

# Low Inductance Capacitors (SnPb)



## 0612/0508/0306 Tin Lead Termination "B"

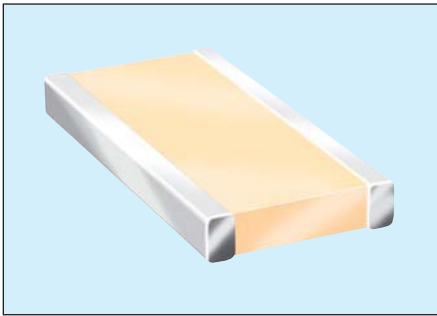
### GENERAL DESCRIPTION

The key physical characteristic determining equivalent series inductance (ESL) of a capacitor is the size of the current loop it creates. The smaller the current loop, the lower the ESL.

A standard surface mount MLCC is rectangular in shape with electrical terminations on its shorter sides. A Low Inductance Chip Capacitor (LICC) sometimes referred to as Reverse Geometry Capacitor (RGC) has its terminations on the longer sides of its rectangular shape. The image on the right shows the termination differences between an MLCC and an LICC.

When the distance between terminations is reduced, the size of the current loop is reduced. Since the size of the current loop is the primary driver of inductance, an 0306 with a smaller current loop has significantly lower ESL than an 0603. The reduction in ESL varies by EIA size, however, ESL is typically reduced 60% or more with an LICC versus a standard MLCC.

AVX LICC products are available with a lead termination for high reliability military and aerospace applications that must avoid tin whisker reliability issues.



### PERFORMANCE CHARACTERISTICS

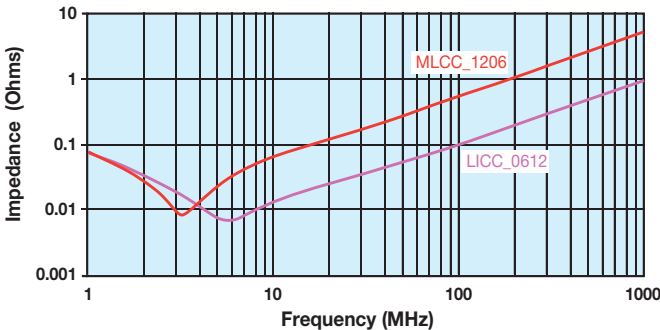
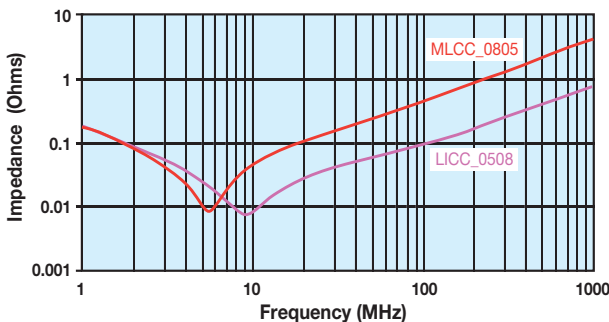
Capacitance Tolerances	K = $\pm 10\%$ ; M = $\pm 20\%$
Operation Temperature Range	X7R = -55°C to +125°C X5R = -55°C to +85°C X7S = -55°C to +125°C
Temperature Coefficient	X7R, X5R = $\pm 15\%$ ; X7S = $\pm 22\%$
Voltage Ratings	4, 6.3, 10, 16, 25 VDC
Dissipation Factor	4V, 6.3V = 6.5% max; 10V = 5.0% max; 16V = 3.5% max; 25V = 3.0% max
Insulation Resistance (@+25°C, RVDC)	100,000M $\Omega$ min, or 1,000M $\Omega$ per $\mu$ F min., whichever is less

### HOW TO ORDER

LD18	Z	D	105	M	A	B	2	A*
Size	Voltage	Dielectric	Capacitance Code (In pF)	Capacitance Tolerance	Failure Rate	Terminations	Packaging Available	Thickness
LD16 = 0306 LD17 = 0508 LD18 = 0612	4 = 4V 6 = 6.3V Z = 10V Y = 16V 3 = 25V 5 = 50V	C = X7R D = X5R	2 Sig. Digits + Number of Zeros	K = $\pm 10\%$ M = $\pm 20\%$	A = N/A	B = 5% min lead	2 = 7" Reel 4 = 13" Reel	mm (in) 0.56 (0.022) 0.61 (0.024) 0.76 (0.030) 1.02 (0.040) 1.27 (0.050)

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

### TYPICAL IMPEDANCE CHARACTERISTICS



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## PREFERRED SIZES ARE SHADED

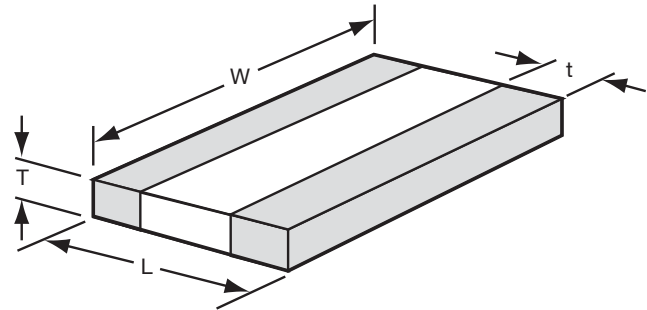
SIZE	LD16					LD17					LD18				
Soldering	Reflow Only					Reflow Only					Reflow/Wave				
Packaging	All Paper					All Paper					Paper/Embossed				
(L) Length MM	0.81 ± 0.15					1.27 ± 0.25					1.60 ± 0.25				
(in.)	(0.032 ± 0.006)					(0.050 ± 0.010)					(0.063 ± 0.010)				
(W) Width MM	1.60 ± 0.15					2.00 ± 0.25					3.20 ± 0.25				
(in.)	(0.063 ± 0.006)					(0.080 ± 0.010)					(0.126 ± 0.010)				
WVDC	6.3	10	16	25	50	6.3	10	16	25	50	6.3	10	16	25	50
Cap (pF)	1000	A	A	A	A	S	S	S	S	V	S	S	S	S	V
	2200	A	A	A	A	S	S	S	S	V	S	S	S	S	V
	4700	A	A	A	A	S	S	S	S	V	S	S	S	S	V
Cap (μF)	0.010	A	A	A	A	S	S	S	S	V	S	S	S	S	V
	0.015	A	A	A	A	S	S	S	S	V	S	S	S	S	W
	0.022	A	A	A	A	S	S	S	S	V	S	S	S	S	W
	0.047	A	A	A		S	S	S	V	A	S	S	S	S	W
	0.068	A	A	A		S	S	S	V	A	S	S	S	V	W
	0.10	A	A	A		S	S	S	V	A	S	S	S	V	W
	0.15	A	A			S	S	V			S	S	S	W	W
	0.22	A	A			S	S	V			S	S	V		
	0.47					V	V	A			S	S	V		
	0.68					A	A				V	V	W		
	1.0					A	A				V	V	W		
	1.5					A	A				W	W			
	2.2										A	A			
	3.3										A	A			
	4.7														
	10														
WVDC	6.3	10	16	25	50	6.3	10	16	25	50	6.3	10	16	25	50
SIZE	0306					0508					0612				

Solid = X7R

 = X5R

LD16 - 0306		LD17 - 0508		LD18 - 0612	
Code	Thickness	Code	Thickness	Code	Thickness
A	0.61 (0.024)	S	0.56 (0.022)	S	0.56 (0.022)
		V	0.76 (0.030)	V	0.76 (0.030)
		A	1.02 (0.040)	W	1.02 (0.040)
				A	1.27 (0.050)

## PHYSICAL DIMENSIONS AND PAD LAYOUT

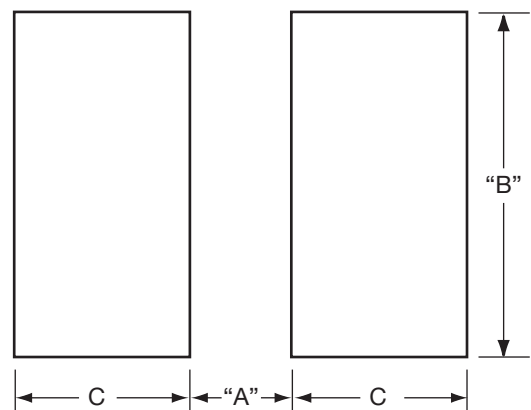


## PHYSICAL CHIP DIMENSIONS

mm (in)

	L	W	t
0612	1.60 ± 0.25 (0.063 ± 0.010)	3.20 ± 0.25 (0.126 ± 0.010)	0.13 min. (0.005 min.)
0508	1.27 ± 0.25 (0.050 ± 0.010)	2.00 ± 0.25 (0.080 ± 0.010)	0.13 min. (0.005 min.)
0306	0.81 ± 0.15 (0.032 ± 0.006)	1.60 ± 0.15 (0.063 ± 0.006)	0.13 min. (0.005 min.)

T - See Range Chart for Thickness and Codes



## PAD LAYOUT DIMENSIONS

mm (in)

	A	B	C
0612	0.76 (0.030)	3.05 (0.120)	.635 (0.025)
0508	0.51 (0.020)	2.03 (0.080)	0.51 (0.020)
0306	0.31 (0.012)	1.52 (0.060)	0.51 (0.020)