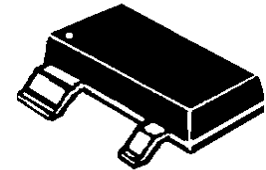


DESCRIPTION

This TRANSIENT VOLTAGE SUPPRESSOR (TVS) is packaged in an SOT-143 configuration with very low capacitance giving protection for two high speed data lines connected to terminals 2 and 3. This protection is from electrostatic discharge (ESD) and other induced voltage surges such as electrical fast transient/burst (EFT) that can damage or upset sensitive circuitry as defined in IEC 61000-4-2 and IEC 61000-4-4. With its four steering diodes and one TVS, any positive voltage on the data lines exceeding one diode voltage drop above the positive voltage supply line (Vcc) connected to terminal 4 will be diverted away from the protected line to the supply line. If this also exceeds the TVS voltage, the surge is directed to ground (Gnd) at terminal 1. Negative voltages greater than one voltage drop are diverted to ground. This SRLC05 can also serve as a bi-directional, low capacitance TVS when simply using terminals 2 and 3. In a similar configuration, the terminal 1 can optionally be tied to ground.

APPEARANCE



SOT-143

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

FEATURES

- Protects 2 high-speed data lines
- Surge protection per IEC 61000-4-2, IEC 61000-4-4
- Optionally provides bi-directional protection
- **ULTRA LOW CAPACITANCE 6 pF**
- UL94V-0 Flammability Classification
- RoHS Compliant devices available by adding "e3" suffix

APPLICATIONS / BENEFITS

- EIA-RS485 data rates:  
5 Mbs
- 10 Base T Ethernet
- USB data rate: 900 Mbs
- Video line protection
- Wan/Lan
- ISDN S/T

MAXIMUM RATINGS

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Peak Pulse Power: 200 watts (8/20 μs, Figure 1)
- Pulse Repetition Rate: < .01%

MECHANICAL AND PACKAGING

- CASE: Molded SOT-143 Surface Mount
- TERMINALS: Tin-Lead or RoHS Compliant annealed matte-Tin plating solderable per MIL-STD-750, method 2026
- WEIGHT: 0.035 grams (approximate)
- MARKING: Marking code "R05" and Pin #1 defined by dot on top of package

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless otherwise specified

PART NUMBER	DEVICE MARKING	STANDOFF VOLTAGE V <sub>WM</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> @ 1 mA	CLAMPING VOLTAGE V <sub>c</sub> @ 1 Amp (Figure 2)	CLAMPING VOLTAGE V <sub>c</sub> @ 5 Amp (Figure 2)	PEAK FORWARD VOLTAGE V <sub>f</sub> @ 1 Amp (Figure 2)	STANDBY CURRENT I <sub>b</sub> @ 5 Volts	CAPACITANCE C @ 0V, (f = 1 MHz) Between I/O pins and GND		CAPACITANCE C @ 0V, (f = 1MHz) Between I/O pins	
		VOLTS	VOLTS	VOLTS	VOLTS	VOLTS	μA	pF	pF	pF	pF
		MAX	MIN	MAX	MAX	MAX	MAX	TYP	MAX	TYP	MAX
SRLC05	R05	5.0	5.6	8	11	2	2	4	6	2	3

Note: Transient Voltage Suppressor (TVS) product is normally selected based on its stand off voltage V<sub>WM</sub>. 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 $\mu$ 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.

CIRCUIT

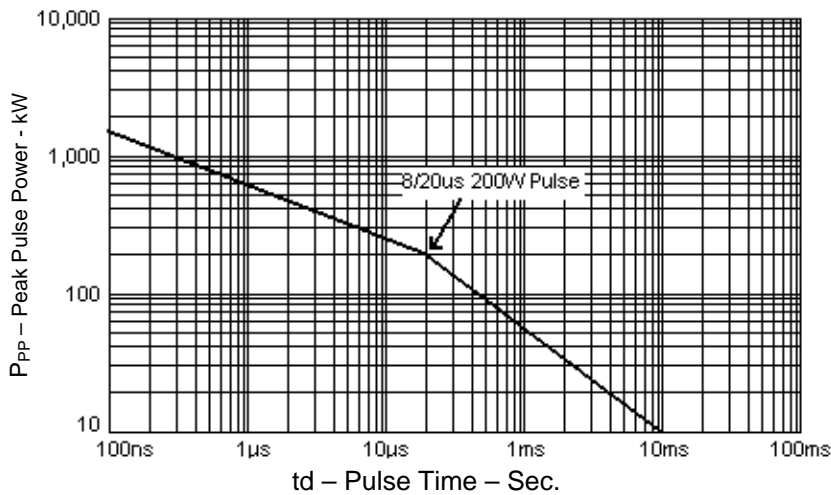


FIGURE 1

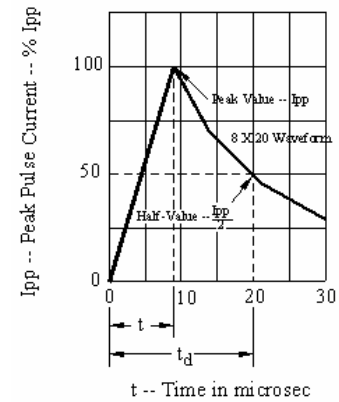
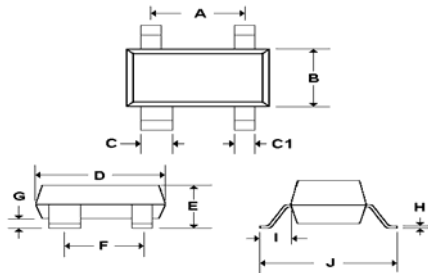


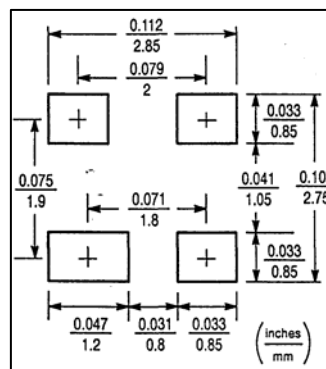
FIGURE 2  
Pulse Wave Form

OUTLINE AND SCHEMATIC

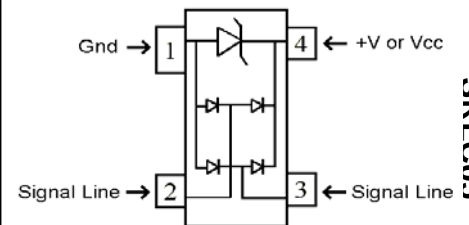


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.070	0.080	1.78	2.03
B	0.047	0.055	1.20	1.40
C	0.030	0.037	0.77	0.94
C1	0.015	0.020	0.37	0.50
D	0.110	0.119	2.80	3.04
E	0.035	0.044	0.89	1.17
F	0.071	0.079	1.80	2.00
G	0.0006	0.006	0.013	0.05
H	0.003	0.007	0.085	0.17
I	0.018	0.023	0.45	0.60
J	0.083	0.093	2.10	2.50

OUTLINE



PAD LAYOUT



SCHEMATIC