

Bidirectional TVSarray™
PRODUCT PREVIEW

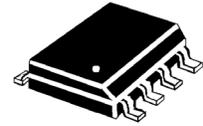
DESCRIPTION

This TRANSIENT VOLTAGE SUPPRESSOR (TVS) array is packaged in an SO-8 configuration giving protection to 1 pair of Bidirectional data lines and the Vbus. It is designed for use in applications where protection is required at the board level from voltage transients caused by electrostatic discharge (ESD) as defined in IEC 61000-4-2, electrical fast transients (EFT) per IEC 61000-4-4 and effects of secondary lightning.

These TVS arrays have a peak power rating of 500 watts for an 8/20 μsec pulse. This array is suitable for protection of sensitive circuitry consisting of **UNIVERSAL SERIAL BUS (USB)** I/O transceivers. The capacitance between the I/O data lines are minimal to ensure no significant signal distortion or loss at the 12 megabit or greater data rate. This feature allows full compatibility with USB port standards.

IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

TVS array™ SERIES



APPLICATIONS

- EIA-RS485 data rate: 5 Mbps
- 10 Base T Ethernet
- USB data rate: 900 Mbps

FEATURES

- Protects each data line between Vbus supply and ground
- Complies with MIL-STD-883, Method 3015.7, class 3
- Surge protection per IEC 61000-4-2, IEC 61000-4-4
- Provides electrically isolated protection
- UL 94V-0 Flammability Classification
- **LOW CAPACITANCE:**
14 pF (Data+ or Data- to ground) (typical)
7 pF (Data+ to Data-) (typical)

PACKAGING

- Tape & Reel per EIA Standard 481
- 13 inch reel; 2,500 pieces (OPTIONAL)
- Carrier tubes; 95 pcs (STANDARD)

MAXIMUM RATINGS

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Peak Pulse Power: 500 watts (8/20 μs, Figure 1)
- Pulse Repetition Rate: < .01%

MECHANICAL

- Molded SO-8 Surface Mount
- Weight 0.066 grams (approximate)
- Marking: Logo, device marking code, date code
- Pin #1 defined by dot on top of package

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless otherwise specified

PART NUMBER	DEVICE MARKING	STAND OFF VOLTAGE V _{WM}	BREAKDOWN VOLTAGE V _{BR} @1 mA	CLAMPING VOLTAGE V _C @ 1 Amp (Figure 2)	CLAMPING VOLTAGE V _C @ 5 Amp (Figure 2)	STANDBY CURRENT I _D @ V _{WM}	CAPACITANCE (f=1 MHz) C @0V Data + to Data - pF	TEMPERATURE COEFFICIENT OF V _{BR} α _{VBR}
		VOLTS	VOLTS	VOLTS	VOLTS	μA	pF	mV/°C
		MAX	MIN	MAX	MAX	MAX	MAX	MAX
USB6B1	USB6	5.0	6.0	10.8	18	5	10	3

Note: Transient Voltage Suppressor (TVS) product is normally selected based on its stand off voltage V_{WM}. Product selected voltage should be equal to or greater than the continuous peak operating voltage of the circuit to be protected.

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SYMBOLS & DEFINITIONS

Symbol	DEFINITION
V_{WM}	Stand Off Voltage: Maximum dc voltage that can be applied over the operating temperature range. V_{wm} must be selected to be equal or be greater than the operating voltage of the line to be protected
V_{BR}	Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current
V_C	Clamping Voltage: Maximum clamping voltage across the TVS device when subjected to a given current at a pulse time of 20 μs .
I_D	Standby Current: Leakage current at V_{WM} .
C	Capacitance: Capacitance of the TVS as defined @ 0 volts at a frequency of 1 MHz and stated in picofarads.

GRAPHS

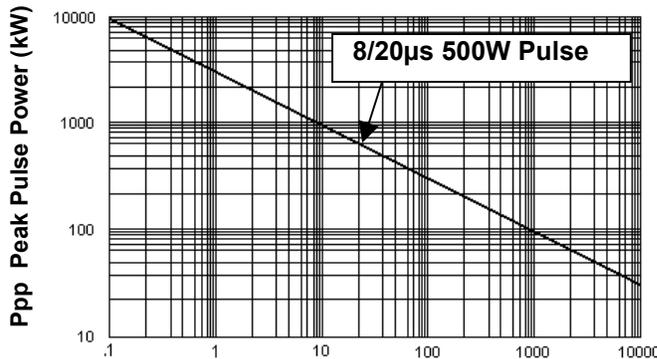


Figure 1
Peak Pulse Power Vs Pulse Time $t = \mu sec$

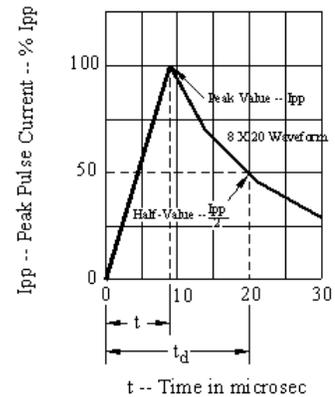
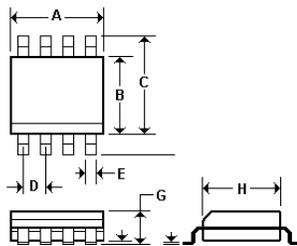


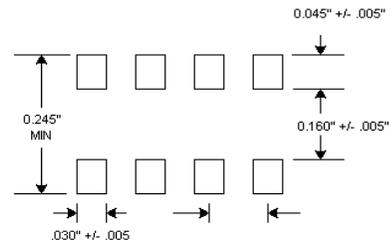
Figure 2
Pulse Wave Form

OUTLINE AND SCHEMATIC

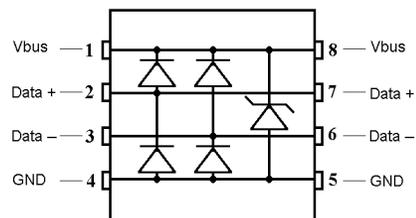


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.188	0.197	4.775	5.004
B	0.150	0.158	3.810	4.013
C	0.228	0.244	5.791	6.198
D	0.050 BSC		1.270 BSC	
E	0.014	0.018	0.356	0.457
F	0.004	0.008	0.102	0.203
G	0.053	0.069	1.346	1.753
H	0.189	0.206	4.801	5.232
J	0.007	0.009	0.178	0.229
K	0.016	0.049	0.406	1.245

OUTLINE



PAD LAYOUT



SCHEMATIC