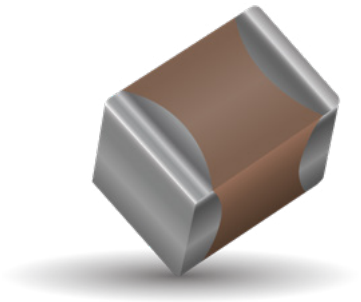
Engineering Module (EM) Range X7R BME MLCC for Non Flight Prototype

Design Covering ESCC 3009041, NASA S311-P838 and Mil 32535 Ranges



GENERAL DESCRIPTION

The EM series has been created to meet the growing demand for the space customers when a new design must be developed in a short time. KYOCERA AVX recommend using its -EM series of part numbers to meet this demand for nonflight/prototype designs.

Based upon its Space BME (3009041, NASA S311, Mil 32535 ranges) X7R & NP0 surface mount MLCCs the EM series use the same internal design and materials but without the final testing/screening (ESCC/QPL) for shorter lead times making it the ideal choice.

The EM series can be selected across the 3009041, NASA S311 and Mil 32535 ranges by selecting the matching dielectric, case size, voltage, capacitance value and capacitance tolerance.

BENEFITS

- EM Series allows customers to select non flight values from the ESCC 3009041/NASA S311-P838[1]/Mil 32535 ranges for prototype design work.
- The EM range is finished with Sn/Pb and Flexiterm® termination which protects against board flexure either during assembly or product lifetime.
- The EM range provides a high CV X7R range 16 – 100 volts, 2.2 nF – 22 uF and NP0 range 10 –100 Volts, 68 – 1500 pF.
- The EM range has shortened lead times to meet the customers' needs.
- With the EM range there is no Minimum Order Quantity.[2]

HOW TO ORDER

2220	5	C	106	K	A	R	6	-EM
Case Size	**Voltage Code**	**Temp. Characteristics**	**Capacitance Value**	**Capacitance Tolerance**	**Reliability Level**	**Termination Finish**	**Packaging**	**Part Level**
0402	4 V = 4	C = X7R	10 nF = 103	± 5% = J	Non Space = A	Sn/Pb with	Waffle = 6	Engineering
0603	6.3V = 6	A = NP0	100 nF = 104	± 10% = K		Flexiterm® = R	Tape & Reel = 1	Module = EM
0805	10V = Z		1 uF = 105					
1206	16V = Y		4.7 uF = 475					
1210	25V = 3		10 uF = 106					
1812	50V = 5							
2220	100V = 1							

DIMENSIONS mm (inches)

Size	0402		0603		0805		1206		1210		1812		2220	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
(L) Length	0.90 (0.035)	1.15 (0.045)	1.45 (0.057)	1.75 (0.069)	1.80 (0.071)	2.20 (0.087)	3.00 (0.118)	3.40 (0.134)	3.00 (0.118)	3.40 (0.134)	4.20 0.165)	4.80 (0.189)	5.3 (0.208)	6.1 (0.24)
(W) Width	0.41 (0.016)	0.61 (0.024)	0.65 (0.026)	0.95 (0.037)	1.05 (0.041)	1.45 (0.057)	1.40 (0.055)	1.80 (0.071)	2.30 (0.091)	2.70 (0.106)	3.00 (0.118)	3.40 (0.124)	4.60 (0.18)	5.41 (0.213)
(T) Thickness	0.61 Max. (0.024)		1.00 Max. (0.039)		1.52 Max. (0.060)		1.80 Max. (0.071)		2.80 Max. (0.110)		2.80 Max. (0.110)		2.80 Max. (0.110)	
(t) terminal	0.1 (0.004)	0.40 (0.015)	0.20 (0.008)	0.50 (0.020)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.95 (0.037)	0.25 (0.009)	1.03 (0.041)

PREFERRED SIZES ARE SHADED

Case Sizes		0402			0603			0805			1206			1210			1812			2220		
Code	Value	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V
222	2.2 (nF)	■	■	■	■	■	■															
272	2.7	■	■	■	■	■	■															
332	3.3	■	■	■	■	■	■															
392	3.9	■	■	■	■	■	■															
472	4.7	■	■	■	■	■	■	■	■	■												
562	5.6	■	■	■	■	■	■	■	■	■												
682	6.8	■	■	■	■	■	■	■	■	■												
822	8.2	■	■		■	■	■	■	■	■												
103	10	■	■		■	■	■	■	■	■												
123	12	■	■		■	■	■	■	■	■												
153	15	■	■		■	■	■	■	■	■												
183	18	■	■		■	■	■	■	■	■	■	■	■									
223	22	■	■		■	■		■	■	■	■	■	■									
273	27	■	■		■	■		■	■	■	■	■	■									
333	33	■			■	■		■	■	■	■	■	■									
393	39				■	■		■	■	■	■	■	■									
473	47				■	■		■	■	■	■	■	■	■	■	■						
563	56				■	■		■	■	■	■	■	■	■	■	■						
683	68				■	■		■	■	■	■	■	■	■	■	■						
823	82				■	■		■	■	■	■	■	■	■	■	■						
104	100				■	■		■	■	■	■	■	■	■	■	■						
124	120				■	■		■	■		■	■	■	■	■	■						
154	150				■	■		■	■		■	■	■	■	■	■	■	■	■			
184	180				■			■	■		■	■	■	■	■	■	■	■	■			
224	220							■	■		■	■	■	■	■	■	■	■	■			
274	270							■	■		■	■	■	■	■	■	■	■	■			
334	330							■	■		■	■	■	■	■	■	■	■	■			
394	390							■	■		■	■	■	■	■	■	■	■	■			
474	470							■	■		■	■		■	■	■	■	■	■			
564	560							■			■	■		■	■	■	■	■	■	■	■	■
684	680							■			■	■		■	■	■	■	■	■	■	■	■
824	820							■			■	■		■	■		■	■	■	■	■	■
105	1 (µF)							■			■	■		■	■		■	■	■	■	■	■
125	1.2										■						■	■	■	■	■	■
155	1.5										■						■	■	■	■	■	■
185	1.8										■						■	■	■	■	■	■
225	2.2										■						■	■	■	■	■	■
275	2.7																■	■		■	■	■
335	3.3																■	■		■	■	■
395	3.9																■	■		■	■	■
475	4.7																■	■		■	■	■
565	5.6																■			■	■	
685	6.8																■			■	■	
825	8.2																■			■	■	
106	10																			■	■	
126	12																			■		
156	15																			■		
186	18																			■		
226	22																			■		

Note 1, NASA S311-P838 does not include 0402 and 2220 values currently.
Note 2, with the EM range there is no Minimum Order Quantity check with the production plant for confirmation.

PREFERRED SIZES ARE SHADED

			M3253502					M3253503					M3253503				
Case Sizes			0402					0603					0805				
Code	Value	Cap Tol	4-10 V	16 V	25 V	50 V	100 V	4-10 V	16 V	25 V	50 V	100 V	4-10 V	16 V	25 V	50 V	100V
680	68 pF	F,G,J,K															
820	82 pF	F,G,J,K															
101	100 pF	F,G,J,K															
121	120 pF	F,G,J,K															
151	150 pF	F,G,J,K															
181	180 pF	F,G,J,K															
221	220 pF	F,G,J,K															
271	270 pF	F,G,J,K															
331	330 pF	F,G,J,K															
391	390 pF	F,G,J,K															
471	470 pF	F,G,J,K															
561	560 pF	F,G,J,K															
681	680 pF	F,G,J,K															
821	820 pF	F,G,J,K															
102	1000pF	F,G,J,K															
122	1200pF	F,G,J,K															
152	1500pF	F,G,J,K															
182	1800pF	F,G,J,K															
202	2000pF	F,G,J,K															
222	2200pF	F,G,J,K															
272	2700pF	F,G,J,K															
332	3300pF	F,G,J,K															
392	3900pF	F,G,J,K															
472	4700pF	F,G,J,K															