

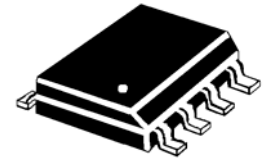
DESCRIPTION

This TRANSIENT VOLTAGE SUPPRESSOR (TVS) array is packaged in an SO-8 configuration giving protection to 2 Unidirectional data or interface lines. 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. Using the schematic on the second page, pins 7 & 8 are tied together for the first protected positive line, and pins 1 & 2 are tied together to the ground. The same would then occur where pins 5 & 6 are tied together for a second protected positive line and pins 2 & 3 are tied together to the ground. If protecting a negative line with respect to ground, these may be switched in polarity connections where the pins are tied together in this manner for Unidirectional protection.

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 TTL, CMOS DRAM's, SRAM's, HCMOS, HSIC microprocessors, **UNIVERSAL SERIAL BUS (USB)** and I/O transceivers. The USB08XX product provides board level protection from static electricity and other induced voltage surges that can damage or upset sensitive circuitry.

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

APPEARANCE



SO-8

FEATURES

- Protects up to 2 unidirectional lines
- Surge protection per IEC 61000-4-2, IEC 61000-4-4
- Provides electrically isolated protection
- UL 94V-0 Flamability Classification
- **LOW CAPACITANCE 5 pF per line pair**
- **LOW LEAKAGE**

APPLICATIONS / BENEFITS

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

- 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

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 _b @ V _{WM}	CAPACITANCE (f=1 MHz) C @0V	TEMPERATURE COEFFICIENT OF V _{BR} α _{VBR}
		VOLTS	VOLTS	VOLTS	VOLTS	μA	pF	mV/°C
		MAX	MIN	MAX	MAX	MAX	MAX	MAX
USB0803	AF	3.3	4	8	11	200	5	-5
USB0805	AG	5.0	6.0	10.8	13	20	5	1
USB0812	AH	12.0	13.3	19	26	1	5	8
USB0815	AJ	15.0	16.7	24	32	1	5	11
USB0824	AK	24.0	26.7	43	57	1	5	28

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.

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 μ s.
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

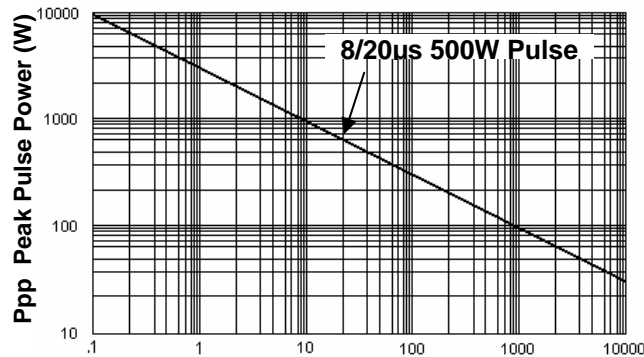


Figure 1
Peak Pulse Power Vs Pulse Time $t = \mu$ sec

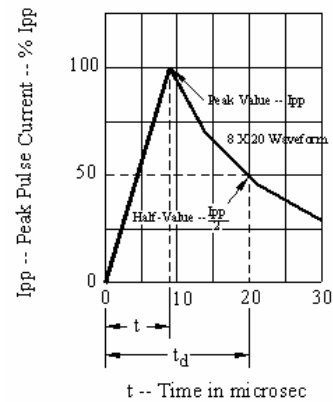
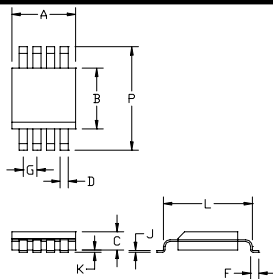


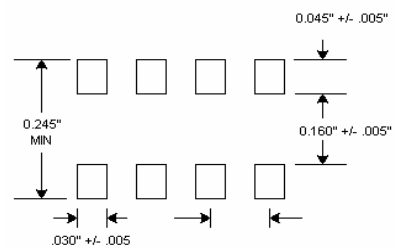
Figure 2
Pulse Wave Form

OUTLINE AND SCHEMATIC

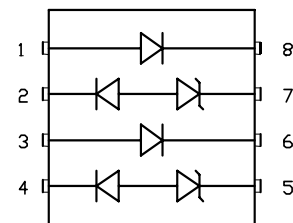


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.188	0.197	4.77	5.00
B	0.150	0.158	3.81	4.01
C	0.053	0.069	1.35	1.75
D	0.011	0.021	0.28	0.53
F	0.0160	0.050	0.41	1.27
G	0.050 BSC		1.27 BSC	
J	0.006	0.010	0.15	0.25
K	0.004	0.008	0.10	0.20
L	0.189	0.206	4.80	5.23
P	0.228	0.244	5.79	6.19

OUTLINE



PAD LAYOUT



SCHEMATIC