

200W Surface Mount Transient Voltage Suppressors

■ Features

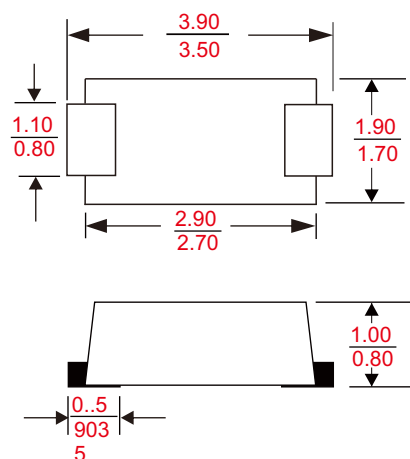
- 200W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%.
- Excellent clamping capability.
- Typical failure mode is a short circuit condition for current , events exceeding component rating.
- Uni and bidirectional unit.
- Plastic package is flammability rated V-0 per UL-94.
- Suffix "G" indicates Halogen-free part, ex.SMF3.3AG.
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C

■ Applications

• TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

■ Outline

SOD-123F



Dimensions in millimeters

■ Function Diagram



Uni-directional



Bi-directional

■ Maximum ratings and electrical characteristics

($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Value	UNIT
Peak pulse power dissipation	with a 10/1000 us waveform	P_{PPM}	200	W
Power Dissipation on Infinite Heat Sink	at $T_L=50^{\circ}\text{C}$	P_D	1	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I_{FSM}	30	A
Maximum instantaneous forward voltage	at 25A for unidirectional only	V_F	3.5	V
Operating Junction temperature		T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note 1. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

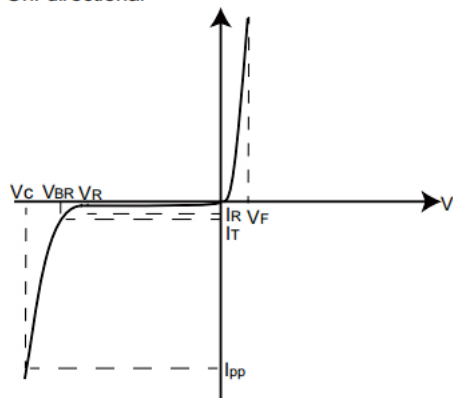
■Electrical characteristics

table 1

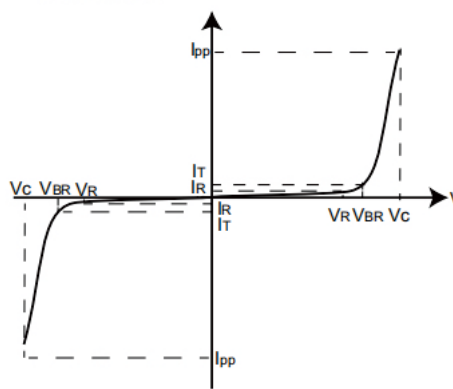
Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @ I_{PP}		Maximum Leakage Current	Marking Code
	V_{RWM}	$V_{BR Min}$	$V_{BR Max}$	I_T	I_{FSM}	V_C	I_{PP}	$I_R @ V_{RWM}$	
	Volts	Volts	Volts	mA	A	Volts	A	uA	
SMF3.3A	3.3	5.20	6.00	10	30	7.3	27.4	150	SMF3.3A
SMF3.3CA	3.3	5.20	6.50	10	30	7.3	27.4	150	SMF3.3CA

■I-V Curve Characteristics

Uni-directional



Bi-directional



P_{PPM} Peak Pulse Power Dissipation -- Max power dissipation

V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)

V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

■ Ratings and Characteristic Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

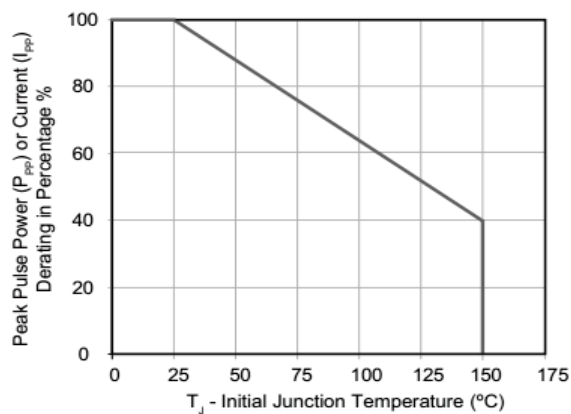


Figure 1. Peak pulse power derating curve

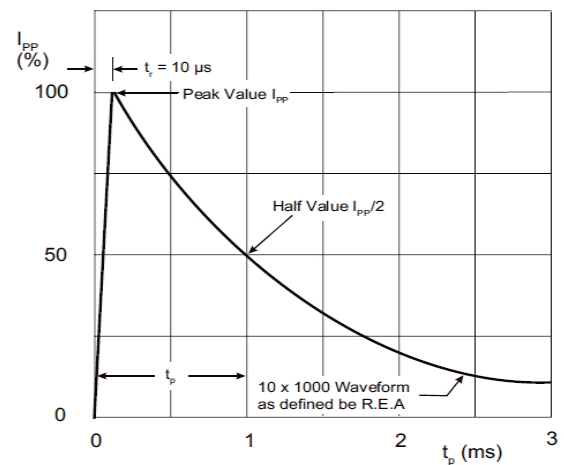


Figure2. Pulse waveform

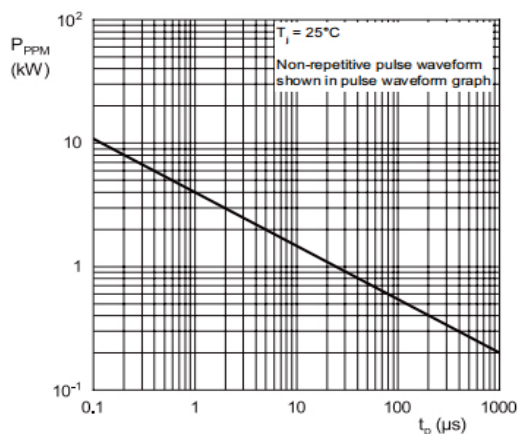


Figure3. Peak pulse power rating curve

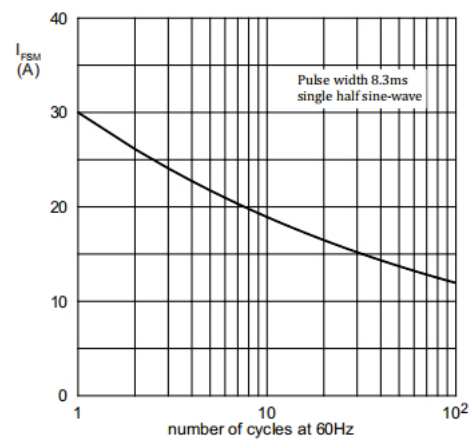


Figure4. Maximum non-repetitive surge current

■ Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_A) to peak)		3°C/second max
$T_{s(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_r)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C

■ Soldering profile

