MLCC Tin/Lead Termination "B" (LD Series)







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.

PART NUMBER (SEE PAGE 4 FOR COMPLETE PART NUMBER EXPLANATION)

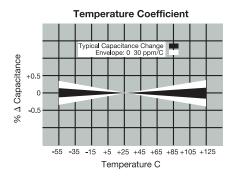
Not RoHS Compliant

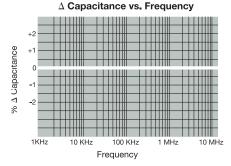
LD05 5	A 101	J	Α	В	2	Α
T	T	T	T	T	T	T
	electric Capacitance		Failure	Terminations	Packaging	Special
	(NP0) = A Code (In pF)	Tolerance	Rate	B = 5% min lead	2 = 7" Reel	Code
LD03 - 0603 $10V = Z$ X	7R = C 2 Sig. Digits +	$B = \pm .10 pF (<10pF)$	A = Not	X = FLEXITERM®	4 = 13" Reel	A = Std.
LD04 - 0504* $16V = Y$ X	5R = D Number of	$C = \pm .25 pF (< 10 pF)$	Applicable	with 5% min	. . .	Product
LD05 - 0805 25V = 3 X	(8R = F Zeros	$D = \pm .50 pF (<10pF)$	4 = Automotive	lead**	Contact Factory	
LD06 - 1206 25V - D		F = ±1% (≥ 10 pF)			For	
LD10 - 1210 53V - D LD12 - 1812 50V = 5		$G = \pm 2\% (\ge 10 \text{ pF})$		**X7R only	Multiples*	
LD13 - 1825 100V = 1		J = ±5%		Arreonly		
LD14 - 2225 200V = 2		K = ±10%				
LD20 - 2220 500V = 7		M = ±20%				

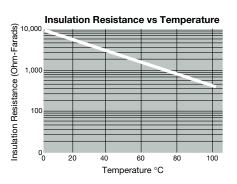
*LD04 has the same CV ranges as LD03.

See FLEXITERM® section for CV options

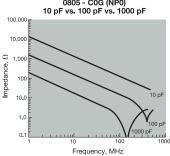
NOTE: Contact factory for availability of Tolerance Options for Specific Part Numbers. Contact factory for non-specified capacitance values.



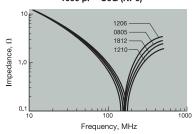




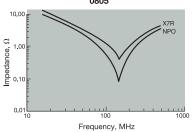
Variation of Impedance with Cap Value Impedance vs. Frequency 0805 - COG (NP0)







Variation of Impedance with Ceramic Formulation Impedance vs. Frequency 1000 pF - C0G (NP0) vs X7R







Parame	ter/Test	NP0 Specification Limits	Measuring	Conditions
	perature Range	-55°C to +125°C	Temperature C	ycle Chamber
Capac	itance	Within specified tolerance	Freg.: 1.0 MHz ± 109	% for cap ≤ 1000 pF
C	2	<30 pF: Q≥ 400+20 x Cap Value ≥30 pF: Q≥ 1000	1.0 kHz ± 10% fo Voltage: 1.0	
Insulation	Resistance	100,000ΜΩ or 1000ΜΩ - μF, whichever is less	Charge device with 60 ± 5 secs @ roo	
Dielectric	: Strength	No breakdown or visual defects	Charge device with 250 1-5 seconds, w/charge limited to 50 Note: Charge device with for 500V	and discharge current 0 mA (max) h 150% of rated voltage
	Appearance	No defects	Deflection	n: 2mm
Resistance to Flexure	Capacitance Variation	±5% or ±.5 pF, whichever is greater	Test Time: 3	30 seconds 7 1mm/sec
Stresses	Q	Meets Initial Values (As Above)		
	Insulation Resistance	≥ Initial Value x 0.3	90 1	
Solder	rability	≥ 95% of each terminal should be covered with fresh solder	Dip device in eutection for 5.0 ± 0.	
	Appearance	No defects, <25% leaching of either end terminal		
	Capacitance Variation	≤ ±2.5% or ±.25 pF, whichever is greater	Die desire in estantia	
Resistance to Solder Heat	Q	Meets Initial Values (As Above)	Dip device in eutectic s seconds. Store at room	temperature for 24 ± 2
Soluei Heat	Insulation Resistance	Meets Initial Values (As Above)	hours before measuring	g electrical properties.
	Dielectric Strength	Meets Initial Values (As Above)		
	Appearance	No visual defects	Step 1: -55°C ± 2°	30 ± 3 minutes
	Capacitance Variation	≤ ±2.5% or ±.25 pF, whichever is greater	Step 2: Room Temp	≤ 3 minutes
Thermal Shock	Q	Meets Initial Values (As Above)	Step 3: +125°C ± 2°	30 ± 3 minutes
	Insulation Resistance	Meets Initial Values (As Above)	Step 4: Room Temp	≤ 3 minutes
	Dielectric Strength	Meets Initial Values (As Above)	Repeat for 5 cycles 24 hours at roo	
	Appearance	No visual defects		
	Capacitance Variation	≤ ±3.0% or ± .3 pF, whichever is greater	Charge device with twice chamber set a	
Load Life	Q	≥ 30 pF: Q≥ 350 ≥10 pF, <30 pF: Q≥ 275 +5C/2 <10 pF: Q≥ 200 +10C	for 1000 hou	ırs (+48, -0).
	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	temperature before me	for 24 hours
	Dielectric Strength	Meets Initial Values (As Above)		
	Appearance	No visual defects		
	Capacitance Variation	≤ ±5.0% or ± .5 pF, whichever is greater	Store in a test chamber s	set at 85°C ± 2°C/ 85% ±
Load Humidity	Q	≥ 30 pF: Q≥ 350 ≥10 pF, <30 pF: Q≥ 275 +5C/2 <10 pF: Q≥ 200 +10C	5% relative humidi (+48, -0) with rated	d voltage applied.
Tiulinaity	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	Remove from chamber temperature for 24 ± 2 h	
	Dielectric Strength	Meets Initial Values (As Above)		

COG (NPO) - Capacitance Range



PREFERRED SIZES ARE SHADED

			-		□ LD03					III					□ LD06					
SIZE	_		LD02								LD05					LD0				
Solderi Packagi			flow/Wa All Paper				//Wave Paper				flow/War er/Embos					Reflow/ aper/Em				
	mm		.00 ± 0.1				± 0.15				.01 ± 0.20					3.20 ±			-	
(L) Length	(in.)		040 ± 0.0				± 0.006)				79 ± 0.00				((0.126 ±				
W) Width	mm		.50 ± 0.1				± 0.15				.25 ± 0.20					1.60 ±				
,	(in.)		020 ± 0.0 .25 ± 0.1			(0.032 :	± 0.006) ± 0.15				.50 ± 0.0					0.063 ±				
(t) Terminal	mm (in.)		.25 ± 0.1)10 ± 0.0			(0.014					.50 ± 0.23					0.50 ± (0.020 ±				
	WVDC	16	25	50	16	25	50	100	16	25	50	100	200	16	25	50	100	200	500	
Сар	0.5	C	С	О	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
(pF)	1.0	С	C	C C	G G	G G	G	G G	J	J	J	J	J	J	J	J	J	J	J	
	1.2 1.5	C	C	C	G	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	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	2.7	C	C	C	G	G	G	G G	J	J	J	J	J	J	J	J	J	J	J	
	3.3	C	C	C	G G	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	Ĵ	J	Ĵ	Ĵ	Ĵ	J	
	5.6	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	6.8 8.2	C C	C	C	G G	G G	G G	G G	J	J J	J	J 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	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	15	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	18 22	C C	C	C C	G G	G G	G G	G G	J	J J	J	J J	J	J	J	J	J	J	J	
	27	С	С	С	G	G	G	G	Ĵ	J	, ,	J	J	Ĵ	Ĵ	Ĵ	Ĵ	Ĵ	J	
	33	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	39 47	C	C	C C	G G	G G	G G	G G	J	J	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	
İ	68	С	С	С	G	G	Ğ	G	Ĵ	Ĵ	Ĵ	Ĵ	Ĵ	Ĵ	Ĵ	Ĵ	J	J	J	
	82	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	100 120	C	C	C	G G	G G	G G	G G	J	J	J	J J	J	J	J	J	J	J	J	
	150	C	Č	C	G	Ğ	Ğ	Ğ	J	J	J	J	J	J	J	J	J	Ĵ	Ĵ	
	180	С	С	С	G	G	G	G	J	J	J	J	J	J	J	J	J	J	J	
	220	C C	С	С	G	G G	G	G	J	J	J	J	J	J	J	J	J	J	M	
	270 330	C	C	C	G G	G	G	G G	J	J	J	J	M M	J	J	J	J	J	M	
	390	C	c	C	G	G	G	Ğ	Ĵ	Ĵ	Ĵ	Ĵ	M	Ĵ	Ĵ	Ĵ	J	J	M	
	470	С	С	С	G	G	G		J	J	J	J	M	J	J	J	J	J	М	
	560 680				G G	G G	G G		J	J	J	J	М	J	J	J	J	J	M P	
	820				G	G	G		J	J	J	J		J	J	J	J	М		
	1000				G	G	G		J	J	J	J		J	J	J	J	Q		
	1200 1500					G			J	J	J			J	J	J	J	Q		
	1800								J	J	J			J	J	J M	M	Q		
	2200								J	J	N			Ĵ	J	М	Р			
	2700								J	J	N			J	J	M	P	-	\vdash	
	3300 3900								J	J J				J	J	M M	l P			
	4700								J	J				J	J	M	P			
	5600													J	J	М				
	6800 8200													M M	M M					
Сар	0.010													M	M				$\vdash \vdash$	
(pF)	0.012																			
	0.015		ļ	-	~	W-									-	1	-	-	\sqcup	
	0.018 0.022		~			7	1													
	0.022			_		.لا	Ţ⊤													
	0.033		,				_													
	0.039				4															
	0.047		-		Tt l		_								-		-	-	\vdash	
	0.082																			
	0.1		-					4.5		-					-					
	WVDC	16	25	50	16	25	50	100	16	25	50 LD05	100	200	16	25	50	100	200	500	
	SIZE		LD02			LD	03				LD05					LD0	0			

Letter	Α	С	E	G	J	K	М	N	Р	Q	Х	Υ	Z
Max.	0.33	0.56	0.71	0.90	0.94	1.02	1.27	1.40	1.52	1.78	2.29	2.54	2.79
Thickness	(0.013)	(0.022)	(0.028)	(0.035)	(0.037)	(0.040)	(0.050)	(0.055)	(0.060)	(0.070)	(0.090)	(0.100)	(0.110)
			PAPER						EMB	OSSED			

COG (NPO) - Capacitance Range



PREFERRED SIZES ARE SHADED

SIZ	E			LD10					LD12				LD1	3			LD14	
Solder	_			eflow On					Reflow Or				Reflow				Reflow Only	
Packag			<u>.</u>	er/Embo 3.20 + 0.2					I Emboss 4.50 ± 0.3				4.50 ±				All Embossed 5.72 ± 0.25	
(L) Length	mm (in.)		(0.	126 ± 0.0	08)			(0.	177 ± 0.0	12)			(0.177 ±	0.012)		(0.225 ± 0.010)
W) Width	mm (in.)			2.50 ± 0.2 098 ± 0.0					3.20 ± 0.2 126 ± 0.0				6.40 ± (0.252 ±)			(6.35 ± 0.25 0.250 ± 0.010)
(t) Terminal	mm (in.)			0.50 ± 0.2 020 ± 0.0					0.61 ± 0.3 024 ± 0.0				0.61 ± (0.024 ±)				0.64 ± 0.39 0.025 ± 0.015	
Can	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																123	
	2.2 2.7															ناسي		W
	3.3															_)] [T
	3.9 4.7																	
	5.6 6.8																a t	
	8.2																1	
	10 12					J												
	15					J												
	18 22					J												
	27 33					J							-					
	39					J												
	47 56					J												
	68 82					J J												
	100					J												
	120 150					J												
	180					J												
	220 270					J												
	330 390					J M												
	470					М												
	560 680	J	J	J	J	M M												
	820 1000	J	J	J	J	M	K	K	К	K	M	M	M		M	М	М	Р
	1200	J	J	J	M	M	K	K	K	K	M	M	M		M	M	M	Р
	1500 1800	J	J	J	M	М	K	K	K K	K K	M	M M	M		M M	M M	M M	P P
	2200	J	J	J	Q		K	K	K	K	P	М	М		М	М	М	P
	2700 3300	J	J	J	Q		K P	K P	K P	P P	Q	M M	M		M M	M M	M M	P P
	3900 4700	J J	J	M M			P P	P P	P P	P P	Q Y	M M	M M		M M	M M	M M	P P
	5600	J	J	171			Р	P	Р	Р	Υ	М	М		M	М	М	Р
	6800 8200	J	J				P P	Р	Q Q	Q Q	Y Y	M M	M M		М	M M	M M	P P
Cap (pF)	0.010 0.012	ے ۔	7 7				P P	P P	Q	Q X	Y	M M	M M		1	M M	M M	P P
V /	0.015	-					Р	Р	Q	X	Y	М	М			М	М	Y
	0.018 0.022						P P	P P	X	X	Y	P P	М			M M	M Y	Y
	0.027 0.033						Q Q	X	X	Z Z		P P				P P	Υ	Y
	0.039						X	X	Z	Z		Р				Р		
	0.047 0.068						Z	Z	Z Z	Z		Р				P P		
	0.082 0.1						Z Z	Z Z	Z Z							Q Q		
	WVDC	25	50	100	200	500	25	50	100	200	500	50	100		200	50	100	200
SIZ	E			LD10					LD12				LD1	3			LD14	
Letter	А	С		Е	G	J		K	М		N	Р	Q	Х	Υ	Z	1	
Max.	0.33	0.50		0.71	0.90	0.9		1.02	1.27		.40	1.52	1.78	2.29	2.54	2.79		
Thickness	(0.013)	(0.02		0.028)	(0.035)	(0.0	37)	(0.040)	(0.050	0)	055)	(0.060)	(0.070)	(0.090)	(0.100)) (0.110)		
			F	PAPER								EMBO	SSED					



X8R - 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 4 FOR COMPLETE PART NUMBER EXPLANATION)

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

LD04 has the same CV ranges as LD03.

See FLEXITERM® section for CV options

NOTE: Contact factory for availability of Tolerance Options for Specific Part Numbers.

Contact factory for non-specified capacitance values.





Parame	ter/Test	X8R Specification Limits	Measuring (Conditions
Operating Tem	perature Range	-55°C to +150°C	Temperature C	ycle Chamber
Capac	itance	Within specified tolerance	From : 1.0 k	d I = 1 100/
Dissipati	on Factor	≤ 2.5% for ≥ 50V DC rating ≤ 3.5% for 25V DC and 16V DC rating	Freq.: 1.0 k Voltage: 1.0	
Insulation	Resistance	100,000ΜΩ or 1000ΜΩ - μF, whichever is less	Charge device with 120 ± 5 secs @ roo	
Dielectric	: Strength	No breakdown or visual defects	Charge device with 250 1-5 seconds, w/charge limited to 50 Note: Charge device with for 500V	and discharge current mA (max) n 150% of rated voltage
	Appearance	No defects	Deflectio	n: 2mm
Resistance to	Capacitance Variation	≤ ±12%	Test Time: 3	
Flexure Stresses	Dissipation Factor	Meets Initial Values (As Above)		
	Insulation Resistance	≥ Initial Value x 0.3	90 r	mm
Solder	rability	≥ 95% of each terminal should be covered with fresh solder	Dip device in eutectic for 5.0 ± 0.9	
	Appearance	No defects, <25% leaching of either end terminal		
	Capacitance Variation	≤ ±7.5%		
Resistance to Solder Heat	Dissipation Factor	Meets Initial Values (As Above)	Dip device in eutectic s seconds. Store at room	temperature for 24 ± 2
	Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance	Meets Initial Values (As Above)	hours before measuring	g electrical properties.
		Meets Initial Values (As Above)		
	Appearance	No visual defects	Step 1: -55°C ± 2°	30 ± 3 minutes
	Capacitance Variation	≤ ±7.5%	Step 2: Room Temp	≤ 3 minutes
Thermal Shock	Dissipation Factor	Meets Initial Values (As Above)	Step 3: +125°C ± 2°	30 ± 3 minutes
	Insulation Resistance	Meets Initial Values (As Above)	Step 4: Room Temp	≤ 3 minutes
	Dielectric Strength	Meets Initial Values (As Above)	Repeat for 5 cycles 24 ± 2 hours at ro	
	Appearance	No visual defects		
	Capacitance Variation	≤ ±12.5%	Charge device with 1.5 r	
Load Life	Dissipation Factor	≤ Initial Value x 2.0 (See Above)	for 1000 hou	
	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	Remove from test chamb temperature for 24 ± 2 h	
	Dielectric Strength	Meets Initial Values (As Above)		
	Appearance	No visual defects		
	Capacitance Variation	≤ ±12.5%	Store in a test chamber s 5% relative humidi	ty for 1000 hours
Load Humidity	Dissipation Factor	≤ Initial Value x 2.0 (See Above)	(+48, -0) with rated	d voltage applied.
	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	Remove from chamber temperature an 24 ± 2 hours bef	d humidity for
	Dielectric Strength	Meets Initial Values (As Above)	Z4 I Z HOUIS DEI	ore measuring.



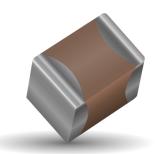


	SIZE	LD	03	LD	05	LD	06
	WVDC	25V	50V	25V	50V	25V	50V
271	Cap 270	G	G				
331		G	G	J	J		
471	470	G	G	J	J		
681	680	G	G	J	J		
102	1000	G	G	J	J	J	J
152	1500	G	G	J	J	J	J
182	1800	G	G	J	J	J	J
222	2200	G	G	J	J	J	J
272	2700	G	G	J	J	J	J
332	3300	G	G	J	J	J	J
392	3900	G	G	J	J	J	J
472		G	G	J	J	J	J
562	5600	G	G	J	J	J	J
682		G	G	J	J	J	J
822		G	G	J	J	J	J
103		G	G	J	J	J	J
123	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		G	G	J	J	J	J
563		G		N	N	M	М
683	0.068	G		N	N	М	М
823	0.082			N	N	М	М
104	0.1			N	N	М	М
124	0.12			N	N	M	М
154	0.15			N	N	M	М
184	0.18			N		М	М
224	0.22			N		M	М
274	0.27					M	М
334	0.33					M	М
394	0.39					М	
474	0.47					М	
684	0.68						
824	0.82						
105	1						
	WVDC	25V	50V	25V	50V	25V	50V
	SIZE	LD	03	LD	05	LD	06

Letter	Α	С	Е	G	J	K	М	N	Р	Q	Х	Υ	Z
Max.	0.33	0.56	0.71	0.90	0.94	1.02	1.27	1.40	1.52	1.78	2.29	2.54	2.79
Thickness	(0.013)	(0.022)	(0.028)	(0.035)	(0.037)	(0.040)	(0.050)	(0.055)	(0.060)	(0.070)	(0.090)	(0.100)	(0.110)
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X7R - 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 4 FOR COMPLETE PART NUMBER EXPLANATION)

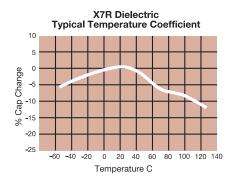
LD05	<u>5</u>	<u>c</u>	101	J	<u>A</u>	В	2	<u>A</u>
Size LD03 - 0603 LD04 - 0504* LD05 - 0805 LD06 - 1206 LD10 - 1210 LD12 - 1812 LD13 - 1825 LD14 - 2225 LD20 - 2220	Voltage 6.3V = 6 10V = Z 16V = Y 25V = 3 35V = D 50V = 5 100V = 1 200V = 2 500V = 7	Dielectric X7R = C	Capacitance Code (In pF) 2 Sig. Digits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

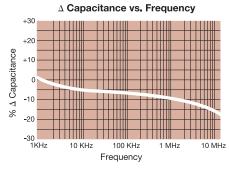
^{*}LD04 has the same CV ranges as LD03.

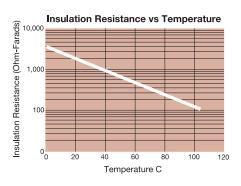
See FLEXITERM® section for CV options

NOTE: Contact factory for availability of Tolerance Options for Specific Part Numbers.

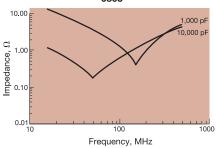
Contact factory for non-specified capacitance values.

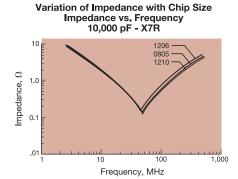


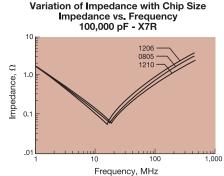




Variation of Impedance with Cap Value Impedance vs. Frequency 1,000 pF vs. 10,000 pF - X7R 0805







X7R - Specifications and Test Methods



Parame	ter/Test	X7R Specification Limits	Measuring (Conditions				
Operating Tem	perature Range	-55°C to +125°C	Temperature C	ycle Chamber				
Capac	itance	Within specified tolerance						
Dissipati	on Factor	≤ 10% for ≥ 50V DC rating ≤ 12.5% for 25V DC rating ≤ 12.5% for 25V and 16V DC rating ≤ 12.5% for ≤ 10V DC rating	Freq.: 1.0 k Voltage: 1.0'					
Insulation	Resistance	100,000MΩ or 1000MΩ - μF, whichever is less	Charge device with 120 ± 5 secs @ roo					
Dielectric	: Strength	No breakdown or visual defects	Charge device with 250 1-5 seconds, w/charge limited to 50 Note: Charge device with for 500V	and discharge current mA (max) n 150% of rated voltage				
	Appearance	No defects	Deflectio	n: 2mm				
Resistance to	Capacitance Variation	≤ ±12%	Test Time: 3					
Flexure Stresses	Dissipation Factor	Meets Initial Values (As Above)	V					
	Insulation Resistance	≥ Initial Value x 0.3	90 r	nm —				
Solder	rability	≥ 95% of each terminal should be covered with fresh solder	Dip device in eutectic for 5.0 ± 0.5					
	Appearance	No defects, <25% leaching of either end terminal						
	Capacitance Variation	≤ ±7.5%						
Resistance to Solder Heat	Capacitance Variation Dissipation Factor Insulation Resistance Solderability Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Insulation Resistance Dielectric Strength Appearance Capacitance Variation Dissipation Factor Strength Appearance Capacitance Variation Dissipation Factor Dissipation Factor	Meets Initial Values (As Above)	Dip device in eutectic solder at 260°C for 60 seconds. Store at room temperature for 24 ± 2 hours before measuring electrical properties.					
		Meets Initial Values (As Above)	nours before measuring	g electrical properties.				
		Meets Initial Values (As Above)						
	Appearance	No visual defects	Step 1: -55°C ± 2°	30 ± 3 minutes				
		≤ ±7.5%	Step 2: Room Temp	≤ 3 minutes				
Thermal Shock		Meets Initial Values (As Above)	Step 3: +125°C ± 2°	30 ± 3 minutes				
		Meets Initial Values (As Above)	Step 4: Room Temp	≤ 3 minutes				
		Meets Initial Values (As Above)	Repeat for 5 cycles 24 ± 2 hours at ro					
		No visual defects						
	Variation	≤ ±12.5%	Charge device with 1.5 r					
Load Life	· ·	≤ Initial Value x 2.0 (See Above)	for 1000 hou					
		≥ Initial Value x 0.3 (See Above)	Remove from test chamb temperature for 24 ± 2 h					
		Meets Initial Values (As Above)						
	Appearance	No visual defects						
		≤ ±12.5%	Store in a test chamber s 5% relative humidi					
Load Humidity		≤ Initial Value x 2.0 (See Above)	(+48, -0) with rated	l voltage applied.				
Humbulty		≥ Initial Value x 0.3 (See Above)	Remove from chamber temperature an	d humidity for				
	Dielectric Strength	Meets Initial Values (As Above)	24 ± 2 hours bef	ore measuring.				

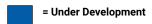
X7R - Capacitance Range



PREFERRED SIZES ARE SHADED

					LD03										LD06											
	ZE lering	Def	LD02				Def	LD03 low/W						D-4	LD05 low/W							LD Reflow				
	aging		II Pap					II Pap								ossed						Reflow aper/Er				
	mm		00 ± 0					50 ± 0							01 ± 0							3.20 ±		, cu		
(L) Length	(in.)		40 ± 0					53 ± 0.							79 ± 0.						(0.126 ±		8)		
W) Width	mm		50 ± 0					31 ± 0.							25 ± 0.						,	1.60 ±				
	(in.)		20 ± 0 25 ± 0					32 ± 0. 35 ± 0.							49 ± 0. 50 ± 0.						(0.063 ± 0.50 ±		B)		
(t) Termina	al mm (in.)		25 ± 0 10 ± 0					14 ± 0.													(± 0.020 ± 0.020		n)		
W	/DC	16	25	50	6.3	10	16	25	50	100	200	(0.020 ± 0.010) 0 6.3 10 16 25 50 100 200					6.3	10	16	25	50	100	200	500		
Сар	100	10		00	0.0		10		00	100	200	0.0		10	20	00	100	200	0.0	10	10	20	00	100	200	000
(pF)	150																									
(P.)	220			С																						
	330			C					G	G	G		J	J	J	J	J	J								К
	470			С					G	G	G		J	J	J	J	J	J								Κ
	680			С					G	G	G		J	J	J	J	J	J								K
	1000			С					G	G	G		J	J	J	J	J	J								K
	1500			С					G	G			J	J	J	J	J	J		J	J	J	J	J	J	М
	2200			С					G	G			J	J	J	J	J	J		J	J	J	J	J	J	М
	3300		С	С		GGG							J	J	J	J	J	J		J	J	J	J	J	J	М
	4700		С	С													J		J	J	J	J	J	J	M	
	6800	С	С						G	G		J J J J J J					-	J J J J J P								
Сар	0.010	С	С	ļ					G	G			J	J	J	J	J	J		J	J	J	J	J	J	Р
(µF)	0.015	С						G	G				J	J	J	J	J	J		J	J	J	J	J	M	
	0.022	С						G	G				J	J	J	J	J	N		J	J	J	J	J	М	
	0.033	С						G	G				J	J	J	J	N			J	J	J	J	J	М	
	0.047						G	G	G				J	J	J	J	N			J	J	J	J	J	M	
	0.068		C*				G	G	G G				J	J	J	J	N			J	J	J	J	J P	P	
	0.10 0.15		C*		_	G G	G	G	G				J	J	-	J	N			J	J	J	J		Р	
	0.15				G G	G							J	J	J	N N	N N			J	J J	J J	J	Q		
	0.22				G	G							N	N	N	N	N			J	J	M	P	Q		
	0.33							J*					N	N	N	N	N			M	M	M	P	Q		
	0.47												N	N	N		14			M	M	Q	Q	Q		
	1.0					J*	J*						N	N	N*					M	M	Q	0	0		\vdash
	1.5																			P	Q	Q		_		
	2.2				J*										P*					Q	Q	Q				
	3.3																									
	4.7												P*	P*						Q*	Q*	Q*				
	10											P*	Р							Q*	Q*	Q				
	22																		Q*							
	47																									
	100																									
	WVDC	16	25	50						6.3	10	16	25	50	100	200	6.3	10	16	25	50	100	200	500		
	SIZE		LD02			LD03						LD05									LD	06				

Letter	Α	С	Е	G	J	K	М	N	Р	Q	Х	Υ	Z					
Max.	0.33	0.56	0.71	0.90	0.94	1.02	1.27	1.40	1.52	1.78	2.29	2.54	2.79					
Thickness	(0.013)	(0.022)	(0.028)	(0.035)	(0.037)	(0.040)	(0.050)	(0.055)	(0.060)	(0.070)	(0.090)	(0.100)	(0.110)					
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X7R - Capacitance Range



PREFERRED SIZES ARE SHADED

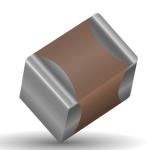
SIZE					LD10					LD				13			20			14
Solderin	-				eflow On					Reflov				w Only			w Only		Reflov	
Packagir	-				er/Embos					All Emb				bossed		All Em	All Embossed			
(L) Length	mm			_	.20 + 0.2	-				4.50 ±				± 0.30			± 0.50	5.72 ± 0.25		
() - 3-	(in.)				26 ± 0.0					(0.177 ±				± 0.012)		(0.224 :	(0.225 ± 0.010)			
W) Width	mm				.50 ± 0.2 198 ± 0.0					3.20 ± (0.126 ±			1	± 0.40 ± 0.016)		5.00 :	6.35 ± 0.25 (0.250 ± 0.010)			
	(in.) mm				.50 ± 0.0					0.126 1				± 0.016)			± 0.016) ± 0.39			± 0.010)
(t) Terminal	(in.)				0.20 ± 0.20 0.00 ± 0.00					$(0.024 \pm$				± 0.014)			± 0.015)		(0.025	
WVDC	(111.)	10	16	25	50	100	200	500	50	100	200	500	50	100	25	50	100	200	50	100
Сар	100	- 1 -															100			
(pF)	150																			
	220															Ĺ	' >	<u>_</u>	-W.	'
	330															*			$\vec{\gamma}$.
	470																$\langle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		$\bigcup \mathcal{V}$	
	680 1000															+				` -
	1500	J	J	J	J	J	J	М										4		
	2200	J	J	J	Ĵ	J	J	М									ı			
	3300	J	J	J	J	J	J	М												
	4700	J	J	J	J	J	J	М												
	6800	J	J	J	J	J	J	М												
1	0.010	J	J	J	J	J	J	М	K	K	K	K	М	М		Х	X	Х	М	Р
\ \ \ \ \ \	0.015	J	J	J	J	J	J	Р	K	K	K	P	М	М		Х	X	Х	М	P
	0.022	J	J	J	J	J	J	Q	K	K	K	P	M	M		X	X	X	M	P
	0.033 0.047	J J	J J	J	J	J	J J	Q	K K	K K	K K	X Z	M M	M M		X	X	X	M M	P P
	0.047	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	Ĵ	Ĵ	Ĵ	Ĵ	M	Z		K	K	P	_	M	М		X	X	X	M	P
	0.22	J	J	J	J	Р	Z		K	К	Р		М	М		Х	X	Х	М	Р
	0.33	J	J	J	J	Q			K	М	Х		М	М		Х	Х	Х	М	Р
	0.47	М	М	М	М	Q			K	Р			М	М		Х	X	Х	М	Р
	0.68	M	M	P	X	X			M	Q			M	Р		X	X		M	Р
	1.0	N	N	P	X	Z			M	X			M	Р		X	X		M	P
	1.5	N X	N X	Z Z	Z Z	Z Z			Z Z	Z			М			X	X		M M	Х
	3.3	X	X	Z	Z				Z							X	Z		IVI	
	4.7	x	X	Z	Z				Z	Z						x	Z			
	10	Z	Z	Z	Z				_	_						Z	Z			
	22	Z	Z												Z					
	47																			
	100																100			
	WVDC	10	16	25	50	100	200	500	50	100	200	500	50	100	25	50	200	50 100		
SIZE					LD10					LD	12		LE LE	13		LD	LD14			

Letter	Α	С	E	G	J	K	М	N	Р	Q	Х	Υ	Z			
Max.	0.33	0.56	0.71	0.90	0.94	1.02	1.27	1.40	1.52	1.78	2.29	2.54	2.79			
Thickness	(0.013)	(0.022)	(0.028)	(0.035)	(0.037)	(0.040)	(0.050)	(0.055)	(0.060)	(0.070)	(0.090)	(0.100)	(0.110)			
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X5R - 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 4 FOR COMPLETE PART NUMBER EXPLANATION)

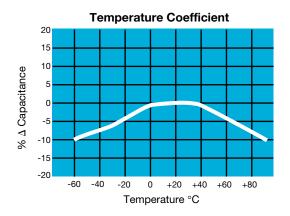
LD05	5	D	101	Ţ	A	В	2	A
Size LD02 - 0402 LD03 - 0603 LD04 - 0504* LD05 - 0805 LD06 - 1206 LD10 - 1210 LD12 - 1812 LD13 - 1825 LD14 - 2225 LD20 - 2220	Voltage 6.3V = 6 10V = Z 16V = Y 25V = 3 35V = D 50V = 5 100V = 1 200V = 2 500V = 7	Dielectric X5R = D	Capacitance Code (In pF) 2 Sig. Digits + Number of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

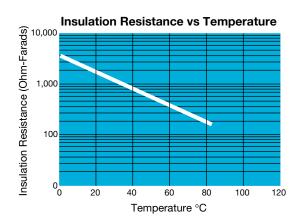
^{*}LD04 has the same CV ranges as LD03.

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

TYPICAL ELECTRICAL CHARACTERISTICS









Parame	ter/Test	X5R Specification Limits	Measuring (Conditions					
Operating Tem	perature Range	-55°C to +85°C	Temperature C	ycle Chamber					
Capac	itance	Within specified tolerance							
Dissipati	on Factor	≤ 2.5% for ≥ 50V DC rating ≤ 3.0% for 25V, 35V DC rating ≤ 12.5% Max. for 16V DC rating and lower Contact Factory for DF by PN	Freq.: 1.0 kHz ± 10% Voltage: 1.0Vrms ± .2V For Cap > 10 μF, 0.5Vrms @ 120Hz						
Insulation	Resistance	10,000MΩ or 500MΩ - μF, whichever is less	Charge device with rated voltage for 120 ± 5 secs @ room temp/humidity						
Dielectric	Strength	No breakdown or visual defects	Charge device with 250% of rated voltage for 1-5 seconds, w/charge and discharge current limited to 50 mA (max)						
	Appearance	No defects	Deflectio	n: 2mm					
Resistance to	Capacitance Variation	≤ ±12%	Test Time: 3						
Flexure Stresses	Dissipation Factor	Meets Initial Values (As Above)							
	Insulation Resistance	≥ Initial Value x 0.3	90 r						
Solder	rability	≥ 95% of each terminal should be covered with fresh solder	Dip device in eutectic for 5.0 ± 0.9						
	Appearance	No defects, <25% leaching of either end terminal							
	Capacitance Variation	≤ ±7.5%							
Resistance to Solder Heat	Dissipation Factor	Meets Initial Values (As Above)	Dip device in eutectic s seconds. Store at room	temperature for 24 ± 2					
	Insulation Resistance	Meets Initial Values (As Above)	hours before measuring	g electrical properties.					
	Dielectric Strength	Meets Initial Values (As Above)							
	Appearance	No visual defects	Step 1: -55°C ± 2°	30 ± 3 minutes					
	Capacitance Variation	≤ ±7.5%	Step 2: Room Temp	≤ 3 minutes					
Thermal Shock	Dissipation Factor	Meets Initial Values (As Above)	Step 3: +85°C ± 2°	30 ± 3 minutes					
	Insulation Resistance	Meets Initial Values (As Above)	Step 4: Room Temp ≤ 3 minutes						
	Dielectric Strength	Meets Initial Values (As Above)	Repeat for 5 cycles and measure after 24 ± 2 hours at room temperature						
	Appearance	No visual defects							
	Capacitance Variation	≤ ±12.5%	Charge device with 1.5 chamber set at 85°C: (+48, -0). Note: Contac	± 2°C for 1000 hours					
Load Life	Dissipation Factor	≤ Initial Value x 2.0 (See Above)	specification part numl	pers that are tested at					
	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	Remove from test chamb						
	Dielectric Strength	Meets Initial Values (As Above)	temperature for 24 ± 2 h	ours betore measuring.					
	Appearance	No visual defects							
	Capacitance Variation	≤ ±12.5%	Store in a test chamber s 5% relative humidi	ty for 1000 hours					
Load Humidity	Dissipation Factor	≤ Initial Value x 2.0 (See Above)	(+48, -0) with rated	l voltage applied.					
	Insulation Resistance	≥ Initial Value x 0.3 (See Above)	Remove from chamber temperature an 24 + 2 hours hef	d humidity for					
	Dielectric Strength	Meets Initial Values (As Above)	24 ± 2 hours before measuring.						

X5R - Capacitance Range



PREFERRED SIZES ARE SHADED

											E						п	11					П														
SIZ	ZE			L	D02					L	.D0	3					LD	05					LD	06						_D10)				LD	12	
Solde	ering		R	eflo	w/W	ave			- 1	Reflo	w/\	Vave	9			Re	flow	/Wav	/e			R	eflow	/Wa	ve			Reflow/Wave									
Packa	aging			All	Pap	er				All	Pa	per			Р	ape	r/Er	nbo	sse	ed	F	Раре	er/Er	nbo	sse	d		Pa		/Emb		ed					
(L) Length	mm				± 0.					1.60			- \		2.01 ± 0.20				3.20 ± 0.20				3.20 ± 0.20														
	(in.) mm				± 0.	004) 10		\vdash		0.8			b)		(0.079 ± 0.008) 1.25 ± 0.20						126 ±				(0.126 ± 0.008) 2.50 ± 0.20							_		\dashv			
W) Width	(in.)					004)				0.032 ± 0.006)				(0.049 ± 0.008)				(0.063 ± 0.008)				(0.098 ± 0.008)															
(t) Termina	mm (i)				± 0.				0.35 ± 0.15 (0.014 ± 0.00								0.50 ± 0.25 (0.020 ± 0.010)			0.50 ± 0.25 (0.020 ± 0.010)				0.50 ± 0.25 (0.020 ± 0.010)													
WV	(111.)	4				006)	50	4	6.3).U14	1 ± (1.00 125	b) 35	50	6.3	(0.0	120 ±	25	10) 135	150	6.3	(0. 110	16	25	10)	150	4	(16.3	0.02	0 ± 0	25) 135	50	6.3	10	25	50
Сар	100	·	0.0					Ė	0.0				-	-	0.0					-	0.0	1.0					Ė	0.0					-	0.0			-
(pF)	150																		İ																		
,	220						С		İ			İ													İ												
	330						С															Ì						İ	İ	İ		İ			П	İ	
	470						С																							-L'		\geq	\leq	<u> </u>	\	_	
	680						С																					_	< ($\overline{}$	_	_		7)	T	
	1000						С																						(_ `)		┸	ノ _	▼.	
	1500						С																								\	4					
	2200			-		_	С	H	_			-						_	┡		┝	-			_		L				4	T					
	3300 4700					0	С							0																	. '						
	6800					C								G																							ı
Сар	0.010					С		\vdash				-		G					-			\vdash										 			Н		_
(μF)	0.015					С						G	G	G																							
(F-)	0.022				С	С						G	G	G						N	Ĺ																
	0.033				С							G	G	G						N															П		
	0.047				С	С						G	G	G					İ	N	İ																
	0.068				С							G		G						N																	
	0.10			С	С	С						G		G				N		N																	
	0.15											G						N	N																		
	0.22		C*								G	G	<u> </u>					N	N			ļ_				Q						_			Ш		_
	0.33	O:I:	Out								G	G						N																			
	0.47 0.68	C*	U^								G							N N						Q	Q								Х				
	1.0	C*	C*	C*	\vdash	\vdash	\vdash	\vdash	G	G	G	J*	\vdash	\vdash	\vdash	\vdash	N	N	\vdash	P*	\vdash	\vdash	\vdash	Q	Q		\vdash	\vdash	\vdash	\vdash	Х	Х	Х		\vdash	\vdash	_
	1.5	O.	0	0					G	G	G	3					IN	IN		F .				Q	Q						^	^	^				
	2.2	C*	l					G*	G*	J*	J*					N	N	N					Q	Q							Z	Х					
	3.3					t		J*	J*	J*	J*				N	N	Ė		T	t	Х	Х	Ì	Ì							<u> </u>	T			Н		\neg
	4.7							J*	J*	J*		1			N	N	N*	N*	ĺ		Х	Х	Χ	Х	l					Q	Z	ĺ					
	10							K*			1				Р	Р	Р				Х	Х	Х	Х					Х	Z	Z					Z	
	22														P*						Х	Х	Х	Х				Z	Z	Z	Z						
	47																				X						_	Z*									
	100			1.0	1.0	0.5	FC	١.		1.0		0.5	0.5	FC		1.5	1.0	0.5	0.5	FC		1.0	1.0	0.5	0.5	FC	Z*	Z	4.0	1.0	0.5	0.5	FC		1.0	0.5	FC
	WVDC	4	6.3	_	16		50	4	6.3	_	_	_	35	50	6.3	10	_	_	35	50	6.3	10		25	35	50	4	Jo.3	10	16		35	50	6.3	_	25	50
	SIZE			L	D02					L	.D0	3					LD	U5			LD06					LD10						LD12					

Letter	Α	С	Е	G	J	K	М	N	Р	Q	Х	Υ	Z
Max.	0.33	0.56	0.71	0.90	0.94	1.02	1.27	1.40	1.52	1.78	2.29	2.54	2.79
Thickness	(0.013)	(0.022)	(0.028)	(0.035)	(0.037)	(0.040)	(0.050)	(0.055)	(0.060)	(0.070)	(0.090)	(0.100)	(0.110)
			PAPER						EMBC	SSED			

^{*}Optional Specifications - Contact factory

NOTE: Contact factory for non-specified capacitance values

单击下面可查看定价,库存,交付和生命周期等信息

>>AVX