

General Semiconductor Industries, Inc.

TRANSZORB[®] TVS CHIPS

MD1.5K & MC1.5K Series

DESCRIPTION

This TransZorb[®] TVS chip series is designed for hybrid, smart card and connector applications. High current handling capabilities and fast response time makes these TVS chips excellent for protection against damaging transient voltages caused by lightning, load switching and electrostatic discharge. This series of silicon transient suppressor chips has a peak pulse rating of 1500 watts for one millisecond.

FEATURES

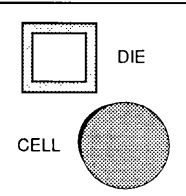
- Voltage Range: 6.8V - 100V
- 1.5kW Peak Pulse Power
- Mesa Construction Glass-Passivated
- Lot Traceability

MAXIMUM RATINGS

- Power Dissipation @ $T_A = 25^\circ\text{C}$ (10/1000 μs): 1500 watts
- Forward Surge Rating @ 25°C Unidirectional only: 200 amps (1/20 sec half cycle)
- Operating and Storage Temperature: -55°C to $+150^\circ\text{C}$

PHYSICAL CHARACTERISTICS

	DIE	CELL
Size:	.114 inches sq.	.160 inches dia.
Thickness - Unidirectional:	.014 inches max.	---
Bidirectional:	.0155 inches max.	.045 inches max.
Bond Area:	.099 inches sq. max.	.160 inches
Metallized Surface:	Ni-Ni-Au	Silver Clad Alum. Disks
Polarity:	Unidirectional & Bidirectional	



NOTES

1. Unidirectional die are cathode topside orientation. To specify bidirectional die, add a "C" suffix. MD1.5K6.8 is available in unidirectional only.
2. A TransZorb[®] TVS is normally selected according to the "Reverse Stand-Off Voltage" (V_R) which should be equal to or greater than the DC or the Continuous Peak Operating Voltage.
3. The I_{PP} limit is doubled for bidirectional devices with V_R equal to or less than 10V

ABBREVIATIONS

V_R The Stand-Off Voltage: the applied reverse voltage to assure a nonconductive condition.

$B_V^{(min)}$ The minimum Breakdown Voltage the device will exhibit and is used to assure that conduction does not occur prior to this voltage level at 25°C .

V_C The maximum peak voltage appearing across the device when subjected to the peak pulse current.

I_{PP} Peak Pulse Current - (see Fig 2).

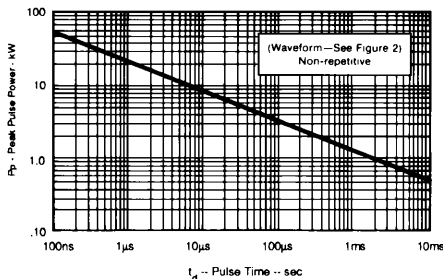


Figure 1 - Peak Pulse Power vs. Pulse Time

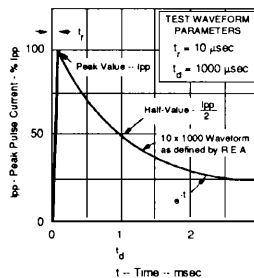


Figure 2 - Pulse Waveform

ELECTRICAL CHARACTERISTICS @ 25°C

GENERAL SEMICONDUCTOR INDUSTRIES' DEVICE NUMBER		REVERSE STAND-OFF VOLTAGE (NOTE 2)	BREAKDOWN VOLTAGE		MAXIMUM CLAMPING VOLTAGE @ I _{PP} (FIG 2)	MAXIMUM PEAK PULSE CURRENT (FIG 2)	MAXIMUM REVERSE LEAKAGE @V _R (NOTE 3)
DIE	CELL	V _R VOLTS	V _{BR} VOLTS MIN	@ I _T mA	V _C VOLTS	I _{PP} A	I _R μA
MD1.5K6.8	---	5.80	6.45	10	10.5	143.0	1000
MD1.5K7.5	MC1.5K7.5C	6.40	7.13	10	11.3	132.0	500
MD1.5K8.2	MC1.5K8.2C	7.02	7.79	10	12.1	124.0	200
MD1.5K9.1	MC1.5K9.1C	7.78	8.65	1	13.4	112.0	50
MD1.5K10	MC1.5K10C	8.55	9.50	1	14.5	103.0	10
MD1.5K11	MC1.5K11C	9.40	10.5	1	15.6	96.0	5
MD1.5K12	MC1.5K12C	10.2	11.4	1	16.7	90.0	5
MD1.5K13	MC1.5K13C	11.1	12.4	1	18.2	82.0	5
MD1.5K15	MC1.5K15C	12.8	14.3	1	21.2	71.0	5
MD1.5K16	MC1.5K16C	13.6	15.2	1	22.5	67.0	5
MD1.5K18	MC1.5K18C	15.3	17.1	1	25.2	59.5	5
MD1.5K20	MC1.5K20C	17.1	19.0	1	27.7	54.0	5
MD1.5K22	MC1.5K22C	18.8	20.9	1	30.6	49.0	5
MD1.5K24	MC1.5K24C	20.5	22.8	1	33.2	45.0	5
MD1.5K27	MC1.5K27C	23.1	25.7	1	37.5	40.0	5
MD1.5K30	MC1.5K30C	25.6	28.5	1	41.4	36.0	5
MD1.5K33	MC1.5K33C	28.2	31.4	1	45.7	33.0	5
MD1.5K36	MC1.5K36C	30.8	34.2	1	49.9	30.0	5
MD1.5K39	MC1.5K39C	33.3	37.1	1	53.9	28.0	5
MD1.5K43	MC1.5K43C	36.8	40.9	1	59.3	25.3	5
MD1.5K47	MC1.5K47C	40.2	44.7	1	64.8	23.2	5
MD1.5K51	MC1.5K51C	43.6	48.5	1	70.1	21.4	5
MD1.5K56	MC1.5K56C	47.8	53.2	1	77.0	19.5	5
MD1.5K62	MC1.5K62C	53.0	58.9	1	85.0	17.7	5
MD1.5K68	MC1.5K68C	58.1	64.6	1	92.0	16.3	5
MD1.5K75	MC1.5K75C	64.1	71.3	1	103.0	14.6	5
MD1.5K82	MC1.5K82C	70.1	77.9	1	113.0	13.3	5
MD1.5K91	MC1.5K91C	77.8	86.5	1	125.0	12.0	5
MD1.5K100	MC1.5K100C	85.5	95.0	1	137.0	11.0	5