



# SAC SERIES

## Low Capacitance Transient Voltage Suppressor Diodes



Voltage Range  
5.0 to 50 Volts  
500 Watts Peak Power  
1.0 Watt Steady State

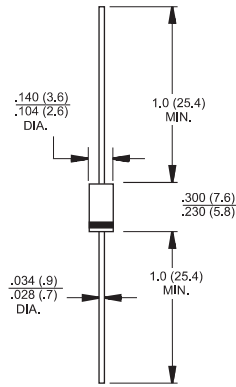
### Features

- ✧ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✧ 500W surge capability at 10 X 1000us waveform, duty cycle: 0.01%
- ✧ Excellent clamping capability
- ✧ Low incremental surge resistance
- ✧ Fast response time: Typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0 nS for bidirectional
- ✧ High temperature soldering guaranteed: 260°C / 10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3kg) tension
- ✧ Ideal for data line applications
- ✧ Maximum junction capacitance at 0 volts is 50 pF

### Mechanical Data

- ✧ Case: JEDEC DO-15 molded plastic over a passivated junction
- ✧ Lead: Axial leads, solderable per MIL-STD-750, Method 2026
- ✧ Polarity: Color band denotes cathode except bipolar
- ✧ Weight: 0.4 gram, 0.015 ounce

### DO-15



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_p=1\text{ms}$ (Note 1)	$P_{PK}$	Minimum 500	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", 9.5mm	$P_D$	3.0	Watts
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 175	$^\circ\text{C}$

Notes: 1. Non-repetitive Current Pulse Per Fig. 3 and Derated above  $T_A=25^\circ\text{C}$  Per Fig. 2.

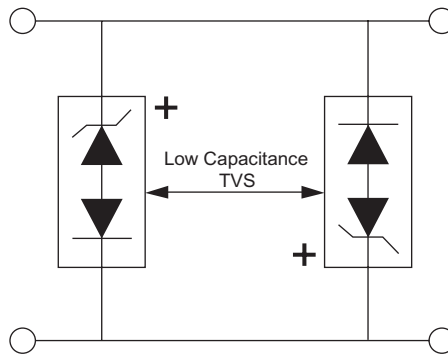
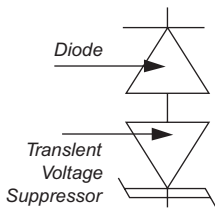
ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device	Breakdown Voltage		Test Current @IT (mA)	Stand-Off Voltage VWM (Volts)	Maximum Reverse Leakage at VWM ID (uA)	Maximum Peak Pulse Current IPPM (Note 2)(Amps)	Maximum Clamping Voltage at IPPM VC(Volts)	Maximum Temperature Coefficient of VBR mV / °C)
	VBR (Note 1)							
	Min	Max						
SAC5.0	7.60	9.21	1.0	5.0	300	44	10.00	50
SAC6.0	7.90	9.51	1.0	6.0	300	41	11.2	50
SAC7.0	8.33	10.2	1.0	7.0	300	38	12.6	50
SAC8.0	8.89	10.9	1.0	8.0	100	36	13.4	50
SAC8.5	9.44	11.5	1.0	8.5	50	34	14.0	50
SAC10	11.10	13.6	1.0	10	5.0	29	16.3	50
SAC12	13.30	16.3	1.0	12	5.0	25	19.0	50
SAC15	16.70	20.4	1.0	15	5.0	20	23.6	50
SAC18	20.00	24.4	1.0	18	5.0	15	28.8	50
SAC22	24.40	29.8	1.0	22	5.0	14	35.4	50
SAC26	28.90	35.3	1.0	26	5.0	11.1	42.3	50
SAC30	33.30	40.7	1.0	30	5.0	10.0	48.6	50
SAC36	40.00	48.9	1.0	36	5.0	8.6	60.0	50
SAC45	50.00	61.1	1.0	45	5.0	6.8	77.0	50
SAC50	55.50	68.3	1.0	50	5.0	5.8	88.0	50

Note: There are A suffix for types SAC 5.0 thru type SAC 50. "A" : + / - 5% tolerance.

Notes:

1. Schematic



2. Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection

## Characteristics and Application

SAC is a Transient Voltage Suppressor Diode in series with a compensation diode for low capacitance.

Transient Voltage Suppressors may be used at various points in a circuit to provide various degrees of protection.

Transient Voltage Suppressor provides excellent clamping capability.

Since the low incremental surge resistance.

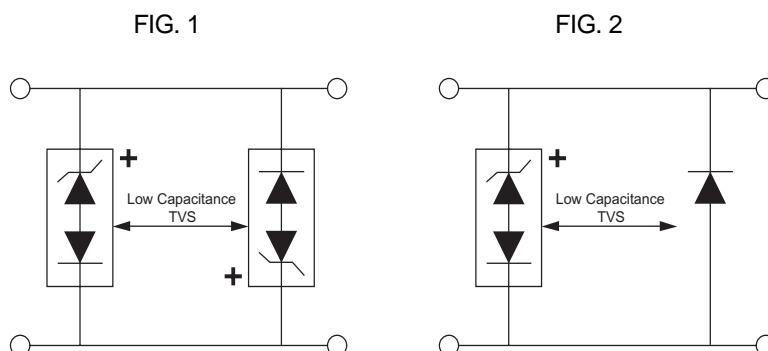
For telecommunication : multi-protocol serial transceivers. Please refer as below:

- ) Cellular
- ) Universal series bus (USB) port production.
- ) Instrumentation.
- ) LAN / WAN equipment.
- ) Peripherals.
- ) High speed data lines.

Two devices are used in parallel and opposite polarity for protecting one bi-directional lines (FIG. 1), or with a steering diode for protecting one unidirectional (FIG. 2).

The low capacitance TVS series are used on high speeded interfaces such as video line, I<sup>2</sup>C RS-485, RS-422 and USB, for ESD protection the lines which have signal, or data. Please refer as below:

- 1). Token Ring
- 2). I<sup>2</sup>C
- 3). Video line
- 4). Set top box I/O
- 5). LAN / WAN equipment.
- 6). Security system
- 7). Automatic teller machine
- 8). HFC system
- 9). Networks



Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection



## RATINGS AND CHARACTERISTIC CURVES (SAC SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

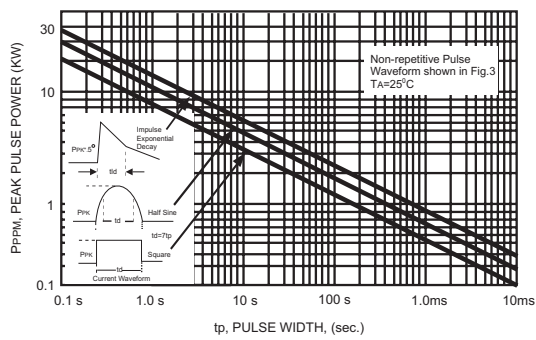


FIG.2- PULSE DERATING CURVE

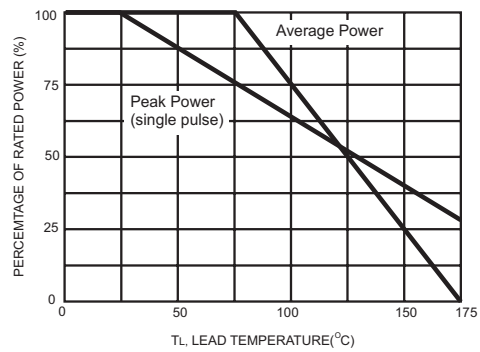


FIG.3- PULSE WAVEFORM

