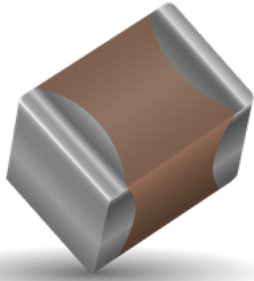


Engineering Module (EM) Range X7R BME MLCC for Non Flight Prototype

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-P838¹/Mil 32535 ranges for prototype design work.
- The EM range is finished with Sn/Pb and Flexitem® 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 0603 0805 1206 1210 1812 2220	4 V = 4 6.3V = 6 10V = Z 16V = Y 25V = 3 50V = 5 100V = 1	C = X7R A = NP0	10 nF = 103 100 nF = 104 1 uF = 105 4.7 uF = 475 10 uF = 106	± 5% = J ± 10% = K	Non Space = A	Sn/Pb with Flexitem® = R	Waffle = 6 Tape & Reel = 1	Engineering Module = EM

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)

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

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



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.

**Engineering Module (EM) Range NP0 BME MLCC for
Non Flight Prototype
Design Covering Mil 32535 NP0 Ranges**



PREFERRED SIZES ARE SHADED

Case Sizes			M3253502					M3253503					M3253503				
			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															

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