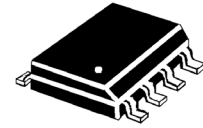**Microsemi**

SCOTTSDALE DIVISION

Bidirectional TVSarray ™

PRODUCT PREVIEW

DESCRIPTION

This TRANSIENT VOLTAGE SUPPRESSOR (TVS) array is packaged in an SO-8 configuration giving protection to 2 Bidirectional 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.

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, **GIGABIT (1000 Mbs/sec)** transceiver chip sets. The GBIT08XXC product provides board level protection from static electricity and other induced voltage surges that can damage or upset sensitive circuitry without impeding data transmission speeds.

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

T V S array™ S E R I E S

APPLICATIONS

- GIGABIT Ethernet
- EIA-RS485 data rate: 5 Mbs
- USB date rate: 900 Mbs

F E A T U R E S

- Protects up to 2 bidirectional lines
- Surge protection per IEC 61000-4-2, IEC 61000-4-4
- Designed for IEEE 802.3ab Gigabit Ethernet protection
- Provides electrically isolated protection
- UL 94V-0 Flamability Classification
- *LOW CAPACITANCE 5 pF per line pair*
- *LOW LEAKAGE*

P A C K A G I N G

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

M A X I M U M R A T I N G S

- 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%

M E C H A N I C A L

- 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} VOLTS	BREAKDOWN VOLTAGE V_{BR} @1 mA VOLTS	CLAMPING VOLTAGE V_C @ 1 Amp (Figure 2) VOLTS	CLAMPING VOLTAGE V_C @ 5 Amp (Figure 2) VOLTS	STANDBY CURRENT I_D @ V_{WM} μA	CAPACITANCE (f=1 MHz) C @0V pF	TEMPERATURE COEFFICIENT OF V_{BR} α_{VBR} mV/°C
		MAX	MIN	MAX	MAX	MAX	MAX	MAX
GBIT0803C	3C	3.3	4	8	11	200	5	-5
GBIT0805C	5C	5.0	6.0	10.8	13	40	5	1
GBIT0812C	12C	12.0	13.3	19	26	1	5	8
GBIT0815C	15C	15.0	16.7	24	32	1	5	11
GBIT0818C	18C	18.0	20.0	32	41	1	5	22
GBIT0824C	24C	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.

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Microsemi

SCOTTSDALE DIVISION

Bidirectional TVSarray ™

PRODUCT PREVIEW

SYMBOLS & DEFINITIONS

Symbol	DEFINITION
V_{WM}	Stand Off Voltage: Maximum dc voltage that can be applied over the operating temperature range. Vwm 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
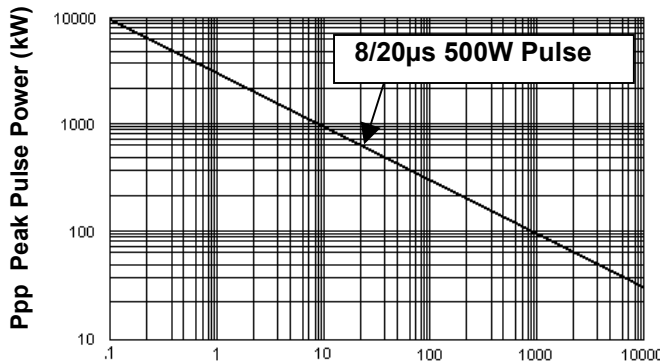

8/20µs 500W Pulse

Figure 1
Peak Pulse Power Vs Pulse Time t = µsec
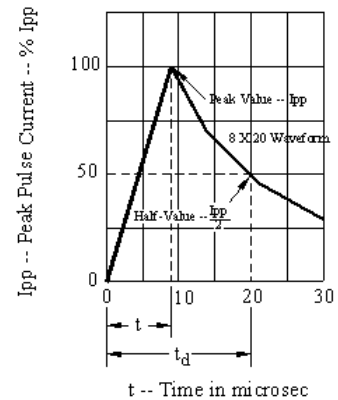
Figure 2
Pulse Wave Form

OUTLINE AND SCHEMATIC

0.045" +/- .005"

0.245" MIN

0.160" +/- .005"

.030" +/- .005
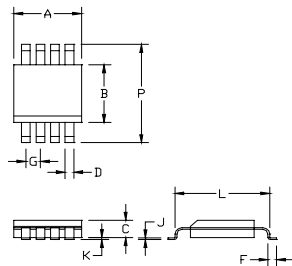
PAD LAYOUT
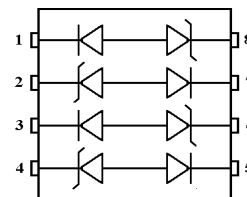
	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.188	0.197	4.77	5.00
B	0.150	0.158	3.81	4.01
C	0.053	0.069	1.35	1.75
D	0.011	0.021	0.28	0.53
F	0.016	0.050	0.41	1.27
G	0.050 BSC		1.27 BSC	
J	0.006	0.010	0.15	0.25
K	0.004	0.008	0.10	0.20
L	0.189	0.206	4.80	5.23
P	0.228	0.244	5.79	6.19

OUTLINE

SCHEMATIC

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