

Multilayer Ceramic Capacitors

[High Capacitance MLCCs – 1.0uF and above]



HCC Series

◆ Features

- Surface mount suitable for wave and reflow soldering
- High reliability
- Small size and high capacitance value
- Excellent high frequency characteristics
- RoHS compliant

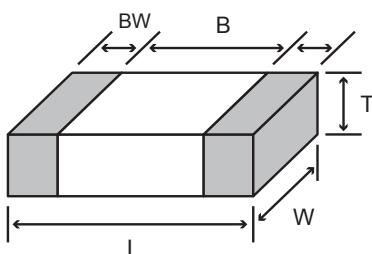
◆ Applications

- Ideal for smoothing and decoupling circuits
- Suitable for DC-DC converter, personal computer and peripherals, telecommunication and general electronic equipment

◆ Summary of Specifications

Operation Temperature	X7R / X7S : -55 °C to +125 °C , X6S : -55 °C to +105 °C ; X5R : -55 °C to +85 °C
Rated Voltage	4.0Vdc to 50Vdc
Temperature Coefficient	X7R : ≤ ± 15% , -55 °C to +125 °C (EIA Class II)
	X7S : ≤ ± 22% , -55 °C to +125 °C (EIA Class II)
	X6S : ≤ ± 22% , -55 °C to +105 °C (EIA Class II)
	X5R : ≤ ± 15% , -55 °C to +85 °C (EIA Class II)
Dissipation Factor	X7R, X5R, X6S, X7S : 15% max
Insulation Resistance	10,000mΩ or 500/CΩ, whichever is smaller for rated voltage > 10V and greater than 100/CΩ for rated voltage ≤ 10V
Aging	X7S/X7R/X6S/X5R : typically 1.0%
Dielectric Strength	250% Rated Voltage

◆ Dimension



Unit : mm [inches]

SIZE	L	W	T (max)	B (min)	BW (min)
0201	0.60±0.09 [.024±.003]	0.30±0.09 [.011 ±.003]	0.55 [.022]	0.20 [.008]	0.10 [.004]
0402	1.00±0.05 [.039±.002]	0.50±0.05 [.020 ±.002]	0.95 [.037]	0.30 [.012]	0.15 [.006]
0603	1.60±0.10 [.063±.004]	0.80±0.10 [.031 ±.004]	1.00 [.039]	0.40 [.016]	0.15 [.006]
0805	2.00±0.20 [.079±.012]	1.25±0.20 [.049 ±.008]	1.45 [.057]	0.70 [.028]	0.20 [.008]
1206	3.20±0.30 [.126±.012]	1.60±0.20 [.126±.012]	1.90 [.074]	1.50 [.059]	0.30 [.012]
1210	3.20±0.30 [.126±.012]	2.50±0.20 [.098±.008]	2.80 [.110]	1.60 [.063]	0.30 [.012]

◆ How To Order

Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Thickness (mm) (Optional)	Suffix Code
C: MLCC (Multilayer Ceramic Capacitor)	Ex.: 0201 0402 0603 0805 1206 1210	Ex.: N: NP0 X: X7R R: X7S S: X6S B: X5R	Ex.: 105 : 10x10 ⁵ 225 : 22x10 ⁵ 475 : 47x10 ⁵ 106 : 10x10 ⁶ 226 : 22x10 ⁶	Ex.: F : +/- 1% G : +/- 2% J : +/- 5%	Ex.: 004 : 4Vdc 007 : 6.3Vdc 010 : 10Vdc 016 : 16Vdc 025 : 25Vdc 035 : 35Vdc 050 : 50Vdc	Ex.: T: T&R 7" R: T&R 13" B: Bulk	Ex: E: 1.6±0.20 F: 2.0±0.20 O: 0.5±0.05	Y

◆ Capacitance Range

X7R (X) Series																													
Size	0402				0603				0805				1206				1210												
Code	6.3V	10V	6.3V	10V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	
105	O	O3	B	B5	B5	B5	B5	B5	B4	D	D	D	D	D	D	D	D	D	D/E	E5	D/E	E5			D	D	D	D	E
225			B5	B5	B3	B3				D	D	D	D	D	D	D	E	E5	E5	E5	E5	E5			F	F	F	F	F
475			B3	B3	B3					D	D	D	D	D	D	D	E	E5	E5	E5	E5	E5			F	F	F	F	F
106			B3	B3						D	D	D	D				E5	E5	E5	E5	E5	E5			F	F1	F1	F1	F1
226										D	D						E5	E5	E4						M	M	M	M	
476																							M	M					

X7S (R) Series														
Size	0402				0603				0805			1206	1210	
Code	6.3V	10V	16V	25V	10V	16V	25V	16V	25V	50V	16V	6.3V		
105		O1	O3	O3										
225	O2	O2	O2			B	B							
475					B4	B3			D	D				
106					B3									
226											E4			
476														
107												N		

X7T (T) Series									
Size	0201			0402			0603		
Code	4V	6.3V	6.3V	10V	16V	2.5V	6.3V	10V	
105		S3							
225	S3				O2				
475				O2	O2				
106							B3	B3	
226							B3	B3	
476							B3		
107									

X6S (S) Series																																									
Size	0201				0402				0603				0805				1206				1210																				
Code	2.5V	4V	6.3V	10V	4V	6.3V	10V	16V	25V	2.5V	4V	6.3V	10V	16V	25V	35V	50V	2.5V	4V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V			
105	S	S2	S2	S2	O	O	O	O3	O3				B	B	B	B	B								D																
225	S2	S2	S3		O	O3	O2	O2	O2				B	B	B	B	B								D	D	D	D	D	D	D	D	D	D	D	D	D	D			
475	S3				O1	O2							B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		
106					O2	O2							B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
226					O4								B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
476													B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
107													B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
227													B3	B3	B3	B3	B3								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

X5R (B) Series																																											
Size	0201				0402				0603				0805				1206				1210																						
Code	4V	6.3V	10V	16V	6.3V	10V	16V	25V	35V	50V	2.5V	4V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V					
105	S1	S1	S2	S2	O	O	O	O3	O3				B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5																				
225	S2	S2	S2		O	O	O2	O2	O2				B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5																				
475	S3	S3			O3	O1	O2						B5	B5	B4	B4	B4	B4	B4	B4	B4	B4	B4																				
106					O2	O2							B5	B4	B4	B3	B3	B							D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		
226					O4	O4							B3	B3	B3	B3	B3	B							D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
476													B3	B3	B3	B3	B3	B							D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
107													B												D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
227													B												D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

■ Other dimensions, capacitance values and voltages ratings are available on request. Please contact Holy Stone.

◆ Thickness Dimensions

Symbol Code	S	S1	S2	S3	O	O1	O2	O3	O4
Thickness (mm)	0.3±0.03	0.3±0.05	0.3±0.09	0.5±0.05	0.5±0.05	0.5±0.15	0.5±0.20	0.5±0.10	0.8+0/-0.15

Symbol Code	B	B3	B4	B5	C	D	E	E4	E5
Thickness (mm)	0.85±0.15	0.8±0.20	0.8±0.15	0.8±0.1	1.0+0.1/-0.05	1.25±0.2	1.6±0.2	1.6±0.3	1.6±0.2

Symbol Code	F	F1	G	M	N
Thickness (mm)	2.0±0.2	2.0±0.2	2.4±0.2	2.5±0.2	2.5±0.3