

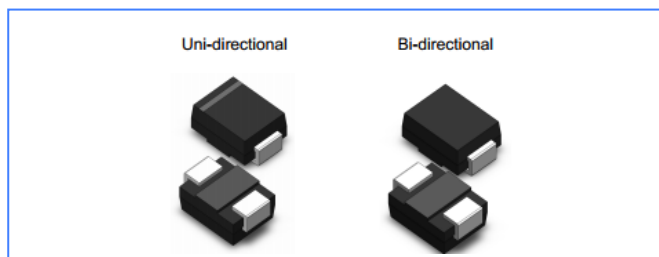
## TP6SMB600CA

### Description

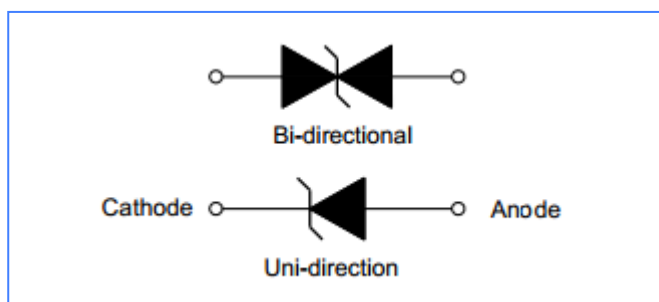
TP6SMB600CA is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Case: DO-214AA (SMBJ)
- 600 W peak pulse power capability with a10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types



### Functional Diagram



### Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication

### Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T = 1 ms)	P <sub>PK</sub>	600	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I <sub>FSM</sub>	100	Amps
Steady State Power Dissipation @ TL = 75 °C	P <sub>D</sub>	5	Watts
Maximum Instantaneous Forward Voltage @ I <sub>PP</sub> = 35 A (For Unidirectional Units Only)	V <sub>F</sub>	5.0	Volts
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

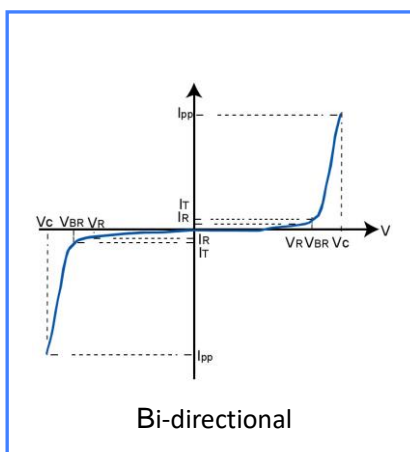
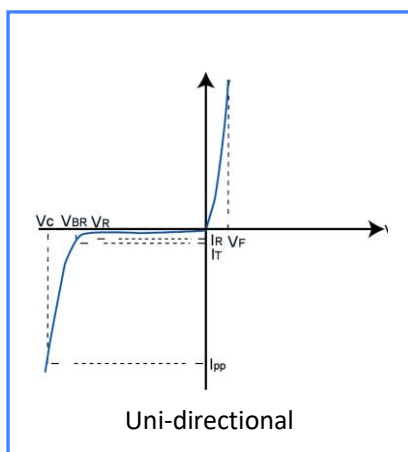
Note:

1. Non-repetitive current pulse per Fig.5 and derated above TA= 25 °C per Fig.1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

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

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage $V_R$ (Volts)	Breakdown Voltage $V_{BR}$ (Volts) @ $I_T$		Test Current $I_T$ (mA)	Maximum Reverse Leakage $I_R$ @ $V_R$ ( $\mu$ A)	Maximum Peak Pulse Current $I_{pp}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{pp}$ (V)
		BI	UNI		Min .V	Max .V				
TP6SMB600CA	TP6SMB600A	600C	600A	512	570	630	1	1	1.5	828

## I-V Curve Characteristics



Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$ (Test Current)

## Rating & Characteristic Curves

Figure 1- Pulse Derating Curve

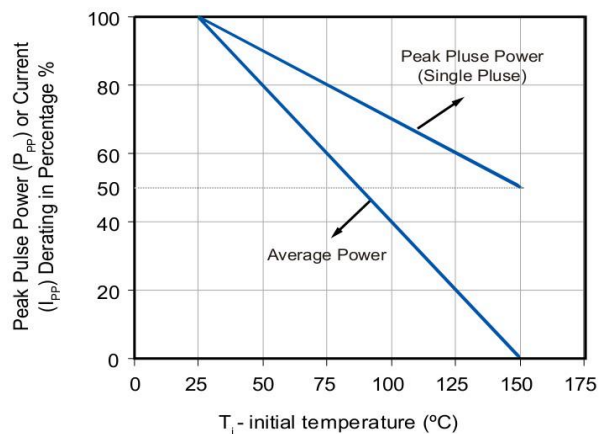


Figure 2- Maximum Non-Repetitive Surge Current

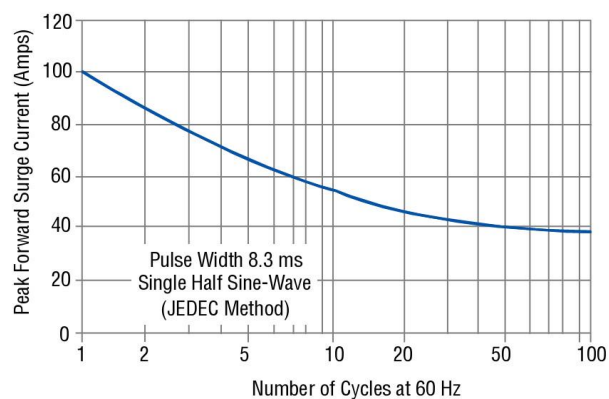


Figure 3- Steady State Power Derating Curve

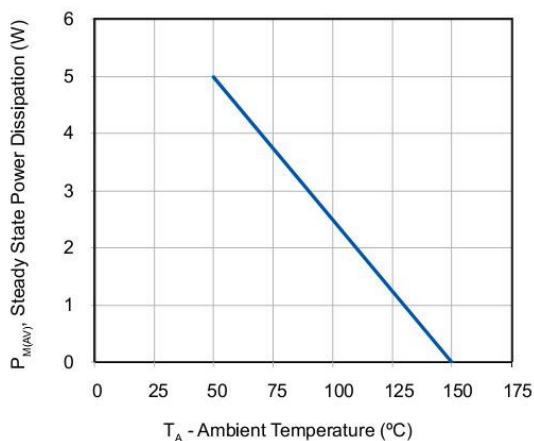
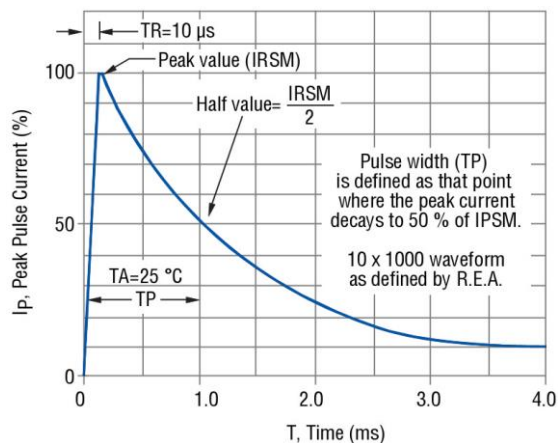
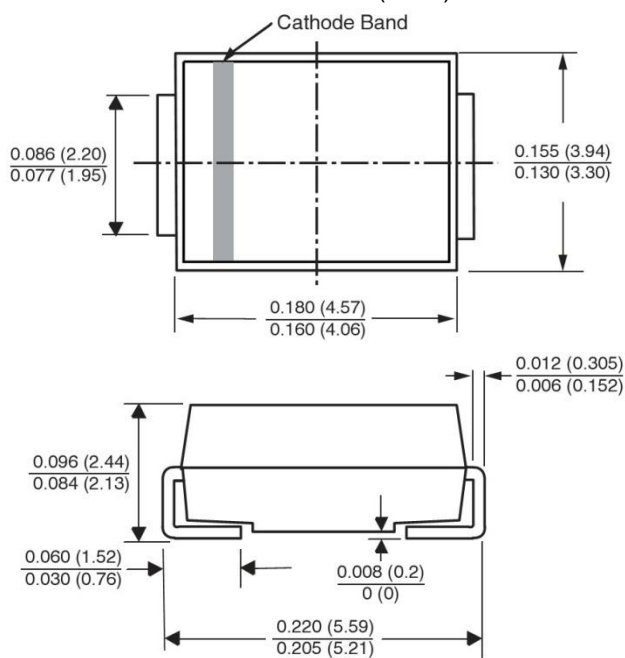


Figure 4- Pulse Waveform

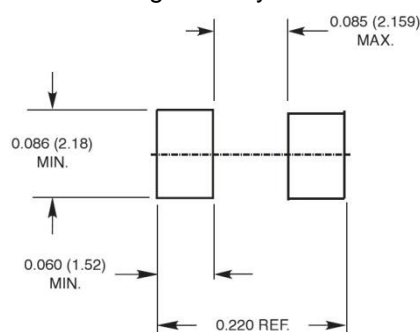


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout



## Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.