

## Transient Voltage Suppressor

### P6SMB Series

#### Description

The P6SMB series is designed to protect voltage sensitive components from high voltage, high energy transients. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. The P6SMB series is supplied in YINT Semiconductor's exclusive, cost-effective, highly reliable and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer Applications.



Molded plastic  
glass passivated junction.

#### Features

- Case: DO-214AA/SMB
- For surface mounted applications in order to optimize board space.
- Polarity: Color band denoted positive end (cathode) except Bidirectional.
- Typical failure mode is short from over-specified voltage or current
- High Temperature soldering: 260°C/10 seconds at terminals.
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026.

#### Applications

TVS devices are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

#### Electrical Characteristics (@ TA = 25°C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T = 1 ms) (note1 note 2)	P <sub>PK</sub>	600	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I <sub>FSM</sub>	100	Amps
Steady State Power Dissipation @ TL = 75 °C	P <sub>M(AV)</sub>	5.0	Watts
Maximum Instantaneous Forward Voltage @ I <sub>PP</sub> = 50 A (For Unidirectional Units Only)(note4 note 5)	V <sub>F</sub>	3.5/5	Volts
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +175	°C

#### NOTES:

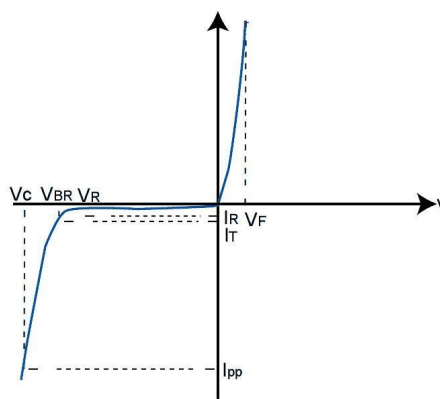
1. Non-repetitive current pulse, per Pulse Waveform graph and above TA = 25 ° C per Pulse Derating Curve.
2. Thermal Resistance Junction to Lead.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).
4. Single Phase, Half Wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20 %.
5. VF<3.5V for VBR< 200V and VF <5.0V for VBR> 201V.

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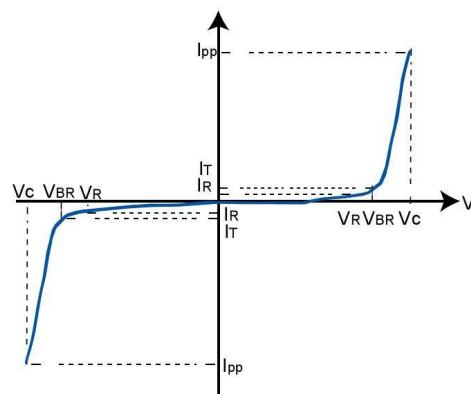
## Transient Voltage Suppressor

Electrical Characteristics (TA = 25 °C unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage VR (Volts)	Breakdown Voltage VBR (Volts)@IT		Test Current IT (mA)	Maximum Reverse Leakage IR@VR(μA)	Maximum Peak Pulse Current Ipp(A)	Maximum Clamping Voltage VC@ Ipp(V)
		BI	UNI		Min .V	Max .V				
P6SMB300CA	P6SMB300A	300C	300A	256.00	285.00	315.00	1	1	1.45	414.0
P6SMB350CA	P6SMB350A	350C	350A	300.00	332.00	368.00	1	1	1.24	482.0
P6SMB400CA	P6SMB400A	400C	400A	342.00	380.00	420.00	1	1	1.10	548.0
P6SMB440CA	P6SMB440A	440C	440A	376.00	418.00	462.00	1	1	1.00	602.0
P6SMB480CA	P6SMB480A	480C	480A	408.00	456.00	504.00	1	1	0.91	658.0
P6SMB510CA	P6SMB510A	510C	510A	434.00	485.00	535.00	1	1	0.86	698.0
P6SMB540CA	P6SMB540A	540C	540A	460.00	513.00	567.00	1	1	0.81	740.0
P6SMB600CA	P6SMB600A	600C	600A	512.00	570.00	630.00	1	1	0.72	828.0



Uni-directional



Bi-directional

Symbol	Parameter
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>RWM</sub>	Working Peak Reverse Voltage
I <sub>R</sub>	Maximum Reverse Leakage Current @V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current

## P6SMB Series

### Rating & Characteristic Curves

### Transient Voltage Suppressor

Figure 1- Pulse Derating Curve

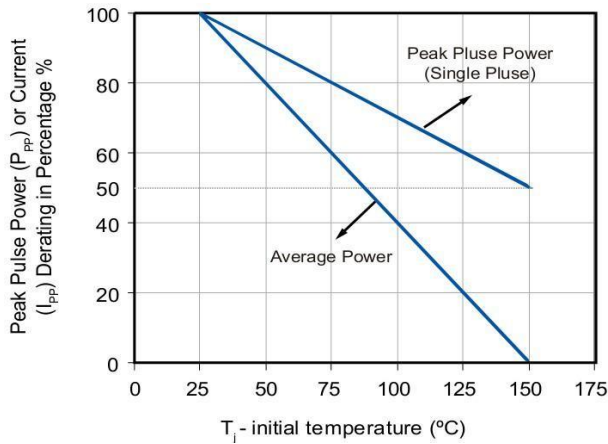


Figure 2- Maximum Non-Repetitive Surge Current

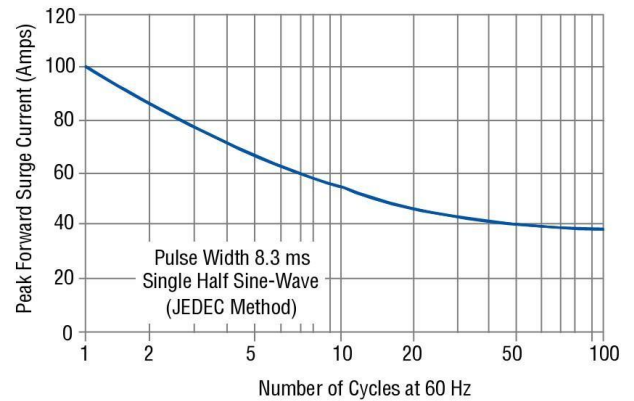


Figure 3- Typical Junction Capacitance

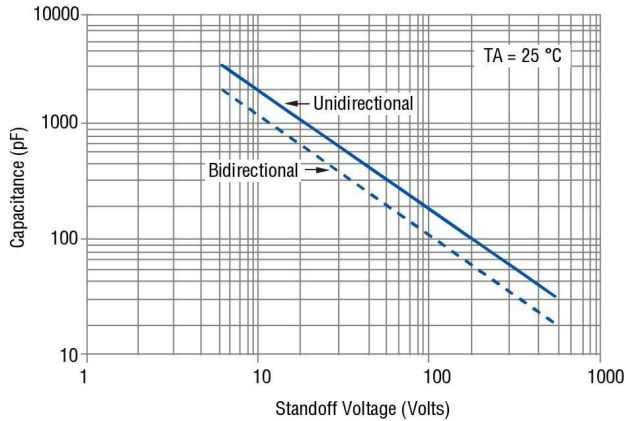


Figure 4- Pulse Waveform

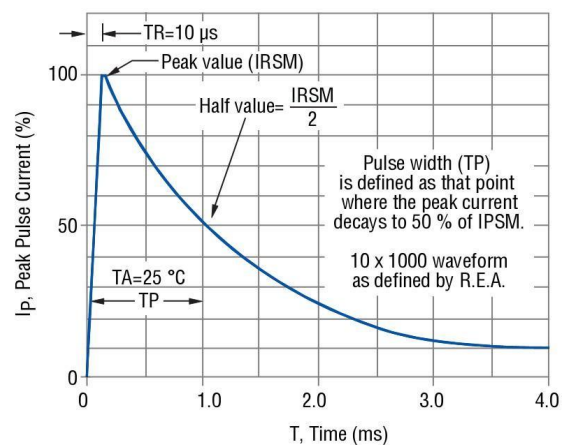


Figure 5- Steady State Power Derating Curve

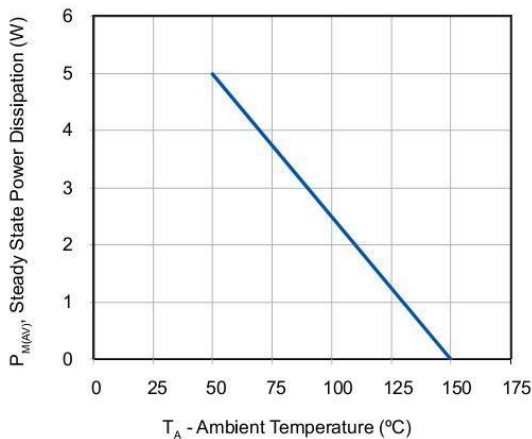
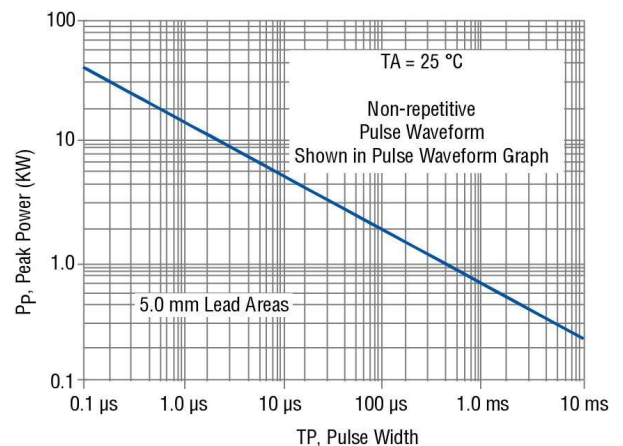


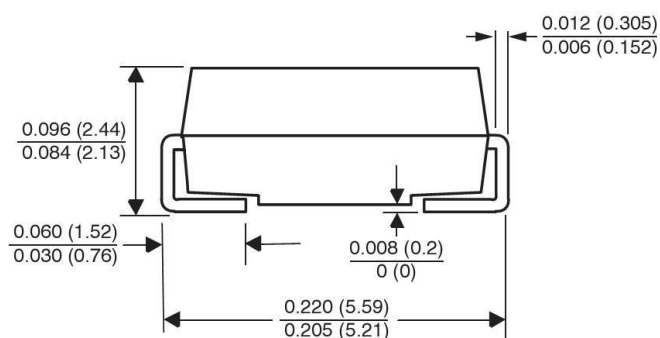
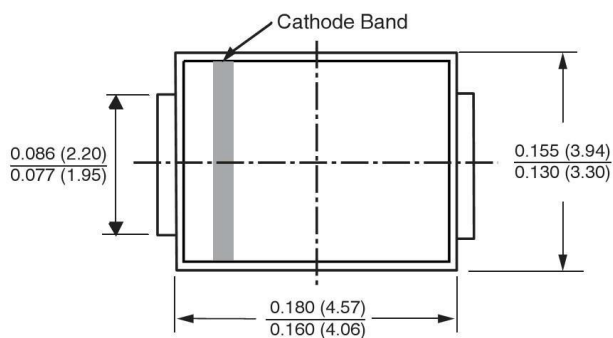
Figure 6- Pulse Rating Curve



## P6SMB Series

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout

