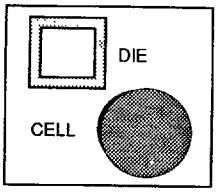
T-62-11

General Semiconductor Industries, Inc.

TRANSZORB® TVS CHIPS
MDSA & MCSA 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 500 watts for one millisecond.



FEATURES

- **Voltage Range: 5V - 100V**
- **500 watts Peak Pulse Power**
- **Mesa Construction Glass-Passivated**
- **Lot Traceability**

NOTES

1. Unidirectional die are cathode topside orientation
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_R limit is doubled for bidirectional devices with V_R equal to or less than 10V

MAXIMUM RATINGS

- Power Dissipation @ T_A = 25°C (10/1000µs): 500 watts
- Forward Surge Rating @ 25°C Unidirectional only: 70 amps (1/20 sec half cycle)
- Operating and Storage Temperature: -55°C to +150°C

ABBREVIATIONS

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

$BV_{(min)}$ 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

Ipp Peak Pulse Current - (see Fig 2)

PHYSICAL CHARACTERISTICS

	DIE	CELL
Size:	.070 inches sq.	.100 inches dia.
Thickness - Unidirectional:	.014 inches max.	---
Bidirectional:	.0155 inches max.	.055 inches max.
Bond Area:	.055 inches sq. max.	.100 inches
Metallized Surface:	Ni-Ni-Au	Silver Clad Alum. Disks
Polarity:	Unidirectional & Bidirectional	Unidirectional & Bidirectional

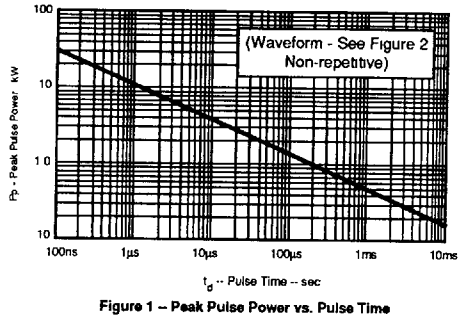


Figure 1 – Peak Pulse Power vs. Pulse Time

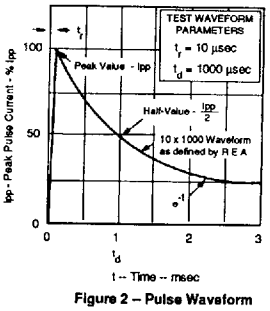


Figure 2 – Pulse Waveform

ELECTRICAL CHARACTERISTICS @ 25°C							
GENERAL SEMICONDUCTOR INDUSTRIES' DEVICE NUMBER		REVERSE STAND-OFF VOLTAGE (NOTE 2)	BREAKDOWN VOLTAGE BV VOLTS		MAXIMUM CLAMPING VOLTAGE @ Ipp (FIG 2)	MAXIMUM PEAK PULSE CURRENT (FIG 2)	MAXIMUM REVERSE LEAKAGE @V_R (NOTE 3)
DIE	CELL	V_R VOLTS	MIN	@ I_T mA	V_C VOLTS	Ipp A	I_R µA
MDSA5.0	MCSA5.0	5.0	6.40	10	9.2	54.0	600
MDSA6.0	MCSA6.0	6.0	6.67	10	10.3	48.5	600
MDSA6.5	MCSA6.5	6.5	7.22	10	11.2	44.7	400
MDSA7.0	MCSA7.0	7.0	7.78	10	12.0	41.7	150
MDSA7.5	MCSA7.5	7.5	8.33	1	12.9	38.8	50
MDSA8.0	MCSA8.0	8.0	8.89	1	13.6	36.7	25
MDSA8.5	MCSA8.5	8.5	9.44	1	14.4	34.7	10
MDSA9.0	MCSA9.0	9.0	10.0	1	15.4	32.5	5
MDSA10	MCSA10	10	11.1	1	17.0	29.4	3
MDSA11	MCSA11	11	12.2	1	18.2	27.4	3
MDSA12	MCSA12	12	13.3	1	19.9	25.1	3
MDSA13	MCSA13	13	14.4	1	21.5	23.2	3
MDSA14	MCSA14	14	15.6	1	25.8	21.5	3
MDSA15	MCSA15	15	16.7	1	24.4	20.6	3
MDSA16	MCSA16	16	17.8	1	26.0	19.2	3
MDSA17	MCSA17	17	18.9	1	27.6	18.1	3
MDSA18	MCSA18	18	20.0	1	29.2	17.2	3
MDSA20	MCSA20	20	22.2	1	32.4	15.4	3
MDSA22	MCSA22	22	24.4	1	35.5	14.1	3
MDSA24	MCSA24	24	26.7	1	38.9	12.8	3
MDSA26	MCSA26	26	28.9	1	42.1	11.9	3
MDSA28	MCSA28	28	31.1	1	45.4	11.0	3
MDSA30	MCSA30	30	33.3	1	48.4	10.3	3
MDSA33	MCSA33	33	36.7	1	53.3	9.4	3
MDSA36	MCSA36	36	40.0	1	58.1	8.6	3
MDSA40	MCSA40	40	44.4	1	64.5	7.8	3
MDSA43	MCSA43	43	47.8	1	69.4	7.2	3
MDSA45	MCSA45	45	50.0	1	72.7	6.9	3
MDSA48	MCSA48	48	53.3	1	77.4	6.5	3
MDSA51	MCSA51	51	56.7	1	82.4	6.1	3
MDSA54	MCSA54	54	60.0	1	87.1	5.7	3
MDSA58	MCSA58	58	64.4	1	93.6	5.3	3
MDSA60	MCSA60	60	66.7	1	96.8	5.2	3
MDSA64	MCSA64	64	71.1	1	103.0	4.9	3
MDSA70	MCSA70	70	77.8	1	113.0	4.4	3
MDSA75	MCSA75	75	83.3	1	121.0	4.1	3
MDSA78	MCSA78	78	86.7	1	126.0	4.0	3
MDSA85	MCSA85	85	94.4	1	137.0	3.6	3
MDSA90	MCSA90	90	100.0	1	146.0	3.4	3

To specify bidirectional die and cells, add a "C" suffix to device number.

Unidirectional cells will have one matted silver disc to indicate cathode.