

MLCC Tin/Lead Termination “B”



General Specifications



AVX Corporation will support those customers for commercial and military Multilayer Ceramic Capacitors with a termination consisting of 5% minimum lead. This termination is indicated by the use of a “B” in the 12th position of the AVX Catalog Part Number. This fulfills AVX’s commitment to providing a full range of products to our customers. AVX has provided in the following pages a full range of values that we are currently offering in this special “B” termination. Please contact the factory if you require additional information on our MLCC Tin/Lead Termination “B” products.

Not RoHS Compliant

PART NUMBER (see page 2 for complete part number explanation)

LD05	5	A	101	J	A	B	2	A
Size	Voltage	Dielectric	Capacitance Code (In pF)	Capacitance Tolerance	Failure Rate	Terminations	Packaging	Special Code
LD02 - 0402 LD03 - 0603 LD04 - 0504* LD05 - 0805 LD06 - 1206 LD10 - 1210 LD12 - 1812 LD13 - 1825 LD14 - 2225 LD20 - 2220	6.3V = 6 10V = Z 16V = Y 25V = 3 35V = D 50V = 5 100V = 1 200V = 2 500V = 7	COG (NP0) = A X7R = C X5R = D X8R = F	2 Sig. Digits + Number of Zeros	B = ± 10 pF (<10pF) C = ± 25 pF (<10pF) D = ± 50 pF (<10pF) F = $\pm 1\%$ (≥ 10 pF) G = $\pm 2\%$ (≥ 10 pF) J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	A = Not Applicable	B = 5% min lead X = FLEXITERM® with 5% min lead** **X7R only	2 = 7" Reel 4 = 13" Reel 7 = Bulk Cass. 9 = Bulk	A = Std. Product
						Contact Factory For Multiples		

*LD04 has the same CV ranges as LD03.

NOTE: Contact factory for availability of Tolerance Options for Specific Part Numbers.
Contact factory for non-specified capacitance values.

See FLEXITERM® section
for CV options

NP0	Refer to page 4 for Electrical Graphs
X7R	Refer to page 17 for Electrical Graphs
X7S	Refer to page 21 for Electrical Graphs
X5R	Refer to page 24 for Electrical Graphs
Y5V	Refer to page 27 for Electrical Graphs

MLCC Tin/Lead Termination “B”



Capacitance Range (NP0 Dielectric)

PREFERRED SIZES ARE SHADED

SIZE		LD02			LD03				LD05					LD06					
Soldering		Reflow/Wave			Reflow/Wave				Reflow/Wave					Reflow/Wave					
Packaging		All Paper			All Paper				Paper/Embossed					Paper/Embossed					
(L) Length	mm (in.)	1.00 ± 0.10 (0.040 ± 0.004)			1.60 ± 0.15 (0.063 ± 0.006)				2.01 ± 0.20 (0.079 ± 0.008)					3.20 ± 0.20 (0.126 ± 0.008)					
(W) Width	mm (in.)	0.50 ± 0.10 (0.020 ± 0.004)			0.81 ± 0.15 (0.032 ± 0.006)				1.25 ± 0.20 (0.049 ± 0.008)					1.60 ± 0.20 (0.063 ± 0.008)					
(t) Terminal	mm (in.)	0.25 ± 0.15 (0.010 ± 0.006)			0.35 ± 0.15 (0.014 ± 0.006)				0.50 ± 0.25 (0.020 ± 0.010)					0.50 ± 0.25 (0.020 ± 0.010)					
WVDC		16	25	50	16	25	50	100	16	25	50	100	200	16	25	50	100	200	500
Cap (pF)	0.5	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	1.0	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	1.2	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	1.5	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	1.8	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	2.2	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	2.7	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	3.3	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	3.9	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	4.7	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	5.6	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	6.8	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	8.2	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	10	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	12	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	15	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	18	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	22	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	27	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	33	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	39	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	47	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	56	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	68	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
	82	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
		100	C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J
120		C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
150		C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
180		C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J
220		C	C	C	G	G	G	G	J	J	J	J	J	J	J	J	J	J	M
	270	C	C	C	G	G	G	G	J	J	J	J	M	J	J	J	J	J	M
	330	C	C	C	G	G	G	G	J	J	J	J	M	J	J	J	J	J	M
	390	C	C	C	G	G	G	G	J	J	J	J	M	J	J	J	J	J	M
	470	C	C	C	G	G	G		J	J	J	J	M	J	J	J	J	J	M
		560				G	G	G		J	J	J	J	M	J	J	J	J	J
680					G	G	G		J	J	J	J		J	J	J	J	J	
820					G	G	G		J	J	J	J		J	J	J	J	M	
	1000				G	G	G		J	J	J	J		J	J	J	J	Q	
	1200								J	J	J			J	J	J	J	Q	
	1500								J	J	J			J	J	M		Q	
	1800								J	J	J			J	J				
	2200								J	J	N			J	J	M	M		
	2700								J	J	N			J	J	M	P		
		3300								J	J				J	J	M	P	
3900									J	J				J	J	M	P		
4700									J	J				J	J	M	P		
		5600													J	J	M		
	6800													M	M				
	8200													M	M				
	Cap (μF)	0.010													M	M			
0.012																			
0.015																			
0.018																			
0.022																			
	0.027																		
	0.033																		
	0.039																		
	0.047																		
	0.068																		
	0.082																		
0.1																			
WVDC		16	25	50	16	25	50	100	16	25	50	100	200	16	25	50	100	200	500
SIZE		LD02			LD03				LD05					LD06					
Letter	A	C	E	G	J	K	M	N	P	Q	X	Y	Z						
Max. Thickness	0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)						
	PAPER					EMBOSSD													



MLCC Tin/Lead Termination “B”

Capacitance Range (NP0 Dielectric)



PREFERRED SIZES ARE SHADED

SIZE		LD10					LD12					LD13			LD14		
Soldering		Reflow Only					Reflow Only					Reflow Only			Reflow Only		
Packaging		Paper/Embossed					All Embossed					All Embossed			All Embossed		
(L) Length	mm	3.20 ± 0.20					4.50 ± 0.30					4.50 ± 0.30			5.72 ± 0.25		
	(in.)	(0.126 ± 0.008)					(0.177 ± 0.012)					(0.177 ± 0.012)			(0.225 ± 0.010)		
(W) Width	mm	2.50 ± 0.20					3.20 ± 0.20					6.40 ± 0.40			6.35 ± 0.25		
	(in.)	(0.098 ± 0.008)					(0.126 ± 0.008)					(0.252 ± 0.016)			(0.250 ± 0.010)		
(t) Terminal	mm	0.50 ± 0.25					0.61 ± 0.36					0.61 ± 0.36			0.64 ± 0.39		
	(in.)	(0.020 ± 0.010)					(0.024 ± 0.014)					(0.024 ± 0.014)			(0.025 ± 0.015)		
WVDC		25	50	100	200	500	25	50	100	200	500	50	100	200	50	100	200
Cap (pF)	0.5																
	1.0																
	1.2																
	1.5																
	1.8																
	2.2																
	2.7																
	3.3																
	3.9																
	4.7																
	5.6																
	6.8																
	8.2																
	10					J											
	12					J											
	15					J											
	18					J											
	22					J											
	27					J											
	33					J											
	39					J											
	47					J											
	56					J											
	68					J											
	82					J											
	100					J											
	120					J											
	150					J											
	180					J											
	220					J											
	270					J											
	330					J											
	390					M											
	470					M											
	560	J	J	J	J	M											
	680	J	J	J	J	M											
	820	J	J	J	J	M											
	1000	J	J	J	J	M	K	K	K	K	M	M	M	M	M	M	P
	1200	J	J	J	M	M	K	K	K	K	M	M	M	M	M	M	P
	1500	J	J	J	M	M	K	K	K	K	M	M	M	M	M	M	P
	1800	J	J	J	M		K	K	K	K	M	M	M	M	M	M	P
	2200	J	J	J	Q		K	K	K	K	P	M	M	M	M	M	P
	2700	J	J	J	Q		K	K	K	P	Q	M	M	M	M	M	P
	3300	J	J	J			K	K	K	P	Q	M	M	M	M	M	P
	3900	J	J	M			K	K	K	P	Q	M	M	M	M	M	P
	4700	J	J	M			K	K	K	P	Q	M	M	M	M	M	P
	5600	J	J				K	K	M	P	X	M	M	M	M	M	P
	6800	J	J				K	K	M		X	M	M	M	M	M	P
	8200	J	J				K	K	M			M	M	M	M	M	P
Cap (µF)	0.010	J	J				K	M	M			M	M		M	M	P
	0.012	J	J				K	M				M	M		M	M	P
	0.015						M	M				M	M		M	M	Y
	0.018						M	M				P	M		M	M	Y
	0.022						M	M				P			M	Y	Y
	0.027						M	M				P			P	Y	Y
	0.033						M	M				P			P		
	0.039						M	M				P			P		
	0.047						M	M				P			P		
	0.068						M	M							P		
	0.082						M	M							Q		
	0.1														Q		
WVDC		25	50	100	200	500	25	50	100	200	500	50	100	200	50	100	200
SIZE		LD10					LD12					LD13			LD14		
Letter		A	C	E	G	J	K	M	N	P	Q	X	Y	Z			
Max. Thickness		0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)			
	PAPER						EMBOSSED										



MLCC Tin/Lead Termination “B”



Capacitance Range (X8R Dielectric)

SIZE				LD03			LD05				LD06		
	WVDC			25V	50V	25V	50V	25V	50V	25V	50V		
271	Cap	270		G	G								
331	(pF)	330		G	G	J	J						
471		470		G	G	J	J						
681		680		G	G	J	J						
102		1000		G	G	J	J			J	J		
152		1500		G	G	J	J			J	J		
182		1800		G	G	J	J			J	J		
222		2200		G	G	J	J			J	J		
272		2700		G	G	J	J			J	J		
332		3300		G	G	J	J			J	J		
392		3900		G	G	J	J			J	J		
472		4700		G	G	J	J			J	J		
562		5600		G	G	J	J			J	J		
682		6800		G	G	J	J			J	J		
822		8200		G	G	J	J			J	J		
103	Cap	0.01		G	G	J	J			J	J		
123	(μF)	0.012		G	G	J	J			J	J		
153		0.015		G	G	J	J			J	J		
183		0.018		G	G	J	J			J	J		
223		0.022		G	G	J	J			J	J		
273		0.027		G	G	J	J			J	J		
333		0.033		G	G	J	J			J	J		
393		0.039		G	G	J	J			J	J		
473		0.047		G	G	J	J			J	J		
563		0.056		G		N	N			M	M		
683		0.068		G		N	N			M	M		
823		0.082				N	N			M	M		
104		0.1				N	N			M	M		
124		0.12				N	N			M	M		
154		0.15				N	N			M	M		
184		0.18				N				M	M		
224		0.22				N				M	M		
274		0.27								M	M		
334		0.33								M	M		
394		0.39								M			
474		0.47								M			
684		0.68											
824		0.82											
105		1											
	WVDC			25V	50V	25V	50V	25V	50V	25V	50V		
SIZE				LD03			LD05				LD06		
Letter	A	C	E	G	J	K	M	N	P	Q	X	Y	Z
Max. Thickness	0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)
	PAPER					EMBOSS							

MLCC Tin/Lead Termination “B”



Capacitance Range (X7R Dielectric)

PREFERRED SIZES ARE SHADED

SIZE		LD02			LD03						LD05						LD06									
Soldering		Reflow/Wave			Reflow/Wave						Reflow/Wave						Reflow/Wave									
Packaging		All Paper			All Paper						Paper/Embossed						Paper/Embossed									
(L) Length	mm	1.00 ± 0.10			1.60 ± 0.15						2.01 ± 0.20						3.20 ± 0.20									
	(in.)	(0.040 ± 0.004)			(0.063 ± 0.006)						(0.079 ± 0.008)						(0.126 ± 0.008)									
(W) Width	mm	0.50 ± 0.10			0.81 ± 0.15						1.25 ± 0.20						1.60 ± 0.20									
	(in.)	(0.020 ± 0.004)			(0.032 ± 0.006)						(0.049 ± 0.008)						(0.063 ± 0.008)									
(t) Terminal	mm	0.25 ± 0.15			0.35 ± 0.15						0.50 ± 0.25						0.50 ± 0.25									
	(in.)	(0.010 ± 0.006)			(0.014 ± 0.006)						(0.020 ± 0.010)						(0.020 ± 0.010)									
WDC		16	25	50	6.3	10	16	25	50	100	200	6.3	10	16	25	50	100	200	6.3	10	16	25	50	100	200	500
Cap (pF)	100																									
	150																									
	220			C																						
	330			C					G	G	G		J	J	J	J	J	J								K
	470			C					G	G	G		J	J	J	J	J	J								K
	680			C					G	G	G		J	J	J	J	J	J								K
	1000			C					G	G	G		J	J	J	J	J	J								K
	1500			C					G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	M
	2200			C					G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	M
	3300			C	C				G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	M
	4700			C	C				G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	M
	6800	C	C	C					G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	P
Cap (μF)	0.010	C	C						G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	P
	0.015	C	C						G	G	G		J	J	J	J	J	J		J	J	J	J	J	J	M
	0.022	C	C						G	G	G		J	J	J	J	J	J	N		J	J	J	J	J	M
	0.033								G	G	G		J	J	J	J	N	N			J	J	J	J	J	M
	0.047								G	G	G		J	J	J	J	N	N			J	J	J	J	J	M
	0.068								G	G	G		J	J	J	J	N	N			J	J	J	J	J	P
	0.10		C*						G	G	G		J	J	J	J	N	N			J	J	J	J	J	P
	0.15								G	G	G		J	J	J	J	N	N			J	J	J	J	J	
	0.22								G	G	G		J	J	J	N	N	N			J	J	J	J	J	Q
	0.33												N	N	N	N	N	N			J	J	M	P	Q	
	0.47								J*				N	N	N	N	N	N			M	M	M	P	Q	
	0.68												N	N	N	N	N	N			M	M	M	Q	Q	
	1.0								J*	J*			N	N	N*						M	M	Q	Q	Q	
	1.5																				P	Q	Q	Q	Q	
	2.2								J*							P*					Q	Q	Q	Q	Q	
	3.3																				Q	Q	Q	Q	Q	
	4.7												P*	P*	P*						Q*	Q*	Q*			
	10																				Q*	Q*	Q*			
	22																				Q*					
	47																									
100																										
WDC		16	25	50	6.3	10	16	25	50	100	200	6.3	10	16	25	50	100	200	6.3	10	16	25	50	100	200	500
SIZE		LD02			LD03						LD05						LD06									
Letter		A	C	E	G	J	K	M	N	P	Q	X	Y	Z												
Max. Thickness		0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)												
		PAPER					EMBOSS																			

 = Under Development

MLCC Tin/Lead Termination “B”



Capacitance Range (X7R Dielectric)

PREFERRED SIZES ARE SHADED

SIZE		LD10							LD12				LD13		LD20				LD14	
Soldering		Reflow Only							Reflow Only				Reflow Only		Reflow Only				Reflow Only	
Packaging		Paper/Embossed							All Embossed				All Embossed		All Embossed				All Embossed	
(L) Length	mm (in.)	3.20 ± 0.20 (0.126 ± 0.008)							4.50 ± 0.30 (0.177 ± 0.012)				4.50 ± 0.30 (0.177 ± 0.012)		5.70 ± 0.40 (0.225 ± 0.016)				5.72 ± 0.25 (0.225 ± 0.010)	
(W) Width	mm (in.)	2.50 ± 0.20 (0.098 ± 0.008)							3.20 ± 0.20 (0.126 ± 0.008)				6.40 ± 0.40 (0.252 ± 0.016)		5.00 ± 0.40 (0.197 ± 0.016)				6.35 ± 0.25 (0.250 ± 0.010)	
(t) Terminal	mm (in.)	0.50 ± 0.25 (0.020 ± 0.010)							0.61 ± 0.36 (0.024 ± 0.014)				0.61 ± 0.36 (0.024 ± 0.014)		0.64 ± 0.39 (0.025 ± 0.015)				0.64 ± 0.39 (0.025 ± 0.015)	
WVDC		10	16	25	50	100	200	500	50	100	200	500	50	100	25	50	100	200	50	100
Cap (pF)		100																		
		150																		
		220																		
		330																		
		470																		
		680																		
		1000																		
		1500	J	J	J	J	J	J	M											
		2200	J	J	J	J	J	J	M											
		3300	J	J	J	J	J	J	M											
		4700	J	J	J	J	J	J	M											
		6800	J	J	J	J	J	J	M											
Cap (μF)		0.010	J	J	J	J	J	M	K	K	K	K	M	M		X	X	X	M	P
		0.015	J	J	J	J	J	P	K	K	K	P	M	M		X	X	X	M	P
		0.022	J	J	J	J	J	Q	K	K	K	Z	M	M		X	X	X	M	P
		0.033	J	J	J	J	J	Q	K	K	K	X	M	M		X	X	X	M	P
		0.047	J	J	J	J	J		K	K	K	Z	M	M		X	X	X	M	P
		0.068	J	J	J	J	J	M	K	K	K	Z	M	M		X	X	X	M	P
		0.10	J	J	J	J	J	M	K	K	K	Z	M	M		X	X	X	M	P
		0.15	J	J	J	J	M	Z	K	K	K	P	M	M		X	X	X	M	P
		0.22	J	J	J	J	P	Z	K	K	P		M	M		X	X	X	M	P
		0.33	J	J	J	J	Q		K	M	X		M	M		X	X	X	M	P
		0.47	M	M	M	M	Q		K	P			M	M		X	X	X	M	P
		0.68	M	M	P	X	X		M	Q			M	P		X	X		M	P
		1.0	N	N	P	X	Z		M	X			M	P		X	X		M	P
		1.5	N	N	Z	Z	Z		Z	Z			M			X	X		M	X
		2.2	X	X	Z	Z	Z		Z	Z						X	X		M	
		3.3	X	X	Z	Z			Z							X	Z			
		4.7	X	X	Z	Z			Z							X	Z			
		10	Z	Z	Z											Z				
		22	Z	Z											Z					
		47																		
		100																		
WVDC		10	16	25	50	100	200	500	50	100	200	500	50	100	25	50	100	200	50	100
SIZE		LD10							LD12				LD13		LD20				LD14	
Letter		A	C	E	G	J	K	M	N	P	Q	X	Y	Z						
Max. Thickness		0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)						
		PAPER						EMBOSS												



PREFERRED SIZES ARE SHADED

A 3D perspective diagram of a rectangular block. The dimensions are labeled: L for length, W for width, T for total thickness, and t for the thickness of the bottom layer.

 = Under Development

 = *Optional Specifications – Contact factory

AVX