

## 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

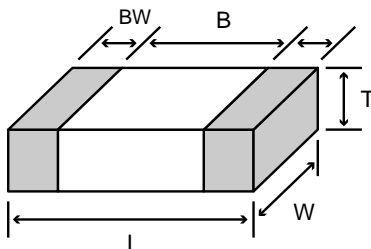
#### ◆ Applications

- 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

C	0402	B	105	K	025	T	O	Y
<b>Product Code</b>	<b>Chip Size</b>	<b>Dielectric</b>	<b>Capacitance Unit : pF</b>	<b>Tolerance</b>	<b>Rated Voltage</b>	<b>Packaging</b>	<b>Thickness (mm) (Optional)</b>	<b>Suffix Code</b>
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 <sup>5</sup> 225 : 22x10 <sup>5</sup> 475 : 47x10 <sup>5</sup> 106 : 10x10 <sup>6</sup> 226 : 22x10 <sup>6</sup>	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	4V	6.3V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	10V	16V	25V	35V	50V
105	O	O	B	B5	B5	B5	B5	B4	D	D	D	D	D	D	D	D	D/E	E5	D/E	E5	D	D	D	D	E
225			B5	B5					D	D	D	D	D	D	E	E5	E5	E5	E5	E5	F	F	F	F	F
475			B3	B3					D	D	D	D			E	E5	E5	E5	E5	E5	F	F	F	F	F
106									D	D	D				E5	E5	E5	E5	E5		F	F1	F1	F1	F1
226															E5	E5					M	M	M		F1/M
476																					G				

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

X6S ( S ) Series																																		
Size	0201		0402				0603					0805					1206					1210												
Code	4V	6.3V	4V	6.3V	10V	16V	25V	4V	6.3V	10V	16V	25V	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		O	O	O	O3		B	B	B	B	B				D	D	D	D	D							E	E					
225				O	O3	O2	O2		B5	B	B	B	B				D	D	D	D	D							E	E					
475				O1					B5	B5	B4	B3				D	D	D	D	D							E	E						
106			O2	O2					B3	B3	B3	B3				D	D	D	D	D							E	E						
226			O4						B	B3						D	D	D	D	D							E5	E5						
476									B	B3						D	D	D	D	D							E	E5						
107																D	D										E4	E4						
227																											E	E5						

X5R ( B ) Series																																		
Size	0201		0402				0603					0805					1206					1210												
Code	4V	6.3V	4V	6.3V	10V	16V	25V	35V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	
105	S1	S1	S2	O	O	O	O	O3	B5	B5	B5	B5	B5	B5				D	D	D	D	D							E	E				
225	S	S2		O	O	O2	O2	O	B5	B5	B5	B5	B5	B3				D	D	D	D	D							E	E				
475	S3	S3		O1	O1	O			B5	B5	B4	B4	B3	B				D	D	D	D	D							E5	E5				
106				O2	O2				B5	B4	B4	B3	B				D	D	D	D	D							E5	E5					
226				O4	O4				B3	B3							D	D	D	D	D							E5	E5					
476									B3								D	D										E5	E5					
107																	D	D										E5	E5					
227																	D	D										E4	E4					

■ 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