

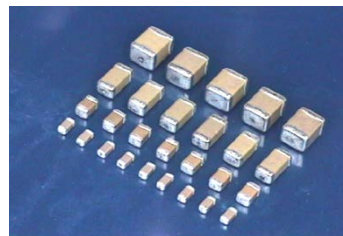


**THE DATASHEET OF
BSS138AK-QR**



Multilayer Ceramic Chip Capacitors [High Capacitance MLCC – 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

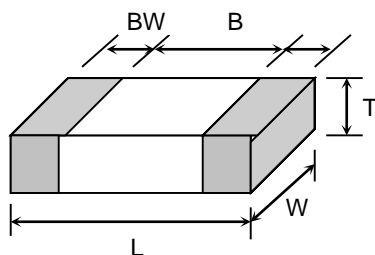
◆ Applications

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

◆ Summary of Specifications

Operation Temperature	NP0 / X7R / X7S : -55 °C ~ +125 °C , X6S : -55 °C ~ +105 °C; X5R : -55 °C ~ +85 °C , Y5V : -30 °C ~ +85 °C
Rated Voltage	4.0Vdc to 50Vdc
Temperature Coefficient	X7R : ≤ ± 15% , -55 °C ~ +125 °C (EIA Class II)
	X7S : ≤ ± 22% , -55 °C ~ +125 °C (EIA Class II)
	X6S : ≤ ± 22% , -55 °C ~ +105 °C (EIA Class II)
	X5R : ≤ ± 15% , -55 °C ~ +85 °C (EIA Class II)
	Y5V : +22%/-82% , -30 °C ~ +85 °C (EIA Class II)
Dissipation Factor	X7R, X5R, X6S, X7S : Max. 0.15; Y5V: Max 0.2
Insulation Resistance	10GΩ or 500/CΩ whichever is smaller (C in Farads)
Aging	X7S/X7R/X6S/X5R : typically 1.0% and Y5V ≤ 7% per decade of time
Dielectric Strength	250% Rated Voltage

◆ Dimension



TYPE	L	W	T (max)	B (min)	BW (min)
0201	0.60±0.03 [.024±.001]	0.30±0.03 [.011 ±.001]	0.33 [.013]	0.20 [.008]	0.10 [.004]
0402	1.00±0.05 [.039±.002]	0.50±0.05 [.020 ±.002]	0.55 [.022]	0.30 [.012]	0.15 [.006]
0603	1.60±0.10 [.063±.004]	0.80±0.10 [.031 ±.004]	0.95 [.037]	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]	1.80 [.071]	1.50 [.059]	0.30 [.012]
1210	3.20±0.30 [.126±.012]	2.50±0.20 [.098±.008]	2.70 [.105]	1.60 [.063]	0.30 [.012]
1812	4.60±0.3 [.181±.012]	3.20±0.3 [.126±.012]	3.00 [.118]	2.50 [.098]	0.30 [.012]
2220	5.7±0.40 [.220±.016]	5.00±0.40 [.197±.016]	3.00 [.118]	3.50 [.137]	0.30 [.012]

◆ How To Order



Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Suffix Code
C: MLCC (Multilayer Ceramic Capacitor)	Ex. 0402 / 0603 0805 / 1206 1210 / 1812 2220	Ex.: X:X7R S:X6S B:X5R Y:Y5V R:X7S	Ex.: 105:10×10 ⁵ 106:10×10 ⁶ 226:22×10 ⁶	Ex.: J : +/- 5% K: +/- 10% M: +/- 20% Z :+80/-20%	Ex.: 004: 4Vdc 007: 6.3Vdc 010: 10Vdc 025: 25Vdc 050: 50Vdc	T: T&R 7" R: T&R 13" B: Bulk	Y

◆ Capacitance Range

X7R (X) Series																																					
Size	0402							0603							0805							1206							1210					1812		2220	
Code	4V	6.3V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	10V	16V	25V	35V	50V	10V	16V	25V	35V	50V	25V	50V	25V	50V				
105	O	O	B	B	B	B	B	D	D	D	D	D	D	D	D	D/E	D/E	D/E	D/E	D	D	D	D	D	D	D	D	D	E	F	F	F	F				
155			B	B				D	D	D	D	D	D	E	E	E	E	E	E	F	F	F	F	F	F	F	F	F	F	F	F	F	F				
225			B	B				D	D	D	D	D	D	E	E	E	E	E	E	F	F	F	F	F	F	F	F	F	F	F	F	F	F				
335																																					
475								D	D	D	D			E	E	E	E	E	E	F	F	F	F	F	F	F	F	F	F	F	F	F	F				
106								D	D	D				E	E	E	E	E	E	F	F	F	F	F	F	F	F	F	F/G	F/G	F/G	G	G				
226														E	E	E	E	E	E																		
476																																					

X7S (R) Series										
Size	0402		0603			0805		1206	1210	
Code	6.3V	10V	10V	16V	25V	25V	50V	16V	6.3V	
105		O								
155										
225	O	O		B	B					
335										
475			B	B			D			
106						D				
226								E		
476										
107									G	

Y5V (Y) Series																				
Size	0402		0603				0805					1206			1210					
Code	6.3V	10V	6.3	10V	16V	25V	6.3V	10V	16V	25V	50V	10V	16V	25V	10V	16V	25V	35V		
105	O	O		B	B	B				B	B	D								
155				B	B	B				D	D	D								
225				B	B					D	D	D								
475				B	B					D	D	D								
106										D	D	D		D	D/E	E	F	F	F	F
226										D	D	D		D/E	D/E		F	F		

X6S (S) Series																																	
Size	0201		0402				0603					0805					1206					1210											
Code	4V	6.3V	6.3V	10V	16V	25V	4V	6.3V	10V	16V	25V	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	S	S	O	O	O	O	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
225			O	O	O	O	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
475			O	O	O	O	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
106			O	O	O		B	B	B	B	B		B	B	B	B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B	
226							B	B					B	B					B	B				B	B				B	B			
476							B	B					B	B					B	B				B	B				B	B			
107																																	
227																																	

X5R (B) Series																																		
Size	0201		0402				0603					0805					1206					1210												
Code	4V	6.3V	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	50V	6.3V	10V	16V	25V	50V				
105		S	S	O	O	O	O	O	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
225	S	S	O	O	O	O	O	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
335																																		
475			O	O	O		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
106			O	O			B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
226							B	B					B	B					B	B				B	B				B	B				
476							B						B	B					B	B				B	B				B	B				
107													D	D					D	D				B	B				F/G	F/G	G	G		
227													D	D					D	D				B	B				F/G	F/G	G	G		

- The yellow indication denotes values that are under development. Please contact Holy Stone office for further details
- Other dimensions, capacitance values and voltages ratings are available on request. Please contact Holy Stone.

◆ Thickness Specification

Symbol Code	S	O	A	B	C	D	E	F	G	H
Thickness(mm)	0.3±0.03	0.5±0.05	0.6±0.1	0.85±0.15	1.0+0.1/-0.05	1.25±0.20	1.6±0.2	2.0±0.2	2.4±0.2	2.8±0.2



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