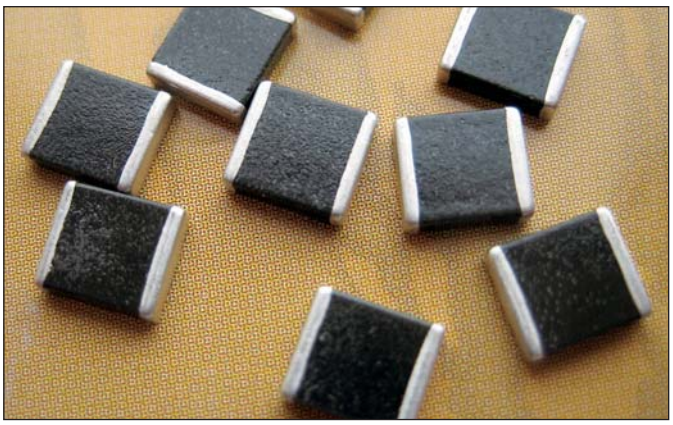
Glass Encapsulated TransGuard®

Multilayer Varistors



GENERAL DESCRIPTION

The Glass Encapsulated TransGuard® multilayer varistors are zinc oxide (ZnO) based ceramic semiconductor devices with non-linear, bi-directional V-I characteristics.

They have the advantage of offering bi-directional overvoltage protection as well as EMI/RFI attenuation in a single SMT package.

These large case size parts extend TransGuard range into high energy applications. In addition the glass encapsulation provides enhanced resistance against harsh environment or process such as acidic environment, salts or chlorite flux.

GENERAL CHARACTERISTICS

- Operating Temperature: -55ºC to 125ºC
- Case Size: 1206-2200
- Working Voltage: 16-85Vdc
- Energy: 0.7-12J
- Peak Current: 200-2000A

FEATURES

- Bi-Directional protection
- EMI/RFI attenuation in off-state
- Multi-strike capability
- Sub 1nS response to ESD strike
- High energy / High current
- Glass Encapsulated

APPLICATIONS

- Professional / Industrial / Commercial Applications
- IC Protection, DC motor protection
- Relays, Controllers, Sensors
- Smart Grids
- Alarms
- Various Applications where Glass Encapsulation is Needed for Harsh Environment / Acid-Resistance
- and more

HOW TO ORDER

V	G	1812	16	P	400	R	P
Varistor	**Glass Encapsulated Chip**	**Chip Size** 1206 1210 1812 2220	**Working Voltage** 16 = 16Vdc 18 = 18Vdc 22 = 22Vdc 26 = 26Vdc 30 = 30Vdc 31 = 31Vdc 38 = 38Vdc 45 = 45Vdc 48 = 48Vdc 56 = 56Vdc 60 = 60Vdc 65 = 65Vdc 85 = 85Vdc	**Engergy Rating** F = 0.7J H = 1.2J J = 1.5-1.6J R = 1.7J S = 2.0J P = 2.5-3.7J U = 4.0-5.0J Y = 6.5-12J	**Clamping Voltage** 390 = 40V 400 = 42V 440 = 44V 540 = 54V 560 = 60V 570 = 57V 620 = 67V 650 = 65V 770 = 77V 900 = 90V 101 = 100V 111 = 110V 121 = 120V 131 = 135V 161 = 165V	**Package** D = 7" reel R = 7" reel T = 13" reel	**Termination** P = Ni/Sn plated

PHYSICAL DIMENSIONS: mm (inches)

Size (EIA)	Length (L)	Width (W)	Max Thickness (T)	Land Length (t)
1206	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	1.70 (0.067)	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.)
1812	4.50±0.30 (0.177±0.012)	3.20±0.30 (0.126±0.012)	2.00 (0.079)	1.00 max. (0.040 max.)
2220	5.70±0.40 (0.224±0.016)	5.00±0.40 (0.197±0.016)	2.50 (0.098)	1.00 max. (0.040 max.)

ELECTRICAL CHARACTERISTICS

AVX PN	V_W (DC)	V_W (AC)	V_B	V_C	I_{VC}	I_L	E_T	I_P	Cap	Freq
VG120616K390	16	11	24.5±10%	40	1	15	0.6	200	1100	K
VG120616N390	16	11	24.5±10%	40	1	15	1.1	300	1300	K
VG181216P390	16	11	24.5±10%	40	5	15	2.9	1000	7000	K
VG181216P400	16	11	24.5±10%	42	5	10	2.9	1000	5000	K
VG222016Y400	16	11	24.5±10%	42	10	10	7.2	1500	13000	K
VG120618D400	18	13	25.5±10%	42	1	15	0.4	150	1200	K
VG121018J400	18	13	25.5±10%	42	5	15	1.6	500	2300	K
VG181218P440	18	14	27.5±10%	44	5	15	2.9	800	5000	K
VG121022R440	22	17	27±10%	44	2.5	15	1.7	400	1600	K
VG120626F540	26	18	33.0±10%	54	1	15	0.7	200	600	K
VG121026H560	26	18	34.5±10%	60	5	15	1.2	300	1200	K
VG181226P570	26	23	35±10%	57	5	15	3.0	600	3000	K
VG222026Y570	26	23	35.0±10%	57	10	15	6.8	1100	7000	K
VG121030H620	30	21	41.0±10%	67	5	15	1.2	280	1000	K
VG181231P650	31	25	39±10%	65	5	15	3.7	800	2600	K
VG222031Y650	31	25	39.0±10%	65	10	15	9.6	1200	6100	K
VG121038S770	38	30	47.0±10%	77	2.5	15	2	400	1000	K
VG181238U770	38	30	47.0±10%	77	5	15	4.2	800	1300	K
VG222038Y770	38	30	47.0±10%	77	10	15	12	2000	6300	K
VG181245U900	45	35	56.0±10%	90	5	15	4.0	500	1800	K
VG121048H101	48	34	62.0±10%	100	5	15	1.2	250	500	K
VG181256U111	56	40	68.0±10%	110	5	15	4.8	500	1100	K
VG222056Y111	56	40	68.0±10%	110	10	15	9	1000	2800	K
VG121060J121	60	42	76.0±10%	120	5	15	1.5	250	400	K
VG121065P131	65	50	82.0±10%	135	2.5	15	2.7	350	600	K
VG181265U131	65	50	82.0±10%	135	5	15	4.5	400	800	K
VG222065Y131	65	50	82.0±10%	135	10	15	6.5	800	3000	K
VG181285U161	85	60	100±10%	165	5	15	4.5	400	500	K

V_W(DC) DC Working Voltage [V]
V_W(AC) AC Working Voltage [V]
V_B Typical Breakdown Votage [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, 25°C [µA]
E_T Transient Energy Rating [J, 10x1000µS]
I_P Peak Current Rating [A, 8x20µS]
Cap Typical capacitance [pF] @ frequency specified and 0.5V_{RMS}, 25°C, M = 1MHz, K = 1kHz