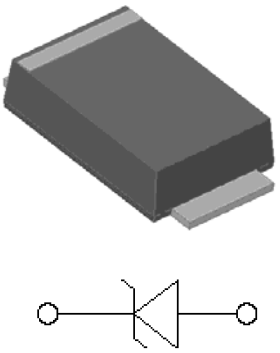
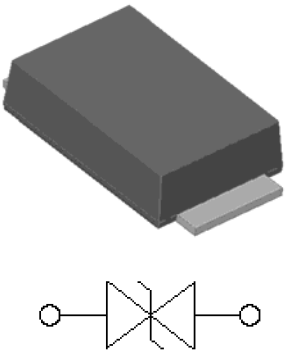
Surface Mount Transient Voltage Suppressor Diodes

Uni-directional



Bi-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 600 W peak pulse power capability with a 10/1000 μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- 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 Data

- **Package**: SMAF
  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, no marking on bi-directional types

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

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2) (Fig.1)	P_{PPM}	W	600
Peak pulse current, with a 10/1000us waveform(1)	I_{PPM}	A	See Next Table
Power dissipation, on infinite heat sink at TL=75℃	P_D	W	3.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (2)	I_{FSM}	A	60
Operating junction and storage temperature range	T_J,T_{STG}	℃	-55 to +150
Electrostatic Discharge（IEC61000-4-2 air discharge）	ESD	KV	±30
Electrostatic Discharge（IEC61000-4-2 contact discharge）			

■Electrical Characteristics（Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 25A for unidirectional only	V_F	V	3.5

■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	$R_{\theta JL}$	℃/W	junction to lead	25
	$R_{\theta JA}$	℃/W	junction to ambient	120

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃per Fig.2.

(2) 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

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Part Number		Marking		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}(4) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
（Uni）	（Bi）	（Uni）	（Bi）	Min(V)	Max (V)	I_T(3)(mA)				
SMA6F5.0A	/	6F5.0A	/	6.40	7.07	10	800	5.0	65.22	9.2
SMA6F6.0A	/	6F6.0A	/	6.67	7.37	10	800	6.0	58.25	10.3
SMA6F6.5A	/	6F6.5A	/	7.22	7.98	10	500	6.5	53.57	11.2
SMA6F7.0A	/	6F7.0A	/	7.78	8.60	10	200	7.0	50.00	12.0
SMA6F7.5A	/	6F7.5A	/	8.33	9.21	1	100	7.5	46.51	12.9
SMA6F8.0A	/	6F8.0A	/	8.89	9.83	1	50	8.0	44.12	13.6
SMA6F8.5A	/	6F8.5A	/	9.44	10.40	1	10	8.5	41.67	14.4
SMA6F9.0A	/	6F9.0A	/	10.00	11.10	1	5	9.0	38.96	15.4
SMA6F10A	/	6F10A	/	11.10	12.30	1	5	10.0	35.29	17.0
SMA6F11A	SMA6F11CA	6F11A	6F11CA	12.20	13.50	1	5	11.0	32.97	18.2
SMA6F12A	SMA6F12CA	6F12A	6F12CA	13.30	14.70	1	5	12.0	30.15	19.9
SMA6F13A	SMA6F13CA	6F13A	6F13CA	14.40	15.90	1	1	13.0	27.91	21.5
SMA6F14A	SMA6F14CA	6F14A	6F14CA	15.60	17.20	1	1	14.0	25.86	23.2
SMA6F15A	SMA6F15CA	6F15A	6F15CA	16.70	18.50	1	1	15.0	24.59	24.4
SMA6F16A	SMA6F16CA	6F16A	6F16CA	17.80	19.70	1	1	16.0	23.08	26.0
SMA6F17A	SMA6F17CA	6F17A	6F17CA	18.90	20.90	1	1	17.0	21.74	27.6
SMA6F18A	SMA6F18CA	6F18A	6F18CA	20.00	22.10	1	1	18.0	20.55	29.2
SMA6F19A	SMA6F19CA	6F19A	6F19CA	21.10	23.30	1	1	19.0	19.49	30.8
SMA6F20A	SMA6F20CA	6F20A	6F20CA	22.20	24.50	1	1	20.0	18.52	32.4
SMA6F22A	SMA6F22CA	6F22A	6F22CA	24.40	26.90	1	1	22.0	16.90	35.5
SMA6F24A	SMA6F24CA	6F24A	6F24CA	26.70	29.50	1	1	24.0	15.42	38.9

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Part Number		Marking		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}(4) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
（Uni）	（Bi）	（Uni）	（Bi）	Min(V)	Max (V)	I_T(3)(mA)				
SMA6F26A	SMA6F26CA	6F26A	6F26CA	28.90	31.90	1	1	26.0	14.25	42.1
SMA6F28A	SMA6F28CA	6F28A	6F28CA	31.10	34.40	1	1	28.0	13.22	45.4
SMA6F30A	SMA6F30CA	6F30A	6F30CA	33.30	36.80	1	1	30.0	12.40	48.4
SMA6F33A	SMA6F33CA	6F33A	6F33CA	36.70	40.60	1	1	33.0	11.26	53.3
SMA6F36A	SMA6F36CA	6F36A	6F36CA	40.00	44.20	1	1	36.0	10.33	58.1
SMA6F40A	SMA6F40CA	6F40A	6F40CA	44.40	49.10	1	1	40.0	9.30	64.5
SMA6F43A	SMA6F43CA	6F43A	6F43CA	47.80	52.80	1	1	43.0	8.65	69.4
SMA6F45A	SMA6F45CA	6F45A	6F45CA	50.00	55.30	1	1	45.0	8.25	72.7
SMA6F48A	SMA6F48CA	6F48A	6F48CA	53.30	58.90	1	1	48.0	7.75	77.4
SMA6F51A	SMA6F51CA	6F51A	6F51CA	56.70	62.70	1	1	51.0	7.28	82.4
SMA6F54A	SMA6F54CA	6F54A	6F54CA	60.00	66.30	1	1	54.0	6.89	87.1
SMA6F58A	SMA6F58CA	6F58A	6F58CA	64.40	71.20	1	1	58.0	6.41	93.6
SMA6F60A	SMA6F60CA	6F60A	6F60CA	66.70	73.70	1	1	60.0	6.20	96.8
SMA6F64A	SMA6F64CA	6F64A	6F64CA	71.10	78.60	1	1	64.0	5.83	103.0
SMA6F70A	SMA6F70CA	6F70A	6F70CA	77.80	86.00	1	1	70.0	5.31	113.0
SMA6F75A	SMA6F75CA	6F75A	6F75CA	83.30	92.10	1	1	75.0	4.96	121.0
SMA6F78A	SMA6F78CA	6F78A	6F78CA	86.70	95.80	1	1	78.0	4.76	126.0
SMA6F80A	SMA6F80CA	6F80A	6F80CA	88.80	97.60	1	1	80.0	4.63	129.6
SMA6F85A	SMA6F85CA	6F85A	6F85CA	94.40	104.00	1	1	85.0	4.38	137.0
SMA6F90A	/	6F90A	/	100.00	111.00	1	1	90.0	4.11	146.0
SMA6F100A	/	6F100A	/	111.00	123.00	1	1	100.0	3.70	162.0
SMA6F110A	/	6F110A	/	122.00	135.00	1	1	110.0	3.39	177.0
SMA6F120A	/	6F120A	/	133.00	147.00	1	1	120.0	3.11	193.0
SMA6F130A	/	6F130A	/	144.00	159.00	1	1	130.0	2.87	209.0

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

■ Characteristics (Typical)

FIG1:Peak Pulse Power Rating Curve

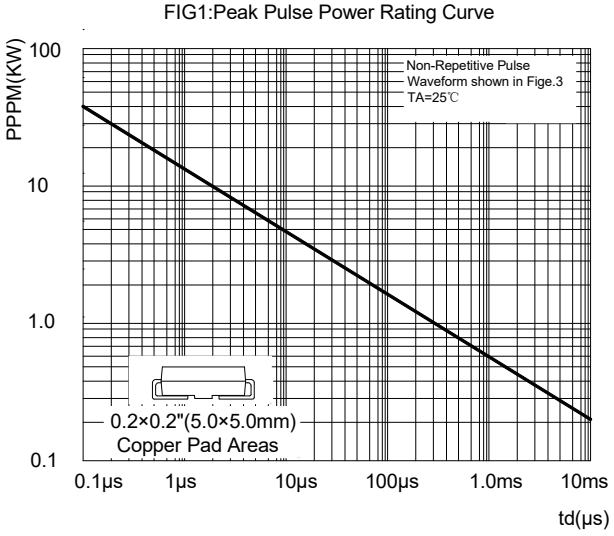


FIG2: Pulse Power or Current vs. Initial Junction Temperature

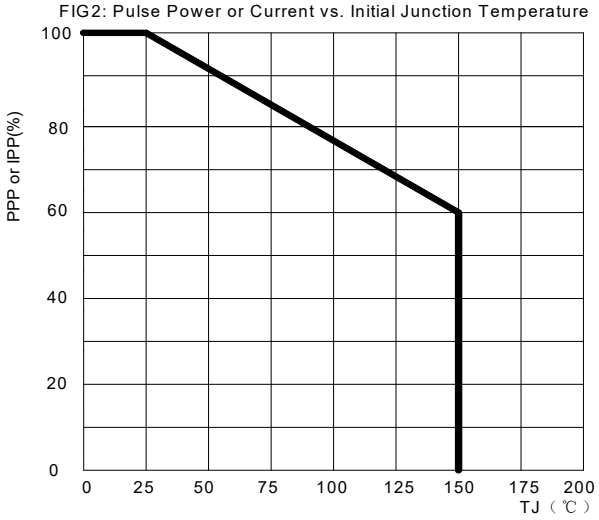


FIG3: Pulse Waveform

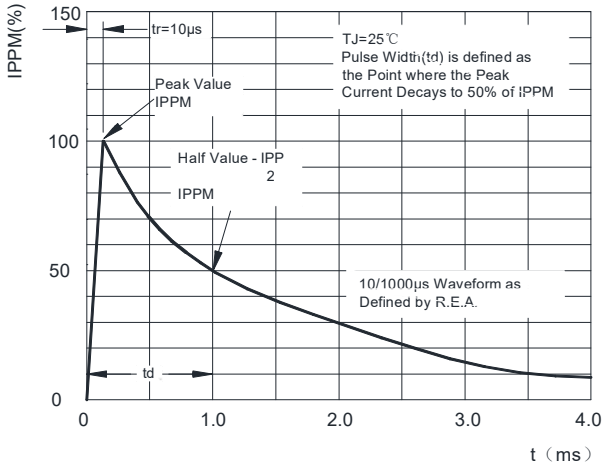


FIG4:Typical Transient Thermal Impedance

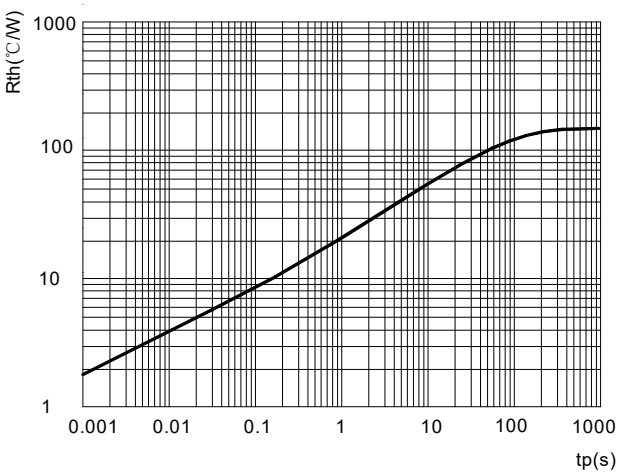


FIG5: Maximum Non-Repetitive Surge Current

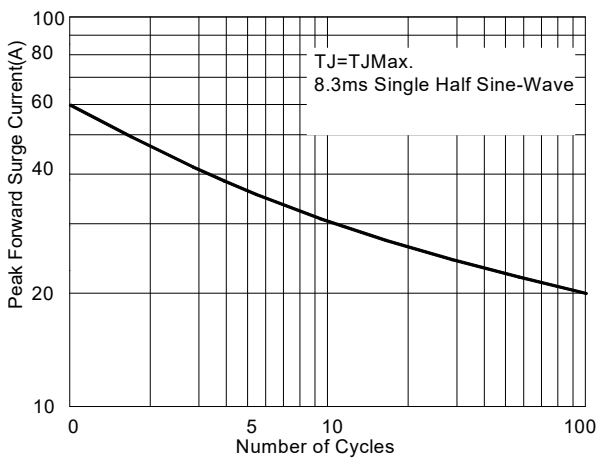
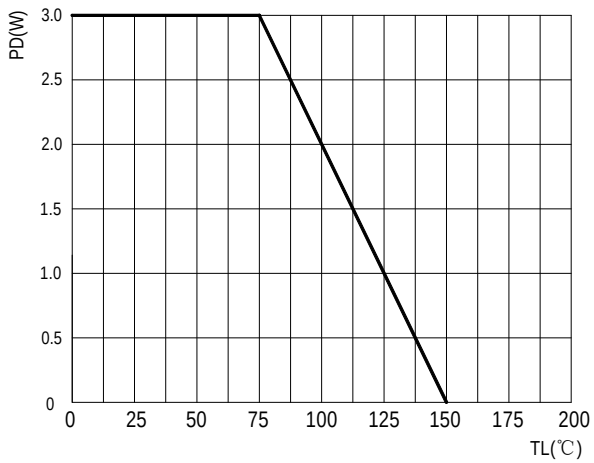


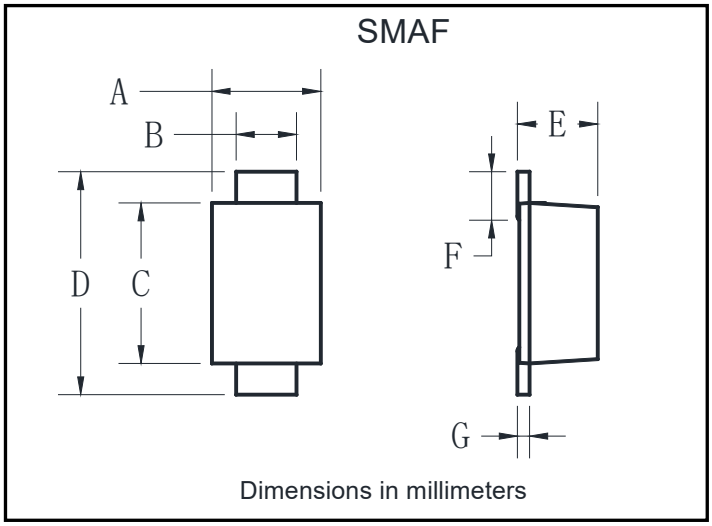
FIG6:Steady State Power Dissipation



■Ordering Information (Example)

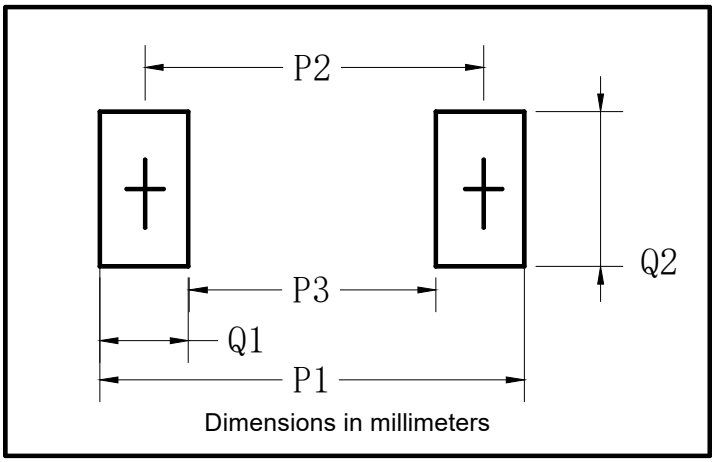
PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMA6F SERIES	F1	Approximate 0.034	3000	24000	96000	7” reel

■ Outline Dimensions



SMAF		
Dim	Min	Max
A	2.40	2.80
B	1.35	1.45
C	3.40	3.60
D	4.40	4.80
E	1.05	1.25
F	0.50	1.00
G	0.15	0.22

■Suggested Pad Layout



SMAF	
Dim	**Millimeters**
P1	6.50
P2	4.00
P3	1.50
Q1	2.50
Q2	1.70

Notice

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