

■ 片式三端陶瓷滤波电容器 (EMI) Three Terminations Chip Ceramic Filter Capacitor (EMI)

◆ 特征 Feature

- * 叠层独石结构, 具有高可靠性能
There is high reliability on monolithic structure of laminated layers.
- * 具有优良的通流特性
Excellent performance in high current applications
- * 无极性, 适合高密度的表面安装
Non-polar, high-density surface mounting
- * 具有优良的滤波特性
Superior filtering characteristics
- * 具有良好的吸收噪音、抑制浪涌脉冲的作用。
Super to absorb noise and restrain surge pulse
- * 具有良好的可焊与耐焊性能
Offers good solder-ability and leach-ability
- * 执行标准: GH/T 21041-2007 GH/T 21042-2007
Executive Standard: GH/T 21041-2007 GH/T 21042-2007



◆ 应用 Application

- * 移动电话及基站
Cellular telephones and base stations
- * 通信设备
Telecommunication equipment
- * 自动化仪表和程序控制器
Industrial electronic interface of programmable controllers
- * 汽车电子
Electronic automotive equipment for car.
- * 计算机及外围设备
Computer and peripheral equipment

◆ 型号表示法
How To Order

5081	B	103	K	500	J	T			
尺寸规格 Size Code			标称容量 Nominal Capacitance		额定电压 Rated Voltage 单位(unit): V				
尺寸规格 Size Code	长×宽 (L×W) inch	长×宽 (L×W) mm	表示方式 Express Method	实际值 Actual Value	表示方式 Express Method	实际值 Actual Value			
3061	0.06×0.03	1.60×0.80	0R5	0.5	6R3	6.3			
5081	0.08×0.05	2.00×1.25	1R0	1.0	500	50×10^0			
5121	0.12×0.05	3.20×1.25	102	10×10^2	201	20×10^1			
6121	0.12×0.06	3.20×1.60	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.		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.				
					包装方式 Package Styles				
					表示方式 Express Method	包装方式 Package Styles			
					B	散包装 Bulk Bag			
					T	编带包装 Taping Package			
介质种类 Dielectric Code			容量误差 Capacitance Tolerance			额定工作电流 Rated Current			
介质种类 Dielectric Code	介质材料 Dielectric		代码 Code	误差 Tolerance		代号 (Code)	额定工作电流 Rated Current		
CG	C0G		M	±20%		D	0.3A		
X	X5R		S	-20% +50%		E	0.5A		
B	X7R		Z	-20% +80%		F	0.6A		
BS	X7S						G	0.7A	
DS	X6S						H	1A	
								I	2A
								J	4A
								K	6A
								L	10A

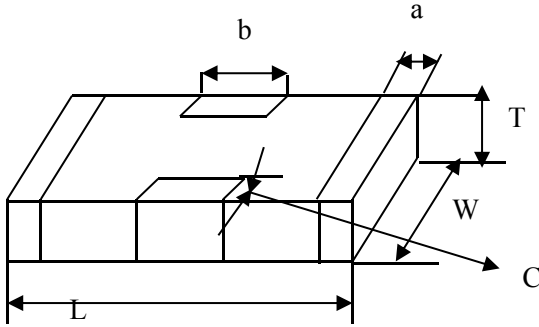
◆ 温度系数/特性 Temperature Coefficient /Characteristics

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
COG	20°C	0±30 ppm/°C	-55°C ~ 125°C
X5R	20°C	±15%	-55°C ~ 85°C
X6S	20°C	±22%	-55°C ~ 105°C
X7S	20°C	±22%	-55°C ~ 125°C
X7R	20°C	±15%	-55°C ~ 125°C
COG	20°C	0±30 ppm/°C	-55°C ~ 125°C
X5R	20°C	±15%	-55°C ~ 85°C

备注：I类电容器标称温度系数和允许偏差是采用温度在20°C和85°C之间的电容量变化来确定的，而II类电容器标称温度系数是按照工作范围之间的电容量相对20°C的电容量变化来确定的。

Note: Nominal temperature coefficient and allowed tolerance of class I are decided by the changing of the capacitance between 20°C and 85°C. Nominal temperature coefficient of class II are decided by the temperature of 20°C.

◆ **产品结构及尺寸**
Product Structure And Dimensions



项目 item 规格 size	长 (L)	宽 (W)	厚 (T)	端头厚度 (a) Termination Thickness	第三端宽度 (b) Third Termination Width	第三端厚度 (c) Third Termination Thickness
3061	1.60±0.10	0.80±0.10	0.60±0.10	0.30±0.15	0.4±0.10	0.20±0.10
5081	2.00±0.20	1.25±0.20	0.80±0.20	0.30±0.15	0.6±0.10	0.20±0.10
5121	3.20±0.20	1.25±0.20	0.80±0.20	0.30±0.15	1.10±0.10	0.25±0.15
6121	3.20±0.20	1.60±0.20	1.00±0.20	0.30±0.15	1.10±0.10	0.25±0.15

◆ **容量范围**
Capacitance Range

尺寸代号 Size code	厚度 (mm) Thickness	产品规格 Product Specifications	额定电压 Rated voltage	容量 capacity	额定电流 Rated Current	直流电阻 DC resistance
3061 (0603)	0.60±0.10	3061CG220M160ET	16V	22pF±20%	0.5A	≤300mΩ
	0.60±0.10	3061CG470M160ET	16V	47pF±20%	0.5A	≤300mΩ
	0.60±0.10	3061B/101M160ET	16V	100pF±20%	0.5A	≤300mΩ
	0.60±0.10	3061B/221M160ET	16V	220pF±20%	0.5A	≤300mΩ
	0.60±0.10	3061B/471M160ET	16V	470pF±20%	0.5A	≤300mΩ
	0.60±0.10	3061B/102M160FT	16V	1000pF±20%	0.6A	≤300mΩ
	0.60±0.10	3061B/222M160GT	16V	2200pF±20%	0.7A	≤300mΩ
	0.60±0.10	3061B/223M160HT	16V	2200pF±20%	1.0A	≤50mΩ
	0.60±0.10	3061B/104M160IT	16V	0.1μF±20%	2A	≤30mΩ
	0.60±0.10	3061B/224M6R3IT	6.3V	0.22μF±20%	2A	≤30mΩ
	0.60±0.10	3061X/474M6R3IT	6.3V	0.47μF±20%	2A	≤30mΩ
	0.60±0.10	3061X/105M6R3JT	6.3V	1.0μF±20%	4A	≤10mΩ
	0.60±0.10	3061DS105M6R3IT	6.3V	1.0μF±20%	2A	≤30mΩ

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 the customer requirements.

尺寸代号 Size code	厚度 (mm) Thickness	产品规格 Product Specifications	额定电压 Rated voltage	容量 capacity	额定电流 Rated Current	直流电阻 DC resistance
5081 (0805)	0.80±0.20	5081CG220M500GT	50V	22pF ±20%	0.7A	≤300mΩ
	0.80±0.20	5081CG470M500GT	50V	47pF ±20%	0.7A	≤300mΩ
	0.80±0.20	5081CG101M500GT	50V	100pF ±20%	0.7A	≤300mΩ
	0.80±0.20	5081B/221M500GT	50V	220pF ±20%	0.7A	≤300mΩ
	0.80±0.20	5081B/471M500HT	50V	470pF ±20%	1.0A	≤300mΩ
	0.80±0.20	5081B/102M500HT	50V	1000pF ±20%	1.0A	≤300mΩ
	0.80±0.20	5081B/222M250HT	25V	2200pF ±20%	1.0A	≤300mΩ
	0.80±0.20	5081B/223M250HT	25V	22000pF ±20%	2.0A	≤30mΩ
	0.80±0.20	5081B/104M250IT	25V	0.1μF ±20%	2.0A	≤30mΩ
	0.80±0.20	5081B/224M160IT	16V	0.22μF ±20%	2.0A	≤30mΩ
	0.80±0.20	5081BS474M160IT	16V	0.47μF ±20%	2.0A	≤30mΩ
	0.80±0.20	5081X/105M100JT	10V	1.0μF ±20%	4.0A	≤20mΩ
	0.80±0.20	5081X/105M160JT	16V	1.0μF ±20%	4.0A	≤20mΩ
	0.80±0.20	5081X/225M6R3JT	6.3V	2.2μF ±20%	4.0A	≤20mΩ
5121 (1205)	0.80±0.20	5121CG220S500DT	50V	22pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121CG470S500DT	50V	47pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121CG101S500DT	50V	100pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/221S500DT	50V	220pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/471S500DT	50V	470pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/102S500DT	50V	1000pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/222S500DT	50V	2200pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/472S500DT	50V	4700pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/223S500DT	50V	22000pF +50%-20%	0.3A	≤300mΩ
	0.80±0.20	5121B/223M250IT	25V	22000pF ±20%	2.0A	≤50mΩ

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 the customer requirements.

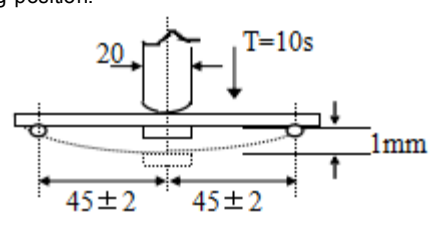
尺寸代号 Size code	厚度 (mm) Thickness	产品规格 Product Specifications	额定电压 Rated voltage	容量 capacity	额定电流 Rated Current	直流电阻 DC resistance
3061 (0603)	1.00±0.20	6121CG220S500DT	50V	22pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121CG470S500DT	50V	47pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121CG101S500DT	50V	100pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/221S500DT	50V	220pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/471S500DT	50V	470pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/102S500DT	50V	1000pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/222S500DT	50V	2200pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/472S500DT	50V	4700pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/223S500DT	50V	22000pF +50%-20%	0.3A	≤300mΩ
	1.00±0.20	6121B/223M500IT	50V	22000pF ±20%	2.0A	≤50mΩ
	1.00±0.20	6121B/152M500JT	50V	1500pF ±20%	4.0A	≤30mΩ
	1.00±0.20	6121B/104M500JT	50V	100nF ±20%	4.0A	≤30mΩ
	1.00±0.20	6121CG220S500DT	50V	22pF +50%-20%	0.3A	≤300mΩ

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 the customer requirements.

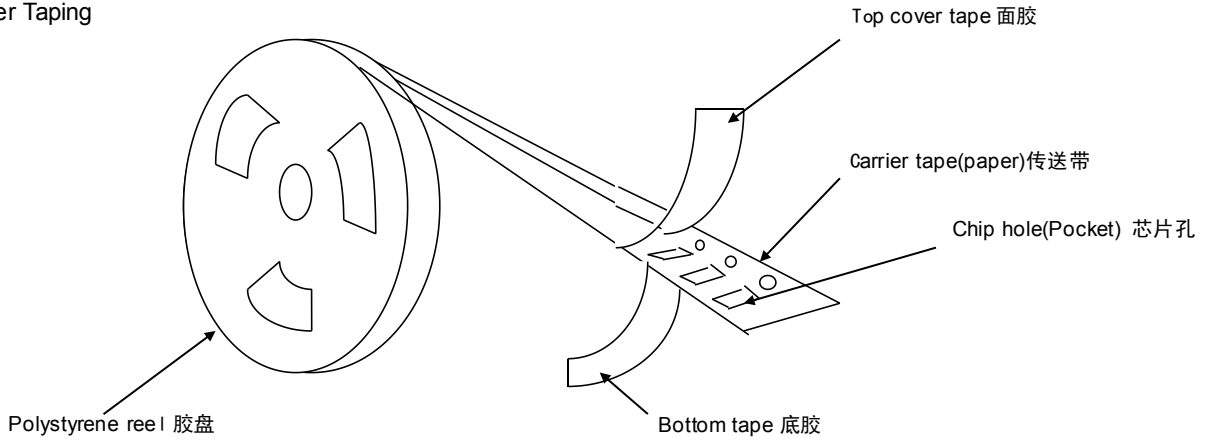
◆ 可靠性测试 Reliability Test

项目 Item	技术规格 Technical Specification					测试方法 Test Method and Remarks
容量 Capacitance	应符合指定的误差级别 Should be within the specified tolerance.					测试温度：25℃±3℃ Test Temperature: 25℃±3℃ 测试频率：1KHz±10% Test Frequency: 1KHz±10% 测试电压：1.0±0.2Vrms Test Voltage: 1.0±0.2Vrms
绝缘电阻 (IR) Insulation Resistance	C≤25 nF, Ri≥10000MΩ C>25 nF, Ri·CR>100S					测试电压：额定电压 测试时间：60±5 秒 测试湿度：≤75% 测试温度：25℃±3℃ 测试充放电电流：≤50mA Measuring Voltage: Rated Voltage Duration: 60±5s Test Humidity: ≤75% Test Temperature: 25℃±3℃ Test Current: ≤50mA
损耗角正切 (DF, tanδ) Dissipation Factor	≥50V	25V	16V	10V	6.3V	测试频率：1KHz±10% Test Frequency: 1KHz±10% 测试电压：1.0±0.2Vrms Test Voltage: 1.0±0.2Vrms
	≤2.5%	≤7.5%	≤7.5%	≤7.5%	≥7.5% (C<1.0μF) ≤10.0% (C≥1.0μF)	
介质耐电强度 (DWW) Dielectric Withstanding Voltage	不应有介质被击穿或损伤 No breakdown or damage.					测量电压：I类：300%额定电压 II类：250%额定电压 时间：1~5 秒 充/放电电流：不应超过 50mA Measuring Voltage: Class I :300% Rated voltage Class II :250% Rated voltage Duration: 1~5s Charge/ Discharge Current: 50mA max.

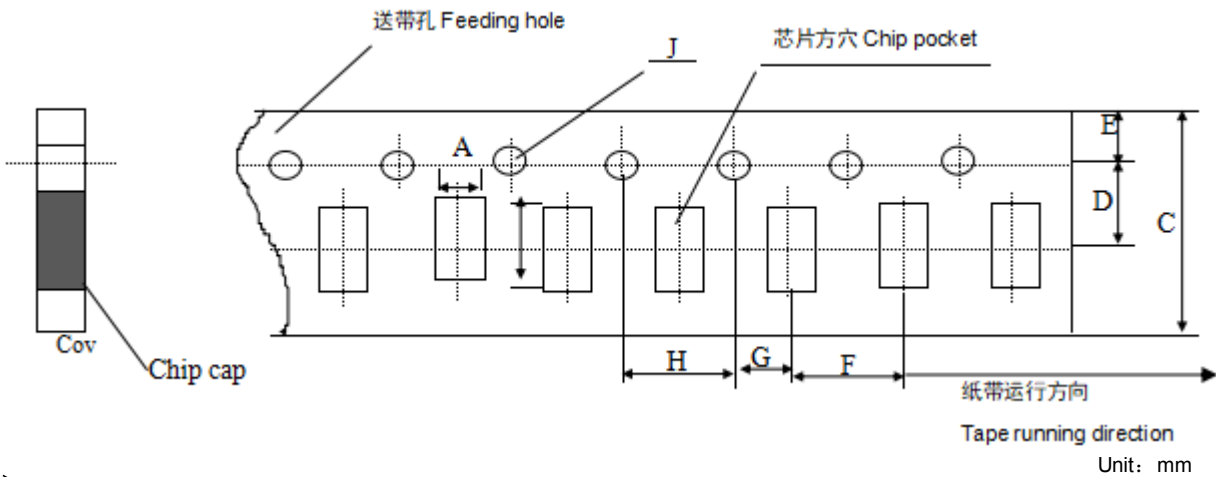
项目 Item	技术规格 Technical Specification	测试方法 Test Method and Remarks									
可焊性 Solderability	上锡率应大于 95% 外观：无可见损伤。 At least 95% of the terminal electrode is covered by new solder. Visual Appearance: No visible damage.	将电容在 80~120℃ 的温度下预热 10~30 秒。 Preheating conditions: 80 to 120℃; 10~30s. 有铅焊料：(Sn/Pb: 63/37) 无铅焊料： 浸锡温度：235±5℃ 浸锡温度：245±5℃ 浸锡时间：2±0.5s 浸锡时间：2±0.5s Solder Temperature: Solder Temperature: 235±5℃ 245±5℃ Duration: 2±0.5s Duration: 2±0.5s									
耐焊接热 Resistance to Soldering Heat	<table border="1"> <tr> <td>ΔC/C</td> <td>X5R/X6S/ X7S/X7R</td> <td>-20% ~ +20%</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> </table> 外观：无损伤 Appearance: No visible damage.	ΔC/C	X5R/X6S/ X7S/X7R	-20% ~ +20%	DF	同初始标准 Same to initial value.		IR	同初始标准 Same to initial value.		将电容在 100~200℃ 的温度下预热 10±2 分钟。 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℃; 10±2min. 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
ΔC/C	X5R/X6S/ X7S/X7R	-20% ~ +20%									
DF	同初始标准 Same to initial value.										
IR	同初始标准 Same to initial value.										
抗弯曲强度 Resistance to Flexure of Substrate (Bending Strength)	外观：无可见损伤。 Appearance: No visible damage. <table border="1"> <tr> <td>ΔC/C</td> <td>≤±10%</td> </tr> </table>	ΔC/C	≤±10%	试验基板：Al ₂ O ₃ 或 PCB 弯曲深度：1mm 施压速度：1mm/sec. 单位：mm 应在弯曲状态下进行测量。 Test Board: Al ₂ O ₃ or PCB Warp: 1mm Speed: 1mm/sec. Unit: mm The measurement should be made with the board in the bending position. 							
ΔC/C	≤±10%										
端头结合强度 Termination Adhesion	外观无可见损伤 No visible damage.	施加的力：5N 时间：10±1S Applied Force: 5N Duration: 10±1S									
寿命试验 Life Test	<table border="1"> <tr> <td>ΔC/C</td> <td>-20% ~ +20%</td> </tr> <tr> <td>DF</td> <td>≤2 倍初始标准 Not more than twice of initial value.</td> </tr> <tr> <td>IR</td> <td>Ri≥2000MΩ 或 Ri·CR≥50S 取两者之中较小者。 Ri≥2000MΩ 或 Ri·CR≥50S whichever is smaller.</td> </tr> </table> 外观：无损伤 Appearance: No visible damage.	ΔC/C	-20% ~ +20%	DF	≤2 倍初始标准 Not more than twice of initial value.	IR	Ri≥2000MΩ 或 Ri·CR≥50S 取两者之中较小者。 Ri≥2000MΩ 或 Ri·CR≥50S whichever is smaller.	电压：Ur<100V：2 倍额定工作电压 100V≤Ur：1.5 倍额定工作电压 时间：1000 小时 温度：85℃ (X5R)、105℃ (X6S) 125℃ (X7S、X7R) 充电电流：不应超过 50mA 放置条件：室温 放置时间：或 48 小时 (II 类)， 当产品额定电流≥6A 时，在试验增加额定电流 Applied Voltage: Ur<100V :2× Rated Voltage 100V≤Ur: 1.5× Rated Voltage Duration: 1000h Temperature: 85℃ (X5R)、105℃ (X6S) 125℃ (X7S、X7R) Charge/ Discharge Current: 50mA max. Recovery Conditions: Room Temperature Recovery Time: 48h (Class2)			
ΔC/C	-20% ~ +20%										
DF	≤2 倍初始标准 Not more than twice of initial value.										
IR	Ri≥2000MΩ 或 Ri·CR≥50S 取两者之中较小者。 Ri≥2000MΩ 或 Ri·CR≥50S whichever is smaller.										

◆ 包装
Package

* 纸带卷盘结构
Paper Taping



* 适合 '3061, 5081, 5121、6121' 常规尺寸产品的纸带尺寸
Dimensions of paper taping for 3061, 5081, 5121、6121 types.

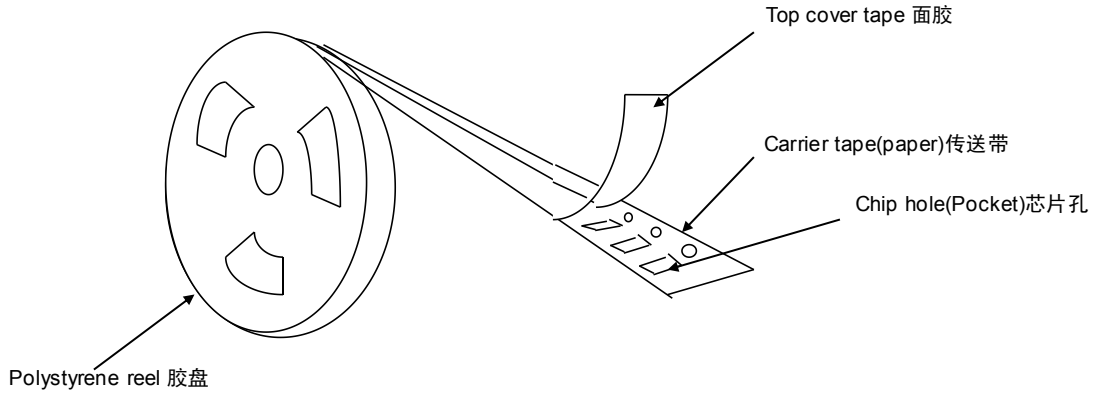


代号Code 纸带规格 paper size	A	B	C	D*	E	F	G*	H	J	T
3061	1.10 ±0.10	1.90 ±0.10	8.00 ±0.10	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.10	4.00 ±0.10	1.50 -0/+0.10	1.10 Max
5081	1.45 ±0.15	2.30 ±0.15	8.0 ±0.15	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.10	4.00 ±0.10	1.50 -0/+0.10	1.10 Max
5121/6121	1.80 ±0.20	3.40 ±0.20	8.00 ±0.20	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.10	4.00 ±0.10	1.50 -0/+0.10	1.10 Max

注意：*表示此处对尺寸的要求非常精确。
Note: The place with "*" means where needs exactly dimensions.

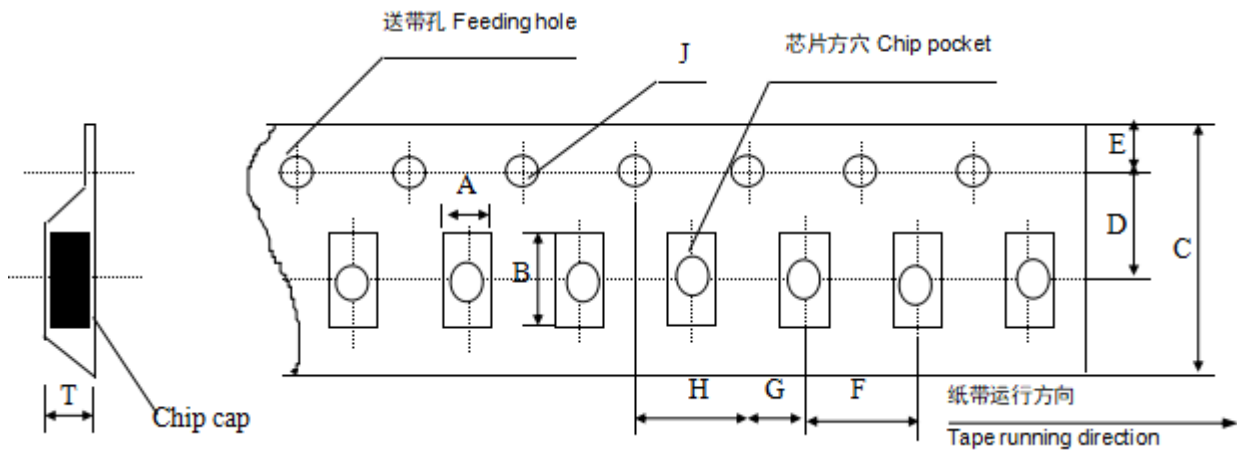
* 塑胶卷盘结构

Embossed taping



* 塑胶带尺寸结构 (适合‘5081、5121、6121’ 型产品)

Dimensions of embossed taping for 5081、5121、6121 type



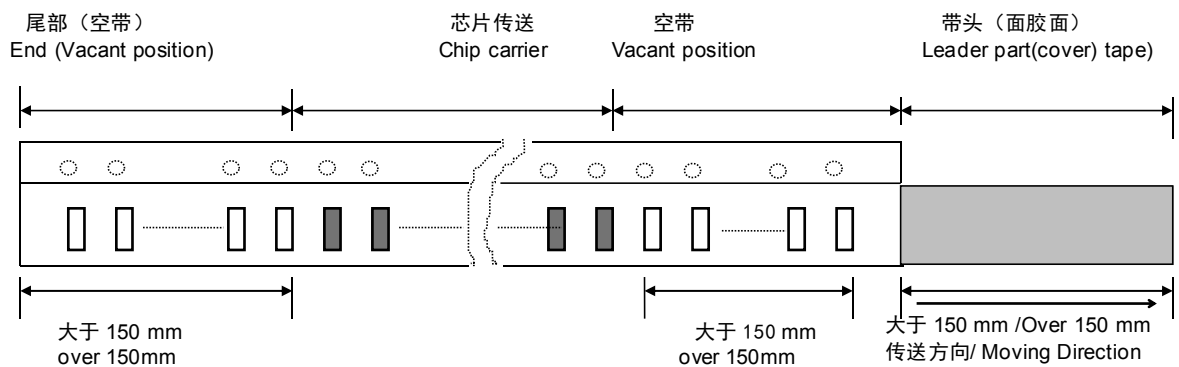
代号 Code 规格 Tape size	A	B	C	D*	E	F	G*	H	J	T
5081	1.55 ± 0.20	2.35 ± 0.20	8.00 ± 0.20	3.50 ± 0.05	1.75 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	4.00 ± 0.10	1.50 -0/+0.10	1.50 Max
5121/6121	1.95 ± 0.20	3.60 ± 0.20	8.00 ± 0.20	3.50 ± 0.05	1.75 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	4.00 ± 0.1	1.50 -0/+0.10	1.85 Max

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.

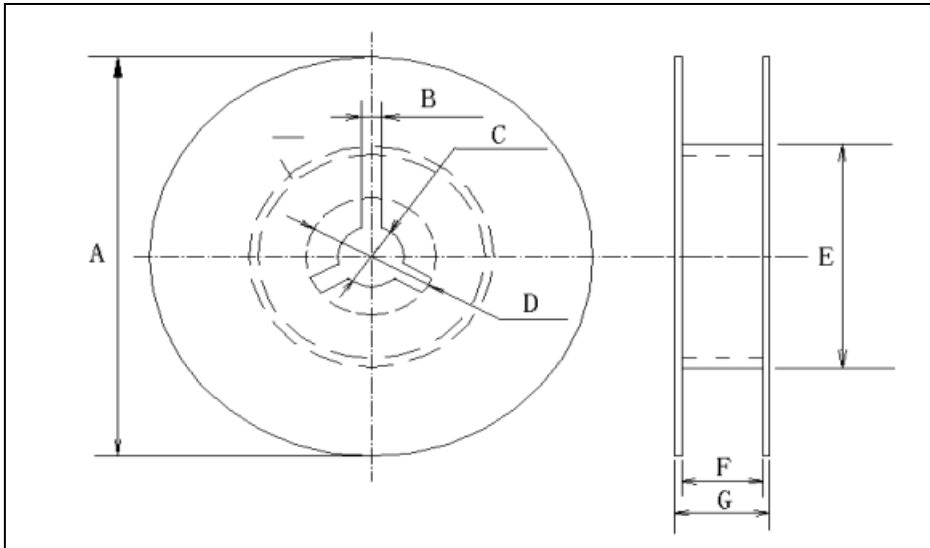
* 传送带的前后结构

Structure of leader part and end part of the carrier paper



* 卷盘尺寸

Reel dimensions (unit: mm)

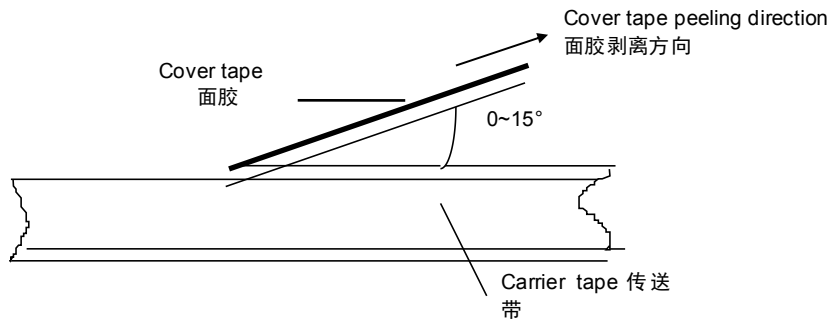


卷盘型号	A	B	C	D	E	F	G
7'REEL	$\phi 178 \pm 2.0$	3.0	$\phi 13 \pm 0.5$	$\phi 21 \pm 0.8$	$\phi 50$ 或更大 $\phi 50$ or more	10.0 ± 1.5	12max
13'REEL	$\phi 330 \pm 2.0$	3.0	$\phi 13 \pm 0.5$	$\phi 21 \pm 0.8$	$\phi 50$ 或更大 $\phi 50$ or more	10.0 ± 1.5	12max

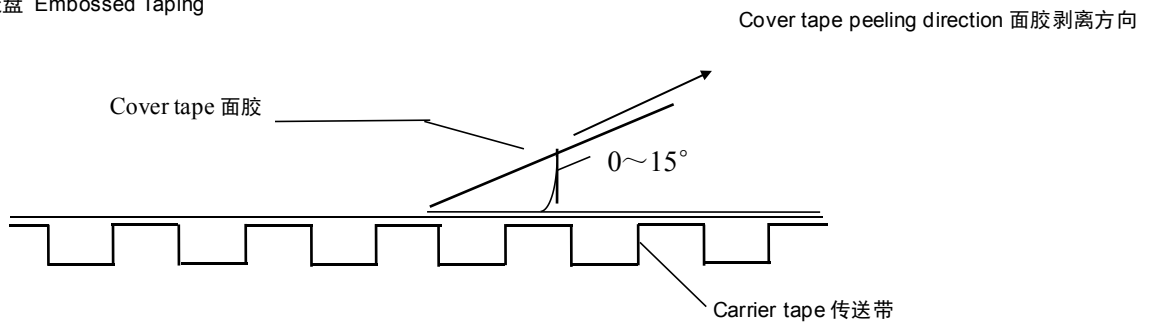
* 关于卷带的说明：面胶剥离强度

Taping specification: top tape peeling strength

* 纸带 Paper Tapin



* 塑料胶盘 Embossed Taping



标准：0.1N < 剥离强度 < 0.7N

Standard: 0.1N < peeling strength < 0.7N

在剥离时，纸带不能有纸碎，也不能粘在底、面胶上。

No paper dirty remains on the scotch when peeling, and sticks to top and bottom tape.

*** 塑料盒散包装**

Bulk Case Package

单位 (unit) :mm

Symbol	A	B	T	C	D	E
Dimension	6.80±0.10	8.80±1.00	12.00±0.10	15.00+0.10/-0	2.00+0/-0.10	4.70±0.10
Symbol	F	W	G	H	L	I
Dimension	31.50+0.20/-0	36.00+0/-0.20	19.00±0.35	7.00±0.35	110.00±0.70	5.00±0.35

*** 包装数量**

Packing Quantity

尺寸 (SIZE)	包装形式和数量 (Package Style & Quantity) unit: pcs				
	塑料压纹带卷盘(EPT)	纸带卷盘(PT)	胶带卷盘(ET)	塑料盒散装(BC)	一般散装(BP)
3061	----	4000	----	15000	5000
5081	----	4000	3000	10000	5000
5121/6121	----	4000	T≤1.35mm 3000 T>1.35mm 2000	5000	5000

注意：包装的形式和数量可根据客户的要求来定。

Note: We can choose packing style and quantity can be according to the customer's requirement.

*** 外包装**

Outer packing

小包装 The first package

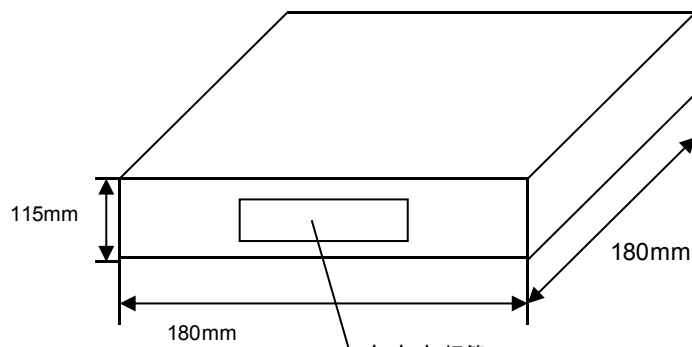
Quantity: 10 reels

数量：10 卷

大包装 The second package

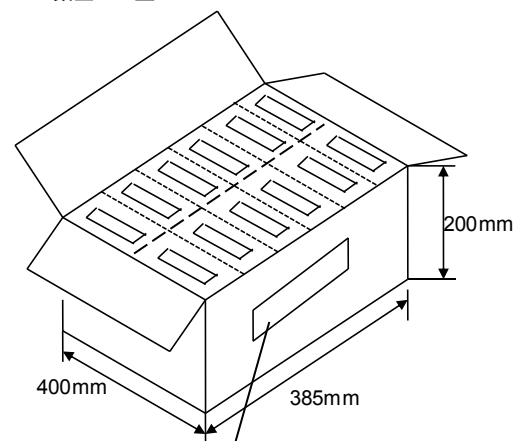
Quantity: 6 cases

数量：6 盒



Label 标签

PART No 型号规格
QUANTITY 数量
DATE 日期



Label 标签

Production name 产品名称
Quantity 数量
Weight 重量

◆ 储存方法

Storage Methods

- * 确保芯片可焊性良好的贮存期限为 12 个月 (在包装好已交付的情况下)。
The guaranteed period for solderability is 12 months (Under deliver package condition).
- * 储存条件 Storage conditions:
 储存温度/Temperature 5~40℃ 储存相对湿度/Relative Humidity 20~70%

◆ 使用前的注意事项

Precautions For Use

多层片式瓷介电容器 (MLCC) 在短路或开路的电路中都有可能失效, 在超出本承认书或相关说明书中所述使用频率的恶劣工作环境, 或外界机械力超压作用下, 电容芯片都有可能着火、燃烧甚至爆炸, 所以在使用的时候, 首先应考虑按本承认书的有关说明来进行, 如有不明之处, 请联系我们技术部、品管部或生产部。

The Multi-layer Ceramic Capacitors (MLCC) may fail in a short circuit mode in an open circuit mode when subjected to severe conditions of electrical environment and / or mechanical stress beyond the specified "rating" and specified "conditions" in the specification, which will result in burn out, flaming or glowing in the worst case. Following "precautions for safety" and Application Notes shall be taken in your major consideration. If you have a question about the precautions for handling, please contact our engineering section or factory.

* 焊接的条件与相关图表

Soldering 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

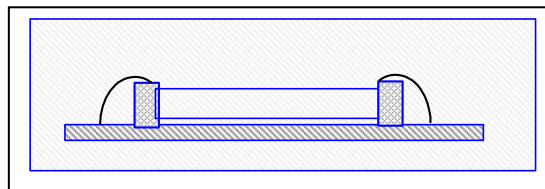
手工焊接很容易因为芯片局部受热不均而引起瓷体微裂或局部爆炸的现象, 在焊接时, 如果操作者不小心, 会使烙铁头直接同电容芯片的瓷体部分接触, 这样很容易使电容芯片因热冲击而受损或出现其他意外, 因此, 使用电烙铁手工焊接时应仔细操作, 并对电烙铁的尖端的选择和尖端温度控制应多加小心。

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.

* 适量的焊料

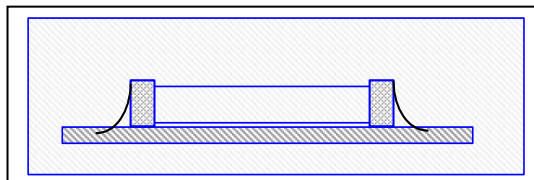
Optimum Solder Amount for Reflow Soldering

焊料过多
Too much solder



这样会因端头压力过大而
可能引起芯片受损
Cracks tend to occur due to
large stress.

焊料太少
Not enough solder



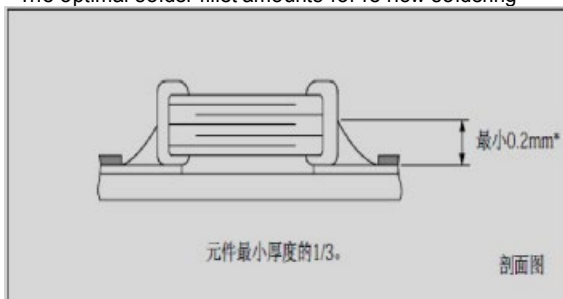
固定力量不足, 可能会引起
电容芯片与线路接触不良
Weak holding force may cause
bad connection
between the capacitor and PCB.

* 推荐焊料用量

Recommended Soldering amounts

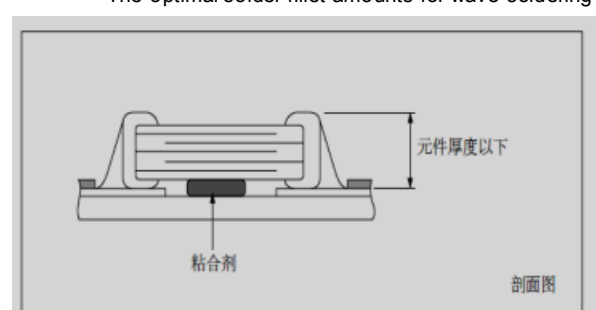
回流焊接的最佳焊料用量

The optimal solder fillet amounts for re-flow soldering



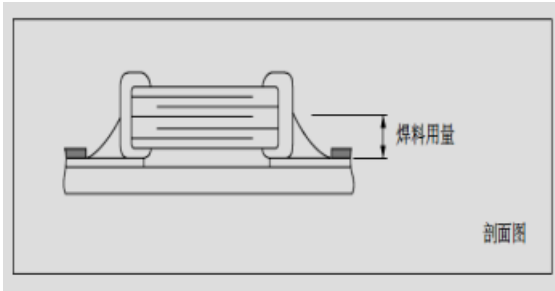
波峰焊接的最佳焊料用量

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	额定电压 Rated Voltage	容量范围 Capacitance	焊接方式 Soldering Method
3061	X5R, X6S, X7S, X7R	/	/	R
5081	X5R, X6S, X7S, X7R	/	/	R
5121	X5R, X6S, X7S, X7R	/	/	R
6121	X5R, X6S, X7S, X7R	/	/	R

焊接方式 Soldering method:

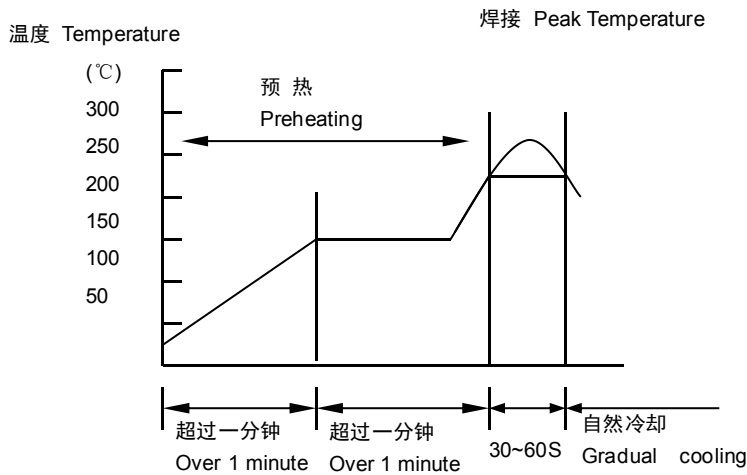
R—回流焊 Reflow Solering

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)**



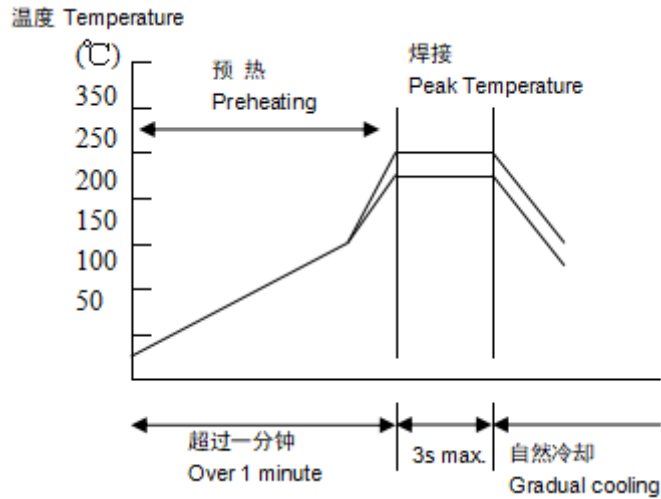
	Pb-Sn 焊接 Pb-Sn soldering	无铅焊接 Lead-free soldering
尖峰温度 Peak temperature	230℃~250℃	240℃~260℃

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 $T \leq 150^\circ\text{C}$ 。

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as: $T \leq 150^\circ\text{C}$.

* 波峰焊接

(Wave soldering)



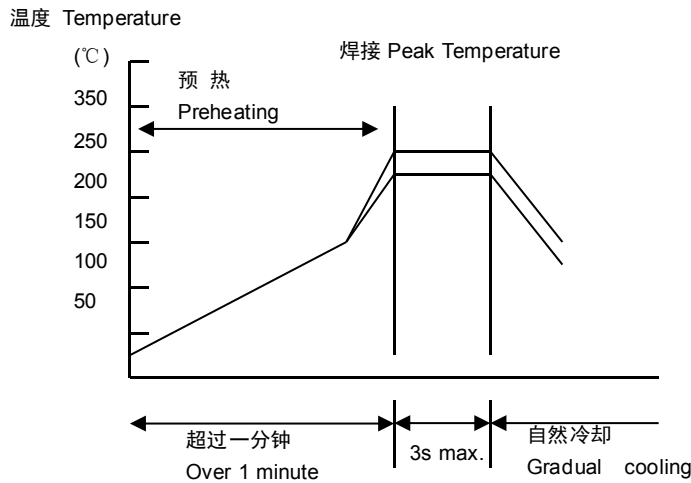
	Pb-Sn 焊接 Pb-Sn soldering	无铅焊接 Lead-free soldering
尖峰温度 Peak temperature	230℃~260℃	240℃~270℃

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 $T \leq 150^\circ\text{C}$ 。

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as: $T \leq 150^\circ\text{C}$.

* 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
$\Delta \leq 130^\circ\text{C}$	最高 350°C Highest temperature: 350°C	最大 20W 20W at the highest	建议 1mm 1mm recommended	最长 3s 3s at the longest	$\leq 1/2$ 芯片厚度 $\leq 1/2$ 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

*以最新版本的内容为准