

**General  
Semiconductor  
Industries, Inc.**

**TRANSZORB<sup>®</sup> TVS  
CHIPS**

**MDP6K & MCP6K  
Series**

**DESCRIPTION**

This TransZorb<sup>®</sup> TVS series is designed for hybrid, smart card and connector applications. High current handling capabilities and fast response time makes these TVS chip 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 600 watts for one millisecond.

**FEATURES**

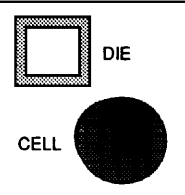
- **Voltage Range: 6.8V - 100V**
- **600 watts Peak Pulse Power**
- **Mesa Construction Glass-Passivated**
- **Lot Traceability**

**MAXIMUM RATINGS**

- Power Dissipation @ T<sub>A</sub> = 25°C (10/1000µs): **600 watts**
- Forward Surge Rating @ 25°C Unidirectional only: **100 amps**  
(1/20 sec half cycle)
- Operating and Storage Temperature: **-55°C to +150°C**

**PHYSICAL CHARACTERISTICS**

	<b>DIE</b>	<b>CELL</b>
Size:	.080 inches sq.	.113 inches sq. dia.
Thickness - Unidirectional:	.014 inches max.	---
Bidirectional:	.0155 inches max.	.045 inches max.
Bond Area:	.065 inches sq. max.	.113 inches
Metallized Surface:	Ni-Ni-Au	Silver Clad Alum. Disks
Polarity:	Unidirectional & Bidirectional	Bidirectional

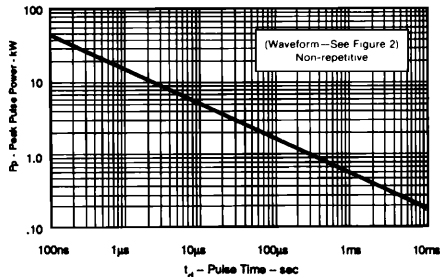


**NOTES**

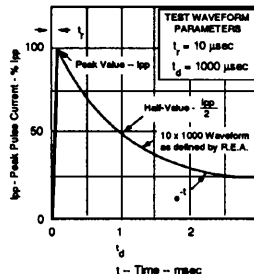
1. Unidirectional die are cathode topside orientation. To specify bidirectional die, add a "C" suffix. MDP6K6.8 is available in unidirectional only.
2. A TransZorb<sup>®</sup> TVS is normally selected according to the "Reverse Stand-Off Voltage" (V<sub>R</sub>) which should be equal to or greater than the DC or the Continuous Peak Operating Voltage.
3. The I<sub>R</sub> limit is doubled for bidirectional devices with V<sub>R</sub> equal to or less than 10V.

**ABBREVIATIONS**

- V<sub>R</sub> The Stand-Off Voltage: the applied reverse voltage to assure a nonconductive condition.
- B<sub>1(min)</sub> 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<sub>C</sub> The maximum peak voltage appearing across the device when subjected to the peak pulse current.
- I<sub>pp</sub> 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 <sub>pp</sub> (FIG 2)	MAXIMUM PEAK PULSE CURRENT (FIG 2)	MAXIMUM REVERSE LEAKAGE @V <sub>R</sub> (NOTE 3)
DIE	CELL	V <sub>R</sub> VOLTS	V <sub>BR</sub> VOLTS @ I <sub>T</sub> mA	MIN	V <sub>C</sub> VOLTS	I <sub>pp</sub> A	I <sub>R</sub> μA
MDP6K6.8	---	5.80	6.45	10	10.5	57	1000
MDP6K7.5	---	6.40	7.13	10	11.3	53	500
MDP6K8.2	MCP6K8.2C	7.02	7.79	10	12.1	50	200
MDP6K9.1	MCP6K9.1C	7.78	8.65	1	13.4	45	50
MDP6K10	MCP6K10C	8.55	9.50	1	14.5	41	10
MDP6K11	MCP6K11C	9.40	10.5	1	15.6	38	5
MDP6K12	MCP6K12C	10.2	11.4	1	16.7	36	5
MDP6K13	MCP6K13C	11.1	12.4	1	18.2	33	5
MDP6K15	MCP6K15C	12.8	14.3	1	21.2	28	5
MDP6K16	MCP6K16C	13.6	15.2	1	22.5	27	5
MDP6K18	MCP6K18C	15.3	17.1	1	25.2	24	5
MDP6K20	MCP6K20C	17.1	19.0	1	27.7	22	5
MDP6K22	MCP6K22C	18.8	20.9	1	30.6	20	5
MDP6K24	MCP6K24C	20.5	22.8	1	33.2	18	5
MDP6K27	MCP6K27C	23.1	25.7	1	37.5	16	5
MDP6K30	MCP6K30C	25.6	28.5	1	41.4	14.4	5
MDP6K33	MCP6K33C	28.2	31.4	1	45.7	13.2	5
MDP6K36	MCP6K36C	30.8	34.2	1	49.9	12.0	5
MDP6K39	MCP6K39C	33.3	37.1	1	53.9	11.2	5
MDP6K43	MCP6K43C	36.8	40.9	1	59.3	10.1	5
MDP6K47	MCP6K47C	40.2	44.7	1	64.8	9.3	5
MDP6K51	MCP6K51C	43.6	48.5	1	70.1	8.6	5
MDP6K56	MCP6K56C	47.8	53.2	1	77.0	7.8	5
MDP6K62	MCP6K62C	53.0	58.9	1	85.0	7.1	5
MDP6K68	MCP6K68C	58.1	64.6	1	92.0	6.5	5
MDP6K75	MCP6K75C	64.1	71.3	1	103.0	5.8	5
MDP6K82	MCP6K82C	70.1	77.9	1	113.0	5.3	5
MDP6K91	MCP6K91C	77.8	86.5	1	125.0	4.8	5
MDP6K100	MCP6K100C	85.5	95.0	1	137.0	4.4	5