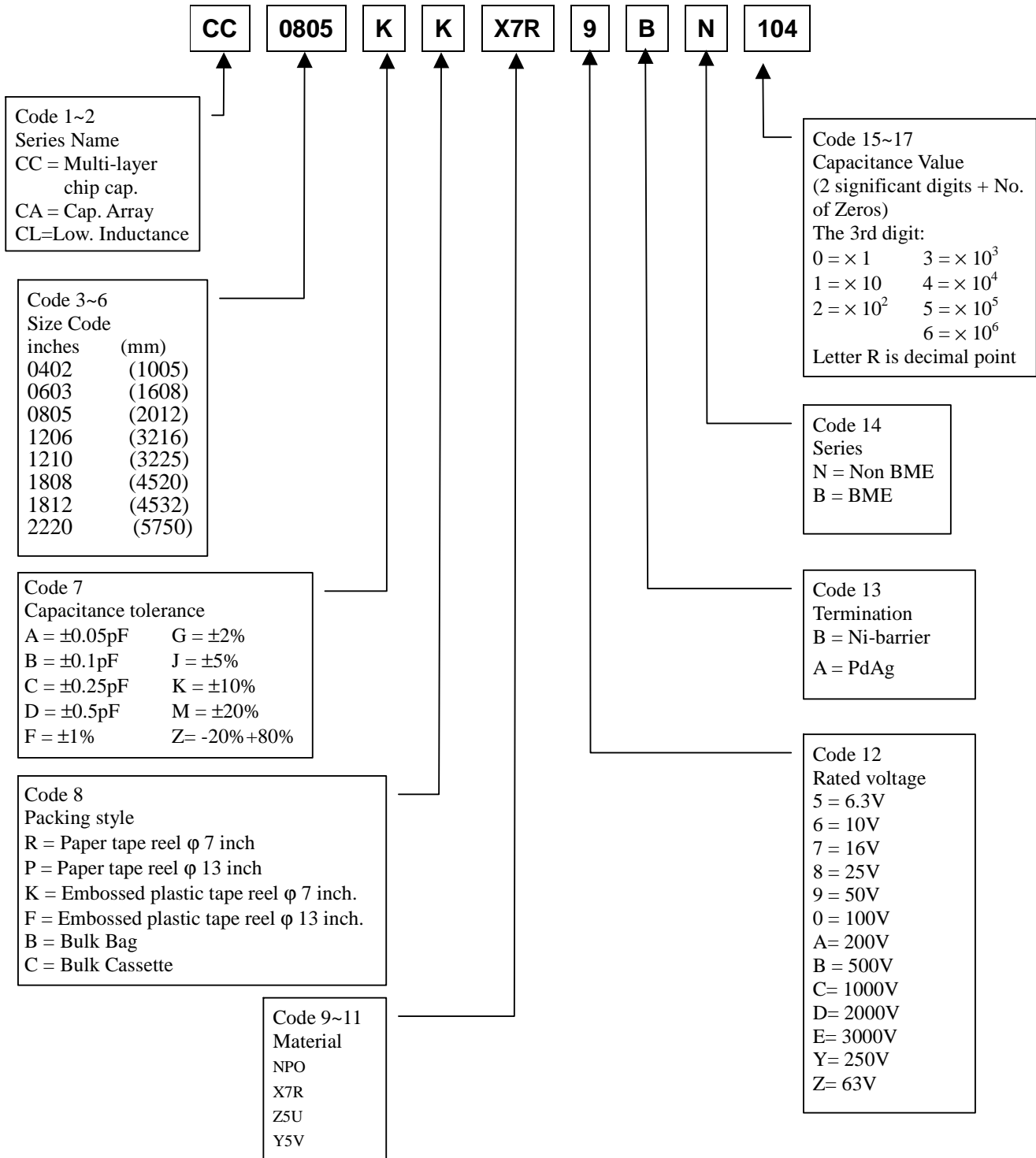


产品尺寸精度高，便于自动贴片机高效率装配；  
 端电极为三层电极，适合波峰焊和回流焊；  
 介电体与外表为同种材料，环境条件影响小，高绝缘电阻，高可靠性；  
 含有从COG到Y5V各种温度特性介质；  
 适用于通讯、计算机、家用电器和仪器仪表等普通电子设备。

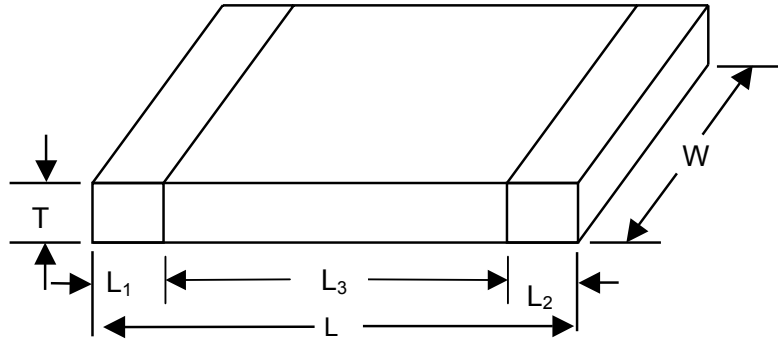
Example:



## 电气特性

Characteristics	Test conditions	Requirement			
		Class I	Class II		
		NPO	X7R	Y5V	Z5U
Operation temperature range	_____	-55°C to 125°C	-55°C to 125°C	-25°C to 85°C	+10°C to +85°C
Temperature characteristic/coefficient (TC)	With respect to 20°C (25°C, for Y5V、Z5U) within operation temperature range	NPO 16V, 0±60ppm/K NPO >16V, 0±30ppm/K	±15%	+30% to -80%	+22% to -56%
Capacitance tolerance	With respect to 20°C (25°C, for Y5V、Z5U) NPO:	C < 5pF; ±0.25pF C ≥ 5pF; ±0.5pF C ≥ 10pF; ±5%, ±10%	±10%, ±20%	±20%, -20%~+80%	±20%, -20%~+80%
Dissipation factor (Tan δ)	C ≤ 1000pF 1Vrms/1MHz C > 1000pF 1Vrms/1KHz  X7R/Y5V: 1Vrms/1KHz  Z5U: 0.5Vrms/1KHz	C < 10pF: Tan δ ≤ 10(3/C+0.7)×10 <sup>-4</sup> or 30 × 10 <sup>-4</sup> whichever is less.  C ≥ 10pF Tan δ ≤ 10 × 10 <sup>-4</sup>	Tan δ ≤ 2.5%, 50V Tan δ ≤ 2.5%, 25V  Tan δ ≤ 3.5%, 16V  Tan δ ≤ 5%, 10V	Tan δ ≤ 5% or ≤ 7%, 25V/50V depending on capacitance value  Tan δ ≤ 9% or ≤ 12.5%, 16V depending on capacitance value  Tan δ ≤ 12.5%, 10V	Tan δ ≤ 4%, 50V Tan δ ≤ 6%, 25V  Tan δ ≤ 9%, 16V
Insulation resistance(IR)	At Ur(rated voltage) for 1 minute Ur>500V,at 500V(DC) for 1minute	R <sub>ins</sub> > 10GΩ or R <sub>ins</sub> ×C≥500s, whichever is less.	R <sub>ins</sub> > 10GΩ or R <sub>ins</sub> ×C≥500s, Whichever is less.	R <sub>ins</sub> > 10GΩ or R <sub>ins</sub> ×C≥100s, whichever is less.	
Dielectric withstanding Voltage	At 2.5Ur (for Ur ≤ 100V) 1.5Ur + 100V (for Ur > 100V) 1.5Ur,Ur=1000V 1.2Ur,Ur>1000V for 5Second	No breakdown			

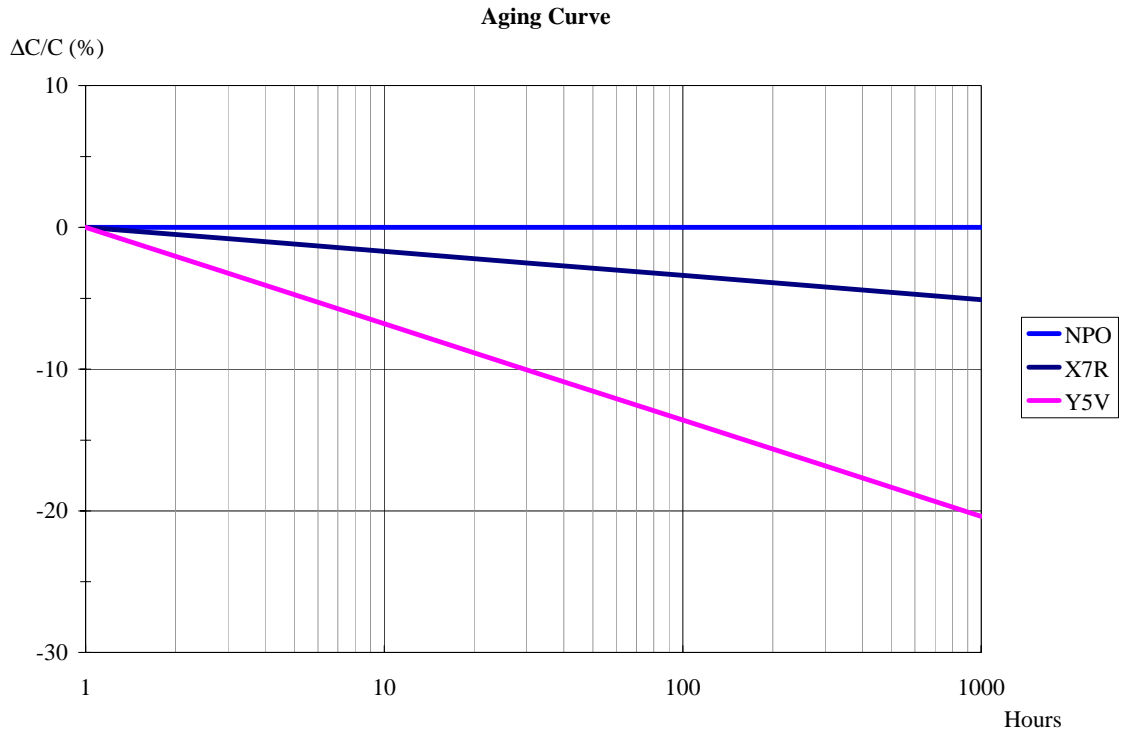
外形尺寸 (mm)



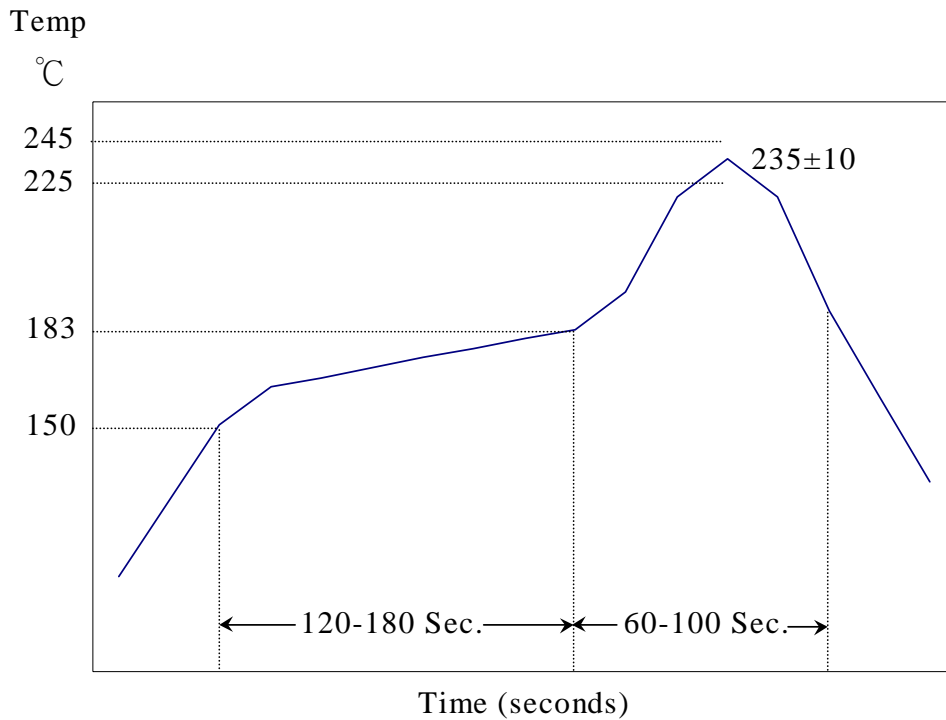
Style	L	W	T		L <sub>1</sub> :L <sub>2</sub>		L <sub>3</sub>
			MIN.	MAX.	MIN.	MAX.	Min.
CC0402	1.0±0.05	0.5±0.05	0.45	0.55	0.15	0.30	0.40
CC0603	1.6±0.10	0.8±0.10	0.70	0.90	0.20	0.60	0.40
CC0805	2.0±0.10	1.25±0.10	0.50	1.35	0.25	0.75	0.55
CC1206	3.2±0.15	1.6±0.15	0.50	1.35	0.25	0.75	1.40
CC1210	3.2±0.20	2.5±0.20	0.50	1.80	0.25	0.75	1.40
CC1812	4.5±0.20	3.2±0.20	0.50	1.80	0.25	0.75	2.20
CC2220	5.7±0.20	5.0±0.20	0.50	1.80	0.25	0.75	2.20

Unit: mm

### 老化率



### 回流焊温度曲线



### Profile Parameters 參數

1-2°C/Sec ramp 溫昇

Preheat 150-183°C : 2-3 minutes

Time above 183°C : 60-100 seconds

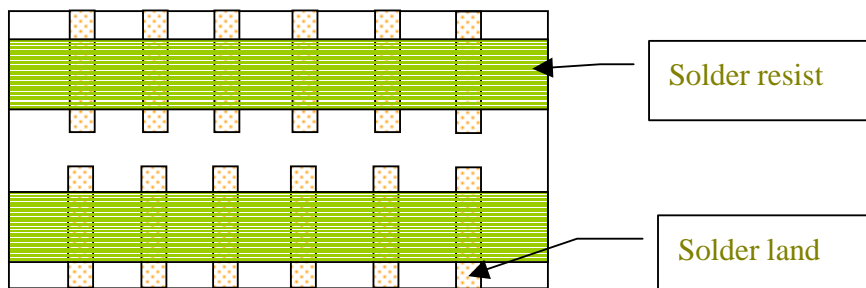
Peak Temperature : 230±10°C

Module should only be in oven for 5.5-6 minute

## 试验和要求

IEC 384-10	Test items	Conditions	Requirements		
			NPO	X7R	Y5V
4.9	Bending	Bending rate 1mm/s, jig. Radius 340mm	$\Delta C/C \leq 1\%$	$\Delta C/C \leq 10\%$	$\Delta C/C \leq 20\%$
4.10	Resistance to soldering heat	$260 \pm 5^\circ\text{C}$ for $10 \pm 0.5\text{s}$ in static solder bath	$\Delta C/C \leq 0.5\%$ or $0.5\text{pF}$ , whichever is greater	$-5\% \leq \Delta C/C \leq 10\%$	$-10\% \leq \Delta C/C \leq 20\%$
4.11	Solderability	$235 \pm 5^\circ\text{C}$ for $2 \pm 0.5\text{s}$ in a static solder bath	75% minimum coverage of metallic area		
4.12	Rapid change of temperature	NPO/X7R: $-55^\circ\text{C}$ to $+125^\circ\text{C}$ , 5 cycles Y5V: $-25^\circ\text{C}$ to $+85^\circ\text{C}$ , 5 cycles	$\Delta C/C \leq 1\%$ or $1\text{pF}$ , whichever is greater	$\Delta C/C: \leq 15\%$	$\Delta C/C: \leq 20\%$
4.14	Damp heat, steady state	At $40^\circ\text{C}$ , 90 to 95% RH and $U_r$ applied (max. 500V, for 56 days (500 hours for Y5V) Class 2 only 56 days at $40^\circ\text{C}$ , 90 to 95% RH, No voltage (for $U_r \geq 1\text{kV}$ ) Precondition for Class 2 $U_r \leq 16\text{V}$	$\Delta C/C: 2\%$ or $1\text{pF}$ whichever is greater  $\text{Tan } \delta: \leq 2 \times \text{specified Value}$  IR: $2500\text{M}\Omega$ or $\text{RxC} \geq 25\text{s}$ whichever is less	$\Delta C/C: \leq 15\%$  $\text{Tan } \delta: \leq 7\%$  IR: $1000\text{M}\Omega$ or $\text{RxC} \geq 25\text{s}$ Whichever is less	$-40\% \leq \Delta C/C \leq 30\%$  $\text{Tan } \delta: \leq 7\%, 12.5\%, 15\%$  IR: $1000\text{M}\Omega$ or $\text{RxC} \geq 25\text{s}$ Whichever is less
4.15	Endurance	At upper category temperature, $2 \times U_r$ applied ( $1.5U_r$ for $U_r > 50\text{V}$ , $1.2U_r$ for $U_r \geq 1\text{kV}$ ) for 1000hours Class 2 only 1000 hours, At upper category temperature, No voltage (for $U_r \geq 1\text{kV}$ ) Precondition for Class 2 $U_r \leq 16\text{V}$	$\Delta C/C: 2\%$ or $1\text{pF}$ whichever is greater  $\text{Tan } \delta: \leq 2 \times \text{specified Value}$  IR: $4000\text{M}\Omega$ or $\text{RxC} \geq 40\text{s}$ whichever is less	$\Delta C/C: \leq 20\%$  $\text{Tan } \delta: \leq 7\%$  IR: $2000\text{M}\Omega$ or $\text{RxC} \geq 50\text{s}$ Whichever is less	$-40\% \leq \Delta C/C \leq 30\%$  $\text{Tan } \delta: \leq 7\%, 12.5\%, 15\%$  IR: $2000\text{M}\Omega$ or $\text{RxC} \geq 50\text{s}$ Whichever is less

## PCB Layout for Reliability test:







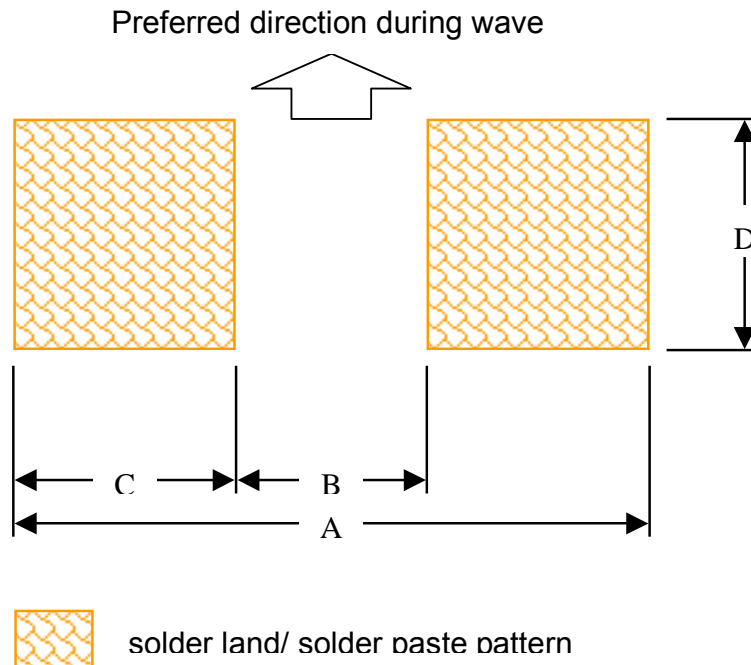




Y5V

Capacitance ( $\mu$ F)	Y5V 10V				Y5V 16V					Y5V 25V				Y5V 50V			Z5U 25V		Z5U 50V			
	0603	0805	1206	1210	0402	0603	0805	1206	1210	0603	0805	1206	1210	0603	0805	1206	0603	1206	0805	1206	1210	
0.010																						
0.022																						
0.047																						
0.10																						
0.22																						
0.47																						
1.0																						
2.2																						
3.3																						
4.7																						
10																						
22																						

### commended dimension of solder lands



#### Reflow soldering

Style	FOOTPRINT DIMENSIONS (mm)				Placement Accuracy (mm)
	A	B	C	D	
CC0402	1.5	0.5	0.5	0.5	±0.15
CC0603	2.3	0.5	0.9	0.9	±0.25
CC0805	2.8	0.9	0.95	1.4	±0.25
CC1206	4.0	2.0	1.0	1.8	±0.25
CC1210	4.0	2.0	1.0	2.7	±0.25
CC1808	5.4	3.3	1.05	3.3	±0.25
CC1812	5.4	3.3	1.05	3.3	±0.25
CC2220	6.6	4.5	1.05	3.3	±0.25

#### Wave soldering

Style	FOOTPRINT DIMENSIONS (mm)				Placement Accuracy (mm)
	A	B	C	D	
CC0603	2.7	0.9	0.9	0.8	±0.25
CC0805	3.4	1.3	1.05	1.3	±0.25
CC1206	4.8	2.3	1.25	1.7	±0.25
CC1210	5.3	2.3	1.50	2.6	±0.25