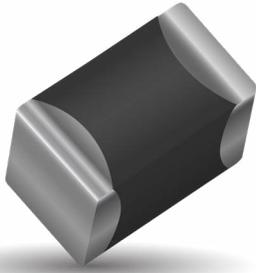


SnPb Multilayer Varistors

Multilayer Varistors with Tin/Lead Termination



GENERAL DESCRIPTION

KYOCERA AVX designed specific TransGuard® and StaticGuard VCLD series with Sn/Pb termination (5% Pb Min) to support customers that cannot accept pure tin components in their applications. They have the advantage of offering bi-directional overvoltage protection against transient events such as ESD, inductive switching, lightning, NEMP as well as EMI/RFI attenuation in a single SMT package.

GENERAL CHARACTERISTICS

- Operating Temperature: -55°C to +125°C

FEATURES

- Sn/Pb termination (5% Pb min)
- Bi-Directional protection
- Very fast response to ESD strikes
- Multi-strike capability
- Reliability
- EMI/RFI Filtering in the off-state
- Radiation resistant

APPLICATIONS

- IC Protection
- Micro Controllers
- Relays
- I/O Ports
- Keyboard Protection
- Portable devices
- Radios and more

HOW TO ORDER – TRANSGUARD®

VCLD	1206	18	D	400	R	B
Varistor Ledged Termination (Sn/Pb)	Case Size	Energy Rating	Energy Rating	Clamping Voltage	Packaging	Termination
0603	05 = 5.6Vdc	38 = 38Vdc	X = 0.05J	150 = 18V	D = 7" (1000)	B = Sn/Pb (5% Pb Min)
0805	09 = 9Vdc	42 = 42Vdc	A = 0.1J	200 = 22V	R = 7" (4000 or 2000)	
1206	12 = 12Vdc	45 = 45Vdc	C = 0.3J	250 = 27V	T = 13" (10,000)	
1210	14 = 14Vdc	48 = 48Vdc	D = 0.4J	300 = 32V		
	18 = 18Vdc	56 = 56Vdc	G = 0.9J	390 = 42V		
	26 = 26Vdc	60 = 60Vdc	F = 0.7J	400 = 42V		
	30 = 30Vdc	65 = 65Vdc	H = 1.2J	540 = 54V		
	31 = 31Vdc	85 = 85Vdc	J = 1.5J	560 = 60V		
			K = 0.6J	580 = 60V		
			L = 0.8J	620 = 67V		
			M = 1J	650 = 67V		
			N = 1.1J	770 = 77V		
			S = 1.9-2.0J	800 = 80V		
				900 = 90V		
				101 = 100V		
				111 = 110V		
				121 = 120V		
				131 = 135V		
				151 = 150V		

Not RoHS Compliant

Sn/Pb termination

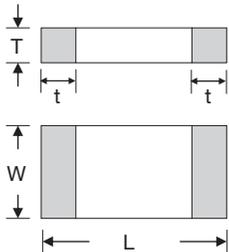
HOW TO ORDER – STATIC GUARD

VCLD	06	LC	18	X	500	R	B
Varistor Ledged Termination (Sn/Pb)	Case Size	Low Cap Design	Working Voltage	Energy Rating	Clamping Voltage	Packaging	Termination
06 = 0603	06 = 0603		18 = 18Vdc	X = 0.05J	500 = 50V	D = 7" (1000)	B = Sn/Pb (5% Pb Min)
08 = 0805	08 = 0805			A = 0.1J		R = 7" (4000)	
12 = 1206	12 = 1206					T = 13" (10,000)	

Please contact KYOCERA AVX for availability of other varistors with SnPb termination.

PHYSICAL DIMENSIONS:

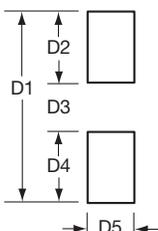
mm (inches)



Size (EIA)	Length (L)	Width (W)	Max Thickness (T)	Land Length (t)
0603	1.60±0.15 (0.063±0.006)	0.80±0.15 (0.031±0.006)	0.90 (0.035)	0.35±0.15 (0.014±0.006)
0805	2.01±0.20 (0.079±0.008)	1.25±0.20 (0.049±0.008)	1.02 (0.040)	0.71 max. (0.028 max.)
1206	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	1.02 (0.040)	0.94 max. (0.037 max.)
1210	3.20±0.20 (0.126±0.008)	2.49±0.20 (0.098±0.008)	1.70 (0.067)	0.14 max. (0.045 max.)

SOLDER PAD DIMENSIONS:

mm (inches)



Size (EIA)	D1	D2	D3	D4	D5
0603	2.54 (0.100)	0.89 (0.035)	0.76 (0.030)	0.89 (0.035)	0.76 (0.030)
0805	3.05 (0.120)	1.02 (0.040)	1.02 (0.040)	1.02 (0.040)	1.27 (0.050)
1206	4.06 (0.160)	1.02 (0.040)	2.03 (0.080)	1.02 (0.040)	1.65 (0.065)
1210	4.06 (0.160)	1.02 (0.040)	2.03 (0.080)	1.02 (0.040)	2.54 (0.100)

SnPb Multilayer Varistors

Multilayer Varistors with Tin/Lead Termination

ELECTRICAL CHARACTERISTICS – TRANSGUARD®

Part Number	V _w (DC)	V _w (AC)	V _B	V _C	I _{vc}	I _L	E _T	I _p	Cap	Freq
VCLD060305A150_B	5.6	4.0	8.5±20%	18	1	35	0.1	30	750	K
VCLD080505A150_B	5.6	4.0	8.5±20%	18	1	35	0.1	40	1100	K
VCLD080505C150_B	5.6	4.0	8.5±20%	18	1	35	0.3	120	3000	K
VCLD120605A150_B	5.6	4.0	8.5±20%	18	1	35	0.1	40	1200	K
VCLD120605D150_B	5.6	4.0	8.5±20%	18	1	35	0.4	150	3000	K
VCLD060309A200_B	9.0	6.4	12.7±15%	22	1	25	0.1	30	550	K
VCLD080509A200_B	9.0	6.4	12.7±15%	22	1	25	0.1	40	750	K
VCLD080512A250_B	12.0	8.5	16.0±15%	27	1	25	0.1	40	525	K
VCLD060314A300_B	14.0	10.0	18.5±12%	32	1	15	0.1	30	350	K
VCLD080514A300_B	14.0	10.0	18.5±12%	32	1	15	0.1	40	325	K
VCLD080514C300_B	14.0	10.0	18.5±12%	32	1	15	0.3	120	900	K
VCLD120614A300_B	14.0	10.0	18.5±12%	32	1	15	0.1	40	600	K
VCLD120614D300_B	14.0	10.0	18.5±12%	32	1	15	0.4	150	1050	K
VCLD060318A400_B	18.0	13.0	25.5±10%	42	1	10	0.1	30	150	K
VCLD080518A400_B	18.0	13.0	25.5±10%	42	1	10	0.1	30	225	K
VCLD080518C400_B	18.0	13.0	25.5±10%	42	1	10	0.3	100	550	K
VCLD120618A400_B	18.0	13.0	25.5±10%	42	1	10	0.1	30	350	K
VCLD120618D400_B	18.0	13.0	25.5±10%	42	1	10	0.4	150	900	K
VCLD121018J390_B	18.0	13.0	25.5±10%	42	5	10	1.5	500	3100	K
VCLD060326A580_B	26.0	18.0	34.5±10%	60	1	10	0.1	30	155	K
VCLD080526A580_B	26.0	18.0	34.5±10%	60	1	10	0.1	30	120	K
VCLD080526C580_B	26.0	18.0	34.5±10%	60	1	10	0.3	100	250	K
VCLD120626D580_B	26.0	18.0	34.5±10%	60	1	10	0.4	120	500	K
VCLD120626F540_B	26.0	20.0	33.0±10%	54	1	15	0.7	200	600	K
VCLD121026H560_B	26.0	18.0	34.5±10%	60	5	10	1.2	300	2150	K
VCLD060330A650_B	30.0	21.0	41.0±10%	67	1	10	0.1	30	125	K
VCLD080530A650_B	30.0	21.0	41.0±10%	67	1	10	0.1	30	90	M
VCLD080530C650_B	30.0	21.0	41.0±10%	67	1	10	0.3	80	250	K
VCLD120630D650_B	30.0	21.0	41.0±10%	67	1	10	0.4	120	400	K
VCLD121030G620_B	30.0	21.0	41.0±10%	67	5	10	0.9	220	1750	K
VCLD121030H620_B	30.0	21.0	41.0±10%	67	5	10	1.2	280	1850	K
VCLD080531C650_B	31.0	25.0	39.0±10%	65	1	10	0.3	80	250	K
VCLD120631M650_B	31.0	25.0	39.0±10%	65	1	15	1.0	200	500	K
VCLD080538C770_B	38.0	30.0	47.0±10%	77	1	10	0.3	80	200	K
VCLD120638N770_B	38.0	30.0	47.0±10%	77	1	15	1.1	200	400	K
VCLD120642L800_B	42.0	32.0	51.0±10%	80	1	15	0.8	180	600	K
VCLD120645K900_B	45.0	35.0	56.0±10%	90	1	15	0.6	200	260	K
VCLD120648D101_B	48.0	34.0	62.0±10%	100	1	10	0.4	100	225	K
VCLD121048G101_B	48.0	34.0	62.0±10%	100	5	10	0.9	220	450	K
VCLD121048H101_B	48.0	34.0	62.0±10%	100	5	10	1.2	250	500	K
VCLD120656F111_B	56.0	40.0	68.0±10%	110	1	15	0.7	100	180	K
VCLD121060J121_B	60.0	42.0	76.0±10%	120	5	10	1.5	250	400	K
VCLD120665M131_B	65.0	50.0	82.0±10%	135	1	15	1.0	150	250	K
VCLD121085S151_B	85.0	60.0	100±10%	150	1	35	2.0	250	275	K

ELECTRICAL CHARACTERISTICS – STATICGUARD

Part Number	V _w (DC)	V _w (AC)	V _B	V _C	I _{vc}	I _L	E _T	I _p	Cap	Case
VCLD06LC18X500_B	≤18	≤14	25-40	50	1	10	0.05	30	50M	0603
VCLD08LC18A500_B	≤18	≤14	25-45	50	1	10	0.1	30	80M	0805
VCLD12LC18A500_B	≤18	≤14	25-45	50	1	10	0.1	30	200K	1206

V_w(DC) DC Working Voltage (V)
V_w(AC) AC Working Voltage (V)
V_B Min-Max Breakdown Voltage (V @ 1mA_{DC}, 25°C)
V_C Clamping Voltage (V @ I_{vc})
I_{vc} Test Current for V_C (A, 8x20µS)
I_L Maximum Leakage Current at the Working Voltage (µA, 25°C)

E_T Transient Energy Rating (J, 10x1000µS)
I_p Peak Current Rating (A, 8x20µS)
Cap Typical Capacitance (pF) @ frequency specified and 0.5 V_{RMS}, 25°C, K = 1kHz, M = 1MHz