

## FEATURES

- | Suitable for standard ISO7637-2 or ISO16750-2
- | Low leakage current
- | Typical failure mode is short from over-specified voltage or current
- | Glass passivated chip junction in P600 Package
- | Fast response time: typically less than 1.0ps from 0 Volts to  $V_{BR}$  min
- | Matte tin lead-free Plated
- | Excellent clamping capability
- | Inductive load switching
- | Alternator load dump
- | GPS navigation system
- | Automotive instruments



R-6/P-600



Schematic Symbol

## APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS AND CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000 $\mu\text{s}$ waveform	$P_{PPM}$	12000	W
Peak pulse current of at 10/1000 $\mu\text{s}$ waveform	$I_{PPM}$	See Table	A
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	8.0	W

## THERMAL CONSIDERATIONS

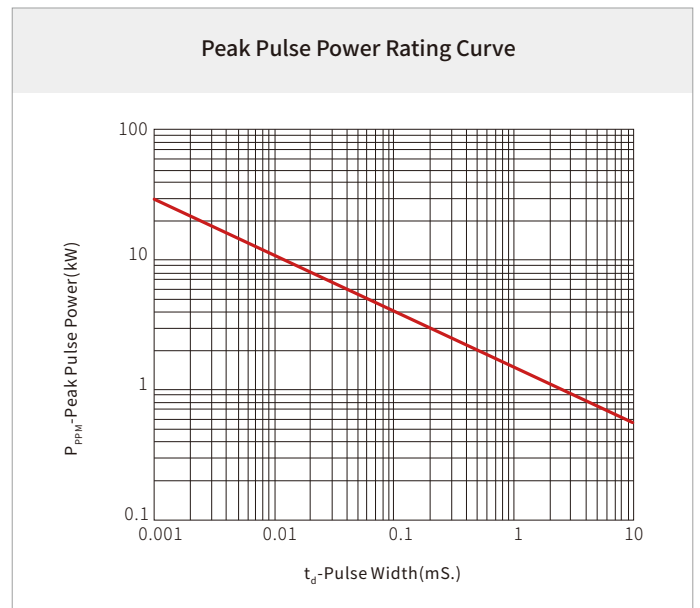
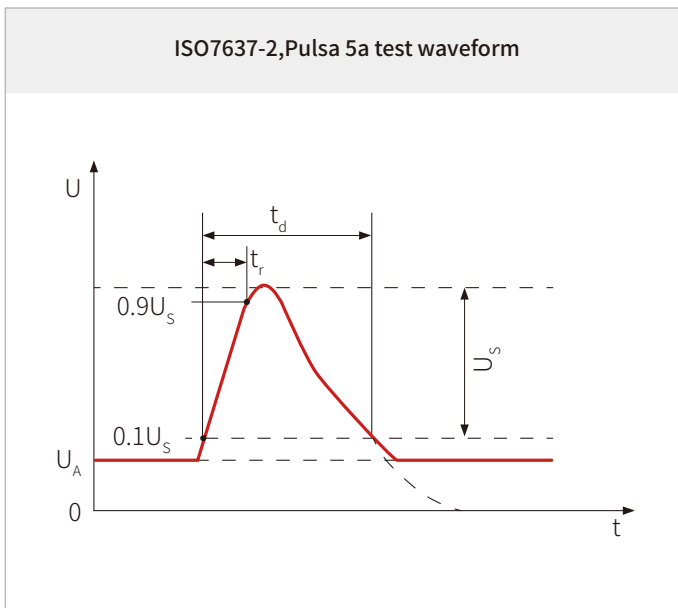
Parameter	Symbol	Value	Unit
Operating Junction Temperature	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	55 to +150	$^{\circ}\text{C}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	$^{\circ}\text{C/W}$

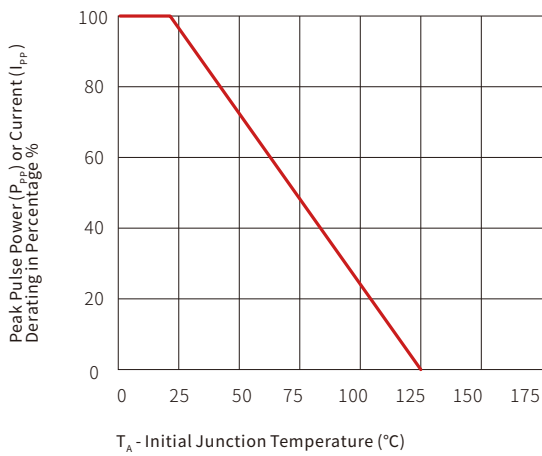
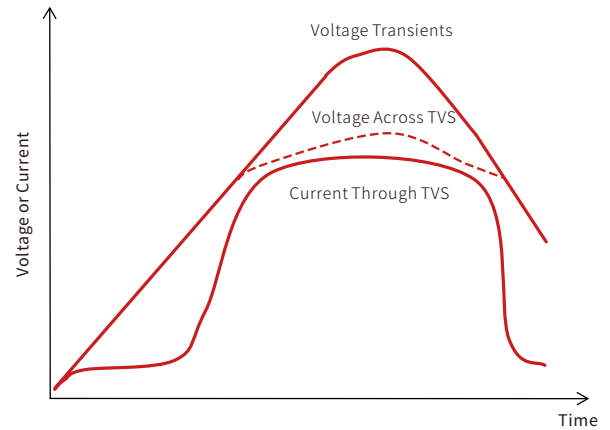
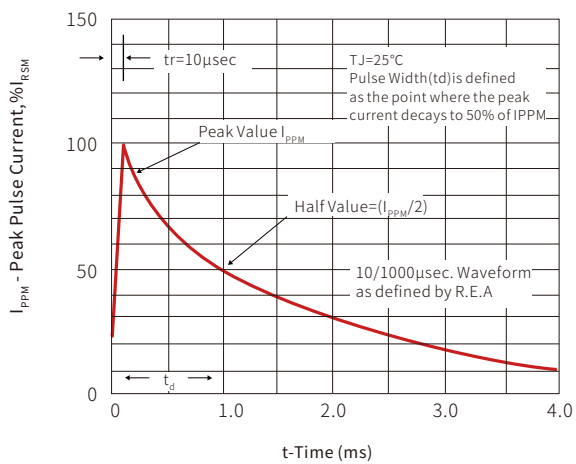
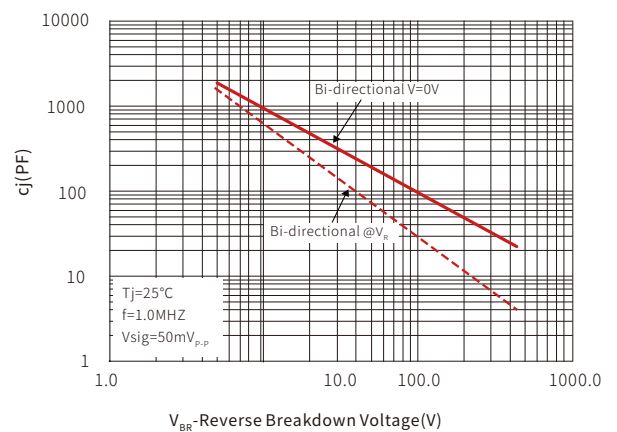
## ELECTRICAL CHARACTERISTICS

Part Number	Device Marking Code	Reverse Stand-off Voltage	Breakdown Voltage Min.@I <sub>T</sub>	Breakdown Voltage Max.@I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Maximum Peak Pulse Current	Maximum Reverse Leakage @V <sub>RWM</sub>
		V <sub>RWM</sub> (V)	V <sub>BR</sub> (V)	V <sub>BR</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
SBT33CA	SBT33CA	33.0	36.7	40.6	5.0	53.3	225.1	2.0

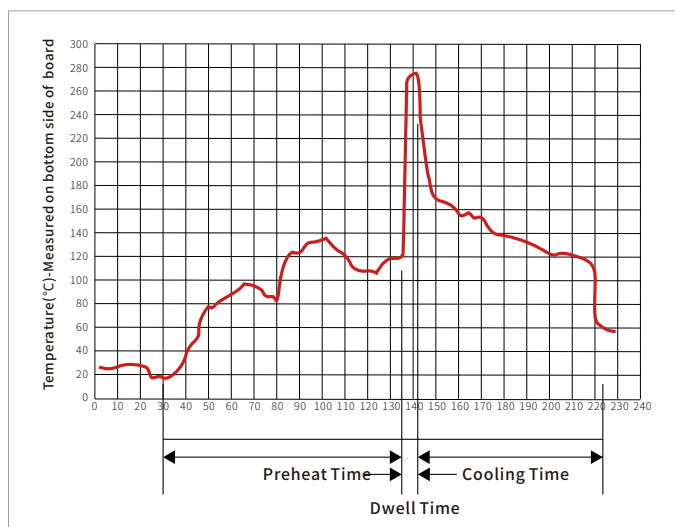
Part Number	Suitable ISO 7367-2 2004 5a test waveform							
	Clamping Voltage	Test Voltage Level		Resistance Level				
	Typ.(V)			0.5Ω	1Ω	2Ω	4Ω	8Ω
SBT33CA	47.0	174V	350ms	-	-	√	√	√

## CHARACTERISTIC CURVES



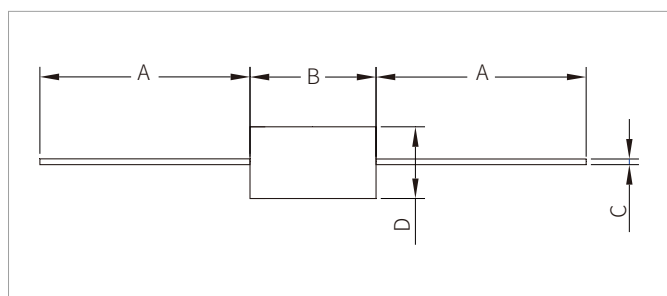
**Pulse Derating Curve**

**TVS Transients Clamping Waveform**

**Pulse Waveform**

**Typical Junction Capacitance**


## WAVE SOLDERING



Wave Parameter		Lead-free assembly
Pre Heat	Temperature Min	100°C
	Temperature Max	150°C
	Time(min to max)	60 – 180 secs
Solder pot Temperature		280°C Max
Solder Dwell Time		2-5 seconds

## P600 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.60	9.40	0.339	0.370
C	1.20	1.40	0.047	0.055
D	8.60	9.10	0.339	0.358

## ORDERING INFORMATION

Part Number	Component Package	Quantity	Packaging Option
SBT33CA	R6/P600	800pcs	Box

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**By QR Code**

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To find your local partner within Semiware's global website: [www.semiware.com](http://www.semiware.com)

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