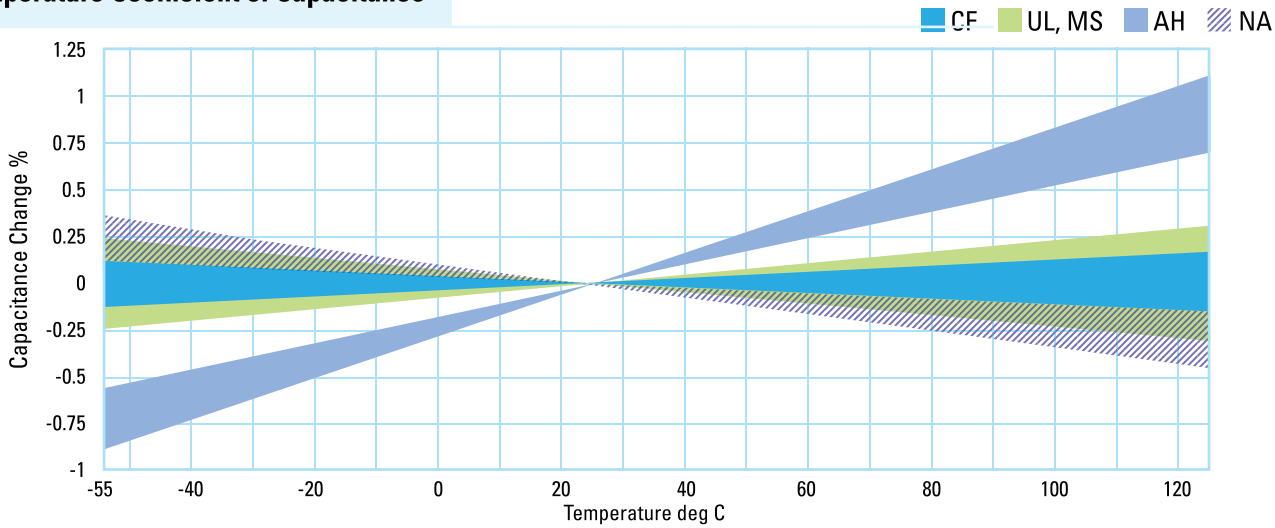
DLI Multi-Layer Dielectric Materials

Dielectric Code	Temperature Coefficient -55°C to +125°C (ppm/°C Maximum)	Dissipation Factor @ 1 MHz (% Maximum)	Insulation Resistance (MΩ)	
			@ +25°C	@ +125°C
AH	P90 ± 20	0.05	$>10^6$	$>10^5$
CF	0 ± 15	0.05	$>10^6$	$>10^5$
UL	0 ± 30	0.05	$>10^5$	$>10^4$
MS	0 ± 30	0.05	$>10^5$	$>10^4$
*BL	± 15%	2.50	$>10^4$	$>10^3$
NA	N30 ± 15	0.05	$>10^6$	$>10^5$

All test conditions are per MIL-PRF-55681 revision A. Dissipation Factor applies to values of 4.7pF or greater.
*Broadband Blocks only.

Other Dielectric formulations may be available, please contact your Sales Representative.

Temperature Coefficient of Capacitance



Termination Systems

Code	Termination System	Application
T	Ag Termination Ni Barrier Layer Heavy SnPb Plated Solder	• High Reliability Applications • Hand Soldering
U	Ag Termination Ni Barrier Layer SnPb Plated Solder	• High Reliability Applications • High Volume & Hand Solder Assembly
S RoHS	Ag Termination Ni Barrier Layer Gold Flash	• Specialty Solder, Epoxy Applications • Standard for 0402
Z RoHS	Ag Termination Ni Barrier Layer Sn Plated Solder	• High Volume & Hand Solder Assembly
E RoHS	Ag Termination Enhanced Ni Barrier Sn Plated Solder	• High Volume & Hand Solder Assembly • Ultra Leach Resistant
P RoHS	AgPd Termination	• Non-Magnetic Applications
Q RoHS	Polymer Termination Ni Barrier Layer Sn Plated Solder	• Resistant to Cracking • High Volume & Hand Solder Assembly

Code	Termination System	Application
Y	Polymer Termination Ni Barrier Layer Sn Plated Solder	• Resistant to Cracking • High Reliability Applications • High Volume & Hand Solder Assembly
M RoHS	Polymer Termination Cu Barrier Layer Sn Plated Solder	• Resistant to Cracking • Non-Magnetic Application • High Volume & Hand Solder Assembly
W RoHS	Ag Termination Cu Barrier Layer Sn Plated Solder	• Non-Magnetic Application • High Volume
H RoHS	Ag Termination Enhanced Cu Barrier Sn Plated Solder	• Non-Magnetic Applications • High Vol. & Hand Solder Assembly • Ultra Leach Resistant
V	Ag Termination Cu Barrier Layer SnPb Plated Solder	• Non-Magnetic Applications • High Reliability Applications • High Volume & Hand Solder Assembly
R	Ag Termination Cu Barrier Layer Heavy SnPb Plated Solder	• Non-Magnetic Applications • High Reliability Applications • Hand Soldering

Lead Termination Codes

Axial Ribbon	Radial Ribbon	Center Ribbon	Axial Wire Lead	Radial Wire Lead
Code A	Code B	Code C	Code E	Code F
				

Leads are attached with high melting point solder (HMP) at 296°C.

Test Level Codes

Test code	Inspection Description (see individual part pages for additional detail)
Y	100% IR, 1% AQL visual, 1% AQL Electrical (DWV, Cap., DF)
X	100% IR, 100 % visual, 1% AQL Electrical (DWV, Cap., DF)
A	Group A testing per MIL – PRF – 55681
C	Group C testing per MIL – PRF – 55681
D	Customer Defined

Packaging Configurations

Case Style	Size L x W	7" Reel, 8mm Tape		7" Reel, 16mm Tape	13" Reel, 16mm Tape	2" x 2" Waffle Pack
		Horizontal Orientation	Vertical Orientation	Horizontal Orientation	Horizontal Orientation	
C04	0.040" x 0.020"	5000				
C06	0.060" x 0.030"	4000				108
C07	0.110" x 0.070"	750				
C08	0.080" x 0.050"	5000	3100			108
C11	0.055" x 0.055"	3500	3100			108
C17	0.110" x 0.110"	2350	750			49
C18	0.110" x 0.110"	2350	750			49
C22	0.220" x 0.245"	500				
C40	0.380" x 0.380"	250		250	1300	

Typically a minimum 500 piece order for tape and reel packaging.
Standard Packaging: Bulk in plastic bags.
Consult factory for custom packaging solutions.

Packaging Configurations for MS

Case Style	Size L x W	7" Reel, 8mm Tape	13" Reel, 16mm Tape
		Horizontal Orientation	Vertical Orientation
C04	0.040" x 0.020"	16,000	16,000
C06	0.060" x 0.030"	4,000	16,000
C08	0.080" x 0.050"	3,000	12,000
C10	0.120" x 0.100"	2,000	8,000
C11	0.055" x 0.055"	2,500	10,000
C12	0.120" x 0.060"	2,500	10,000

Case Style	Size L x W	7" Reel, 8mm Tape	13" Reel, 16mm Tape
		Horizontal Orientation	Vertical Orientation
C17	0.110" x 0.110"	1,000	4,000
C18	0.180" x 0.120"	1,000	4,000
C20	0.220" x 0.200"	1,000	4,000
C22	0.220" x 0.245"	1,000	4,000
C36	0.360" x 0.400"	–	500

Minimum of one full reel.
Standard Packaging: Bulk in plastic bags.
Consult factory for custom packaging solutions.

Recommended Pad Spacing Dimensions (inches)

Case Size	Internal Electrode	Reflow Soldering			Wave Soldering		
		A	B	C	A	B	C
C04	Horizontal	0.076	0.036	0.010	0.106	0.036	0.020
	Vertical		Not Recommended			Not Recommended	
C06	Horizontal	0.106	0.051	0.020	0.136	0.051	0.020
	Vertical		Not Recommended			Not Recommended	
C07	Horizontal	0.119	0.141	0.020	0.149	0.141	0.020
	Vertical		Not Recommended			Not Recommended	
C08	Horizontal	0.127	0.071	0.020	0.157	0.071	0.020
	Vertical	0.127	0.064	0.020	0.157	0.064	0.020
C11	Horizontal	0.114	0.084	0.020	0.144	0.084	0.020
	Vertical	0.114	0.063	0.020	0.144	0.063	0.020
C17	Horizontal	0.182	0.147	0.040	0.212	0.147	0.040
	Vertical	0.182	0.115	0.040	0.212	0.115	0.040
C18	Horizontal	0.182	0.152	0.070	0.212	0.152	0.070
	Vertical	0.182	0.115	0.070	0.212	0.115	0.070
C22	Horizontal	0.282	0.288	0.110	0.312	0.288	0.110
	Vertical		Not Recommended			Not Recommended	
C40	Horizontal	0.445	0.420	0.290	0.475	0.420	0.290
	Vertical		Not Recommended			Not Recommended	

Case Size Definitions

Case Size	Case Size EIA	Available Termination Style	Width[1]				Length[1]				Thickness[1] (Max)		Gap Min (Between Bands)		Band Min[2] (Plated)		Band Max[2] (Plated)	
			Inches		mm		Inches		mm									
			Min	Max	Min	Max	Min	Max	Min	Max	Inches	mm	Inches	mm	Inches	mm	Inches	mm
04BL	0402	U S	0.014	0.026	0.362	0.667	0.034	0.046	0.869	1.173	0.025	0.640	0.008	0.193	0.004	0.097	0.017	0.427
04UL	0402	S	0.014	0.026	0.362	0.667	0.034	0.046	0.869	1.173	0.025	0.640	0.008	0.193	0.004	0.097	0.017	0.427
06BL	0603	U S Z	0.023	0.038	0.579	0.960	0.051	0.069	1.303	1.760	0.032	0.800	0.010	0.241	0.007	0.169	0.027	0.680
06CF	0603	U S Z E P W H V R	0.023	0.038	0.579	0.960	0.051	0.069	1.303	1.760	0.032	0.800	0.010	0.241	0.007	0.169	0.027	0.680
06UL	0603	U S Z	0.022	0.041	0.555	1.040	0.051	0.076	1.303	1.920	0.033	0.827	0.014	0.362	0.007	0.169	0.027	0.680
07UL	0711	S Z	0.090	0.131	2.292	3.334	0.052	0.089	1.327	2.267	0.105	2.667	0.019	0.483	0.008	0.193	0.047	1.200
08BL	0805	U S Z	0.040	0.061	1.013	1.547	0.065	0.097	1.641	2.454	0.054	1.360	0.010	0.241	0.014	0.362	0.041	1.040
08UL	0805	U S Z	0.040	0.061	1.013	1.547	0.065	0.097	1.641	2.454	0.054	1.360	0.010	0.241	0.014	0.362	0.041	1.040
11	0505	U S Z E P Q Y M W H V R	0.038	0.074	0.965	1.867	0.043	0.074	1.086	1.867	0.053	1.334	0.014	0.362	0.008	0.193	0.029	0.733
11	0505	T	0.038	0.074	0.965	1.867	0.043	0.084	1.086	2.134	0.053	1.334	0.014	0.362	N/A	N/A	N/A	N/A
17	1111	U S Z E P Q Y M W H V R	0.090	0.131	2.292	3.334	0.095	0.137	2.413	3.467	0.105	2.667	0.038	0.965	0.008	0.193	0.047	1.200
17	1111	T	0.090	0.137	2.292	3.467	0.095	0.152	2.413	3.867	0.105	2.667	0.038	0.965	N/A	N/A	N/A	N/A
18	1111[3]	U Z E W H V	0.090	0.142	2.292	3.600	0.095	0.152	2.413	3.867	0.105	2.667	0.043	1.086	0.008	0.193	0.047	1.200
22	2222	U S Z E P Q Y M W H V R	0.223	0.278	5.671	7.068	0.200	0.252	5.067	6.401	0.137	3.467	0.124	3.137	N/A	N/A	N/A	N/A
40	3838	U S Z E P Q Y M W H V R	0.352	0.410	8.928	10.401	0.352	0.415	8.928	10.535	0.137	3.467	0.276	6.998	N/A	N/A	N/A	N/A

(1) Dimensions listed include the termination.
(2) Band widths are from corner to corner of part.
(3) Enhanced voltage handling case size.