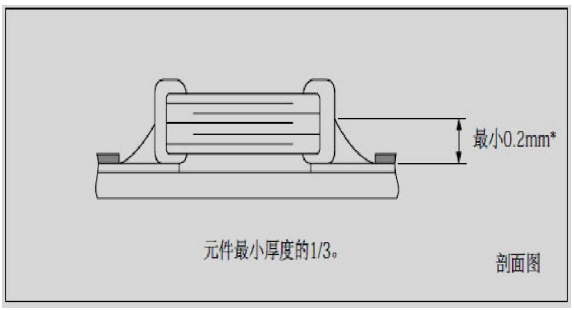
Manual soldering can pose a great risk of creating thermal cracks in capacitors. The hot soldering iron tip comes into direct contact with the end terminations, and operator's careless may cause the tip of the soldering iron to come into direct contact with the ceramic body of the capacitor. Therefore the soldering iron must be handled carefully, and pay much attention to the selection of the soldering iron tip and temperature contact of the tip.

* 推荐焊料用量

Recommended Soldering amounts

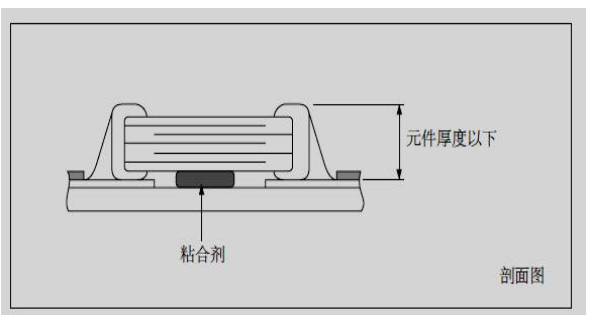
回流焊接的最佳焊料用量

The optimal solder fillet amounts for re-flow soldering



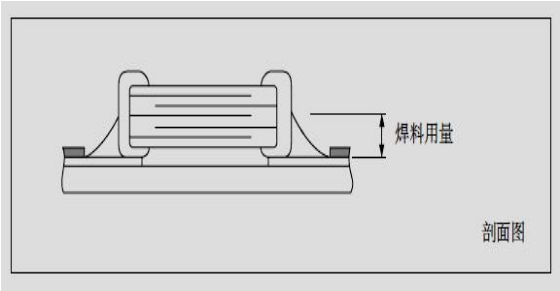
波峰焊接的最佳焊料用量

The optimal solder fillet amounts for wave soldering



使用烙铁返修时的最佳焊料量

The optimal solder fillet amounts for reworking by using soldering iron



* 推荐焊接方式

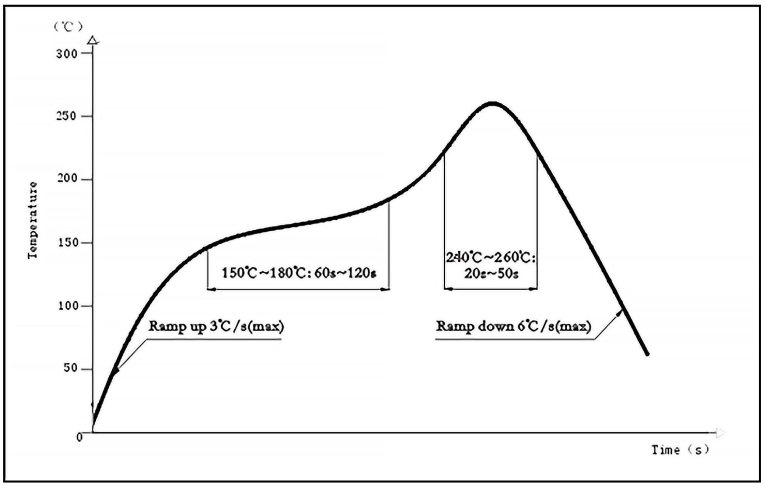
Recommended Soldering Method

规格尺寸 Size	温度特性 Temperature Characteristics	容量范围 Capacitance	焊接方式 Soldering Method
SC08 (1808)	C0G/X7R	/	R
SC12 (1812)	C0G/X7R	/	R
SC11 (2211)	C0G/X7R	/	R
SC20 (2220)	C0G/X7R	/	R

焊接方式 Soldering method：R—回流焊 Reflow soldering　　W—波峰焊 Wave Soldering

◆ 推荐焊接温度曲线图
The temperature profile for soldering

* 回流焊接（Re-flow soldering）

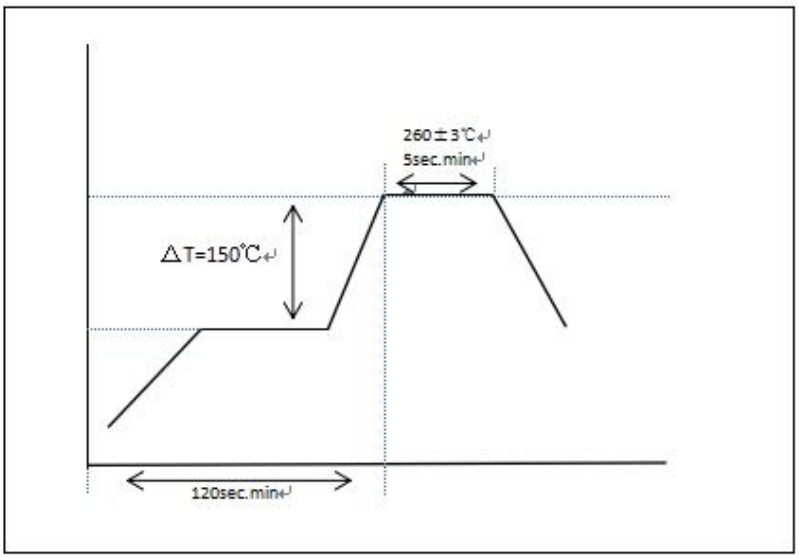


在预热时，请将焊接温度与芯片表面温度之间的温差维持在 T≤150℃。

While in preheating,please keep the temperature difference between soldering temperature and surface temperature of chips as: T≤150℃.

* 波峰焊接

（Wave soldering）

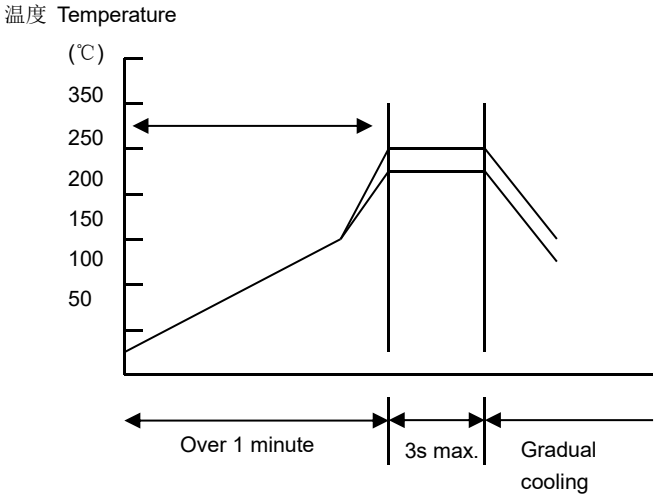


在预热时，请将焊接温度与芯片表面温度之间的温差维持在 T≤150℃。

While in preheating,please keep the temperature difference between soldering temperature and surface temperature of chips as: T≤150℃.

* 手工焊接

Hand soldering



条件 Conditions：

预热 Preheating	烙铁头温度 Temperature of soldering iron head	烙铁功率 Power of soldering iron	烙铁头直径 Diameter of soldering iron head	焊接时间 Soldering time	锡膏量 Solder paste amount	限制条件 Restricted conditions
△≤130℃	最高 350℃ Highest temperature:350℃	最大 20W 20W at the highest	建议 1mm 1mm recommended	最长 3s 3s at the longest	≤1/2 芯片厚度 ≤1/2 chip thickness	请勿使用烙铁头直接接触陶瓷元件 Please avoid the direct contact between soldering iron head and ceramic components

* 备注：产品规格书仅供设计选型参考用，不作为交货依据。

Note:The product specification is for design and selection reference only and shall not serve as a basis for delivery.

■修订履历 Revision History

版本 Version	日期 Date	修订内容 Revision Content	修订人 Reviser
A0001	2024-1-15	新版格式要求重新整理整版内容。Reorganize the entire content according to the new version format requirements.	***
A0002	2025-1-25	新版格式要求重新整理整版内容。Reorganize the entire content according to the new version format requirements.	***

注：1.上述所提供之内容为产品规格说明。在产品未变更时，风华保有修改此内容不另行通知之所有权利，任何产品变更将会以 P C N 通知客户。

1.The content provided above is the produce specification, if the product is not changed, FENGHUA reserves all the right to modify this content without prior notice, any product changes will be notified to customers through a Product Change Notification (PCN).

2.产品规格书中，同规格同容量同温度特性可交付的高电压型号规格，可以完全覆盖低压；同规格同容量同电压产品，温度特性 X7R 产品可覆盖 X7S,X7T,X6S,X5R（如 SC08B102K302XA 可以覆盖 SC08BS102K302XA,SC08BT102K302XA SC08DS102K302XA, SC08X102K302XA）,规格书中就不再列出详细型号规格。

2. In the product specification, deliverable high-Voltage models with the same specifications, capacity, and temperature characteristics can fully cover the low-Voltage models. For products with the same specifications, capacity, and Voltage, X7R temperature characteristic products can cover X7S, X7T, X6S, and X5R (e.g., SC08B102K302XA can cover SC08BS102K302XA, SC08BT102K302XA, SC08DS102K302XA, and SC08X102K302XA). Therefore, detailed model specifications will not be listed separately in the specification.