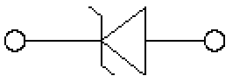
Surface Mount Transient Voltage Suppressor

Uni-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional
- 200 W peak pulse power capability with a 10/1000 μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time: typically less than 1.0ns from 0 Volts to V_{BR} min
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

Typical 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, telecommunication.

Mechanical Date

- **Package**: SOD-123FL
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** For uni-directional types the band denotes cathode end

■Maximum Ratings (T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Conditions	Max
Peak power dissipation(1) (2) (Fig.1)	P_{PPM}	W	with a 10/1000us waveform	200
Peak pulse current(1)	I_{PPM}	A	with a 10/1000us waveform	(See Next Table)
Power dissipation, on infinite heat sink	P_D	W	TL=75℃	0.4
Operating junction and storage temperature range	T_J,T_{STG}	℃		-55 to +150
Electrostatic Discharge	ESD	KV	IEC61000-4-2 air discharge	±30
Electrostatic Discharge			IEC61000-4-2 contact discharge	
Thermal resistance (4)	$R_{\theta JL}$	℃/W	Between junction and lead	40
	$R_{\theta JA}$		Between junction and Ambient	180

Notes:

(1). Non repetitive current pulse，per Fig2 and derated above TA=25℃ per Fig3.

(2). T_L=30℃ unless otherwise noted

(3). Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
(4).Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

■Ordering Information (Example)

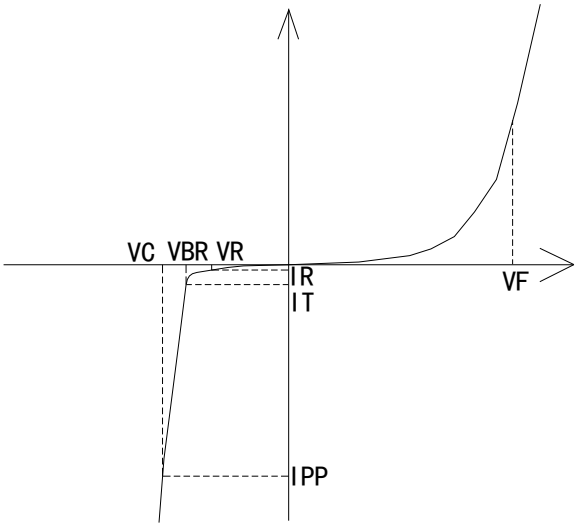
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMFA3.3A	F1	0.0167	3000	30000	120000	7” reel

■ Electrical Characteristics (TA=25℃ unless otherwise noted)

Part Number	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
（Uni）	Min(V)	Max (V)	I_T(1)(mA)				
SMFA3.3A	3.4	4.3	10	0.5	3.3	30	6.8

Notes:
(1) t_p≤50ms Pulse test: t_p≤50ms.
(2) Surge current waveform per Fig. 2 and derated per Fig.3.

■ I-V Curve Characteristics



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} Break down Voltage -- Maximum voltage that flows though the TVS at a specified test current (IT)
V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified Ippm (peak impulse current)
I_R Reverse Leakage Current -- Current measured at VR
V_F Forward Voltage Drop for Uni-directional
Note: VF distribution range from 7V to 16V at IF 1mA.

■ Characteristics(Typical)

FIG1:Peak Pulse Power Rating Curve

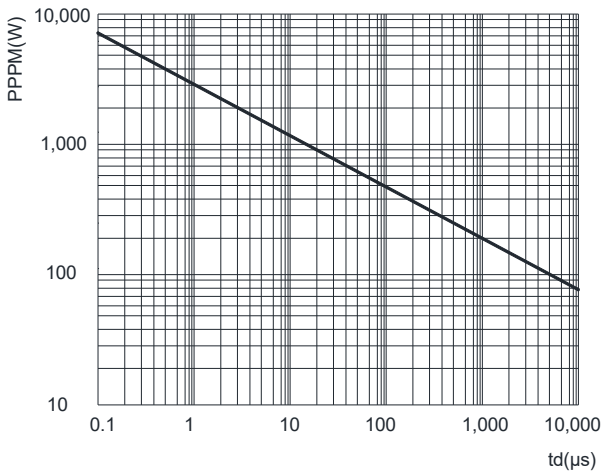


FIG2: Pulse Waveform

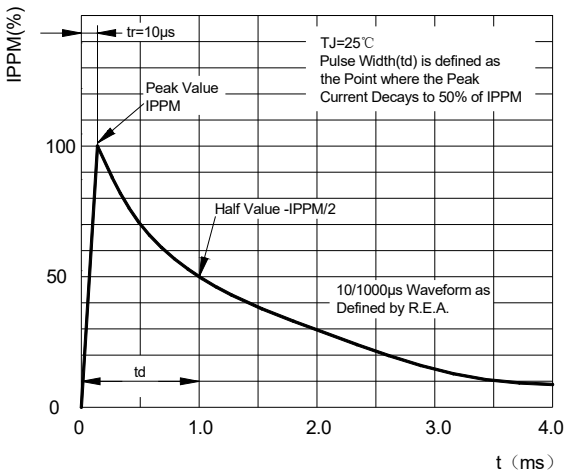
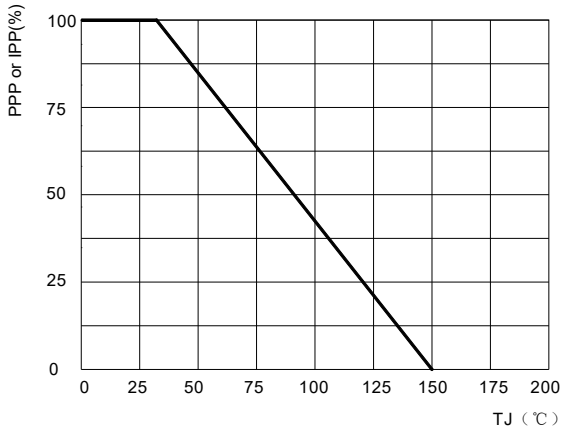
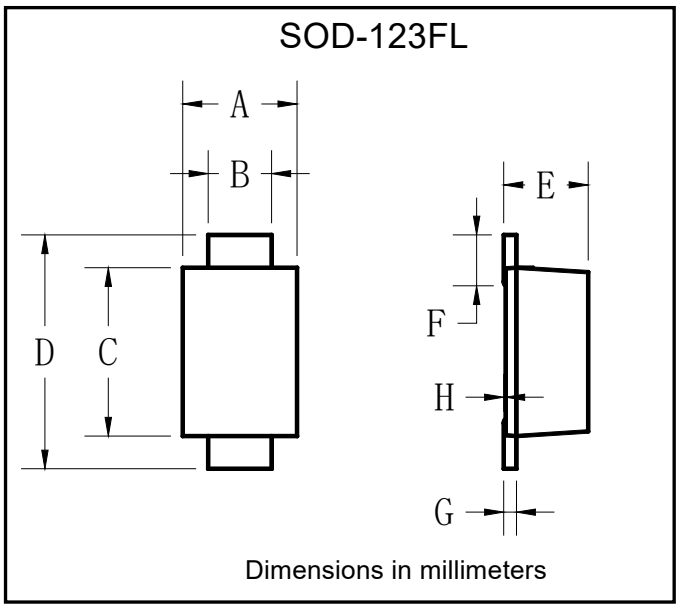


FIG3: Pulse Power or Current vs. Initial Junction Temperature

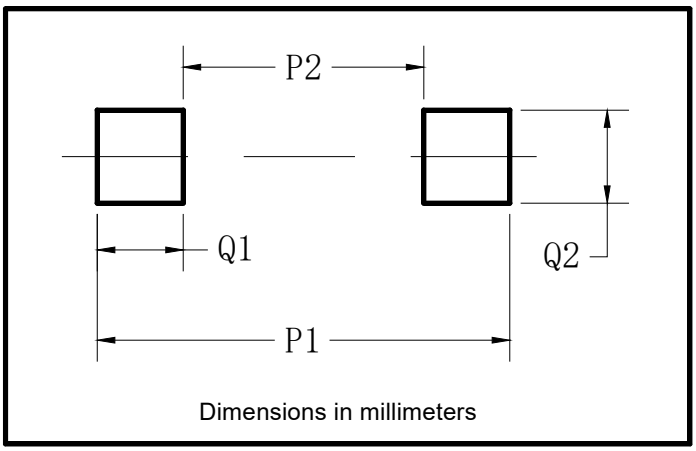


■ Outline Dimensions



SOD-123FL		
Dim	Min	Max
A	1.60	1.90
B	0.90	1.10
C	2.55	2.85
D	3.60	3.90
E	1.00	1.20
F	0.40	0.90
G	0.10	0.25
H	0.02	0.05

■ Suggested pad layout



SOD-123FL	
Dim	Millimeters
P1	3.90
P2	1.90
Q1	1.00
Q2	1.50

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