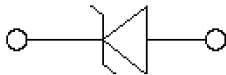
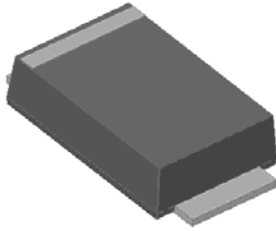
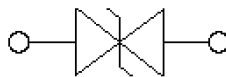
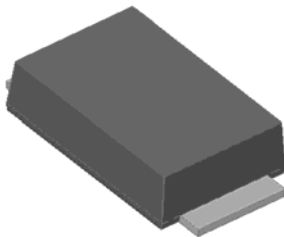


## Surface Mount Transient Voltage Suppressor Diodes

### 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  $\mu$ s 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 2002/95/EC and WEEE 2002/96/EC

### 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 ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1) (2)</sup> (Fig.1)	$P_{PPM}$	W	600
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	$I_{PPM}$	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$	$P_D$	W	3.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	A	60
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$	-55 to +150

### ■ Electrical Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

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



# SMA6F SERIES

## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R <sub>θJL</sub>	°C/W	junction to lead	30
	R <sub>θJA</sub>	°C/W	junction to ambient	150

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub> = 25°C per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Part Number		Marking		Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>(4)</sup> (A)	Maximum Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> (V)
(Uni)	(Bi)	(Uni)	(Bi)	Min(V)	Max (V)	I <sub>T</sub> <sup>(3)</sup> (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	5	13.0	27.91	21.5
SMA6F14A	SMA6F14CA	6F14A	6F14CA	15.60	17.20	1	5	14.0	25.86	23.2
SMA6F15A	SMA6F15CA	6F15A	6F15CA	16.70	18.50	1	5	15.0	24.59	24.4
SMA6F16A	SMA6F16CA	6F16A	6F16CA	17.80	19.70	1	5	16.0	23.08	26.0
SMA6F17A	SMA6F17CA	6F17A	6F17CA	18.90	20.90	1	5	17.0	21.74	27.6
SMA6F18A	SMA6F18CA	6F18A	6F18CA	20.00	22.10	1	5	18.0	20.55	29.2
SMA6F19A	SMA6F19CA	6F19A	6F19CA	21.10	23.30	1	5	19.0	19.49	30.8
SMA6F20A	SMA6F20CA	6F20A	6F20CA	22.20	24.50	1	5	20.0	18.52	32.4
SMA6F22A	SMA6F22CA	6F22A	6F22CA	24.40	26.90	1	5	22.0	16.90	35.5
SMA6F24A	SMA6F24CA	6F24A	6F24CA	26.70	29.50	1	5	24.0	15.42	38.9
SMA6F26A	SMA6F26CA	6F26A	6F26CA	28.90	31.90	1	5	26.0	14.25	42.1



## SMA6F SERIES

SMA6F28A	SMA6F28CA	6F28A	6F28CA	31.10	34.40	1	5	28.0	13.22	45.4
SMA6F30A	SMA6F30CA	6F30A	6F30CA	33.30	36.80	1	5	30.0	12.40	48.4
SMA6F33A	SMA6F33CA	6F33A	6F33CA	36.70	40.60	1	5	33.0	11.26	53.3
SMA6F36A	SMA6F36CA	6F36A	6F36CA	40.00	44.20	1	5	36.0	10.33	58.1
SMA6F40A	SMA6F40CA	6F40A	6F40CA	44.40	49.10	1	5	40.0	9.30	64.5
SMA6F43A	SMA6F43CA	6F43A	6F43CA	47.80	52.80	1	5	43.0	8.65	69.4
SMA6F45A	SMA6F45CA	6F45A	6F45CA	50.00	55.30	1	5	45.0	8.25	72.7
SMA6F48A	SMA6F48CA	6F48A	6F48CA	53.30	58.90	1	5	48.0	7.75	77.4
SMA6F51A	SMA6F51CA	6F51A	6F51CA	56.70	62.70	1	5	51.0	7.28	82.4
SMA6F54A	SMA6F54CA	6F54A	6F54CA	60.00	66.30	1	5	54.0	6.89	87.1
SMA6F58A	SMA6F58CA	6F58A	6F58CA	64.40	71.20	1	5	58.0	6.41	93.6

Part Number		Marking		Breakdown Voltage $V_{BR@I_T}$			Maximum Reverse Leakage $I_{R@}$ $V_{RWM}$ ( $\mu A$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}^{(4)}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
(Uni)	(Bi)	(Uni)	(Bi)	Min(V)	Max (V)	$I_T^{(3)}$ (mA)				
SMA6F60A	SMA6F60CA	6F60A	6F60CA	66.70	73.70	1	5	60.0	6.20	96.8
SMA6F64A	SMA6F64CA	6F64A	6F64CA	71.10	78.60	1	5	64.0	5.83	103.0
SMA6F70A	SMA6F70CA	6F70A	6F70CA	77.80	86.00	1	5	70.0	5.31	113.0
SMA6F75A	SMA6F75CA	6F75A	6F75CA	83.30	92.10	1	5	75.0	4.96	121.0
SMA6F78A	SMA6F78CA	6F78A	6F78CA	86.70	95.80	1	5	78.0	4.76	126.0
SMA6F80A	SMA6F80CA	6F80A	6F80CA	88.80	97.60	1	5	80.0	4.63	129.6
SMA6F85A	SMA6F85CA	6F85A	6F85CA	94.40	104.00	1	5	85.0	4.38	137.0
SMA6F90A	/	6F90A	/	100.00	111.00	1	5	90.0	4.11	146.0
SMA6F100A	/	6F100A	/	111.00	123.00	1	5	100.0	3.70	162.0
SMA6F110A	/	6F110A	/	122.00	135.00	1	5	110.0	3.39	177.0
SMA6F120A	/	6F120A	/	133.00	147.00	1	5	120.0	3.11	193.0
SMA6F130A	/	6F130A	/	144.00	159.00	1	5	130.0	2.87	209.0

Notes:

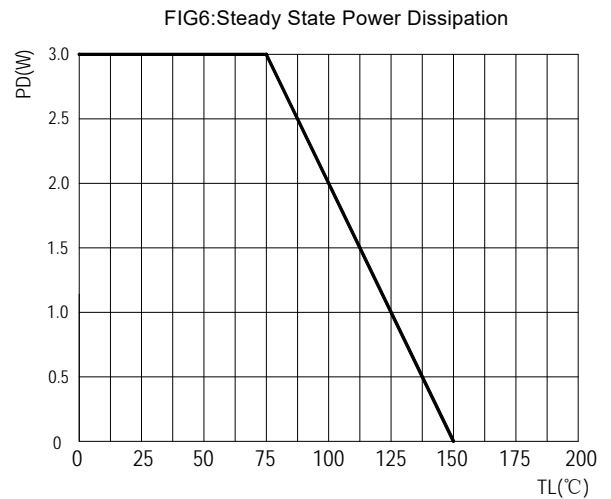
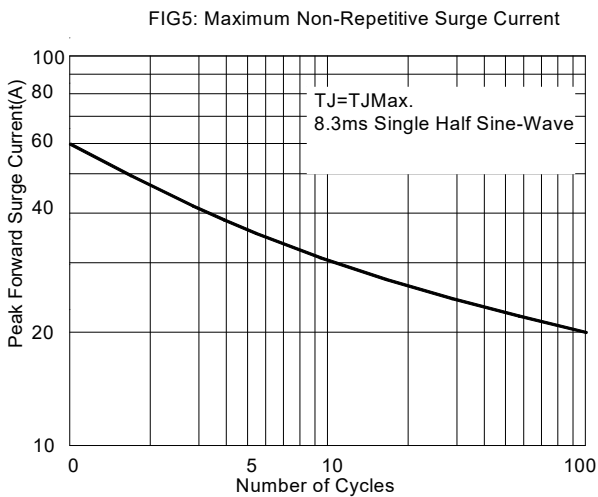
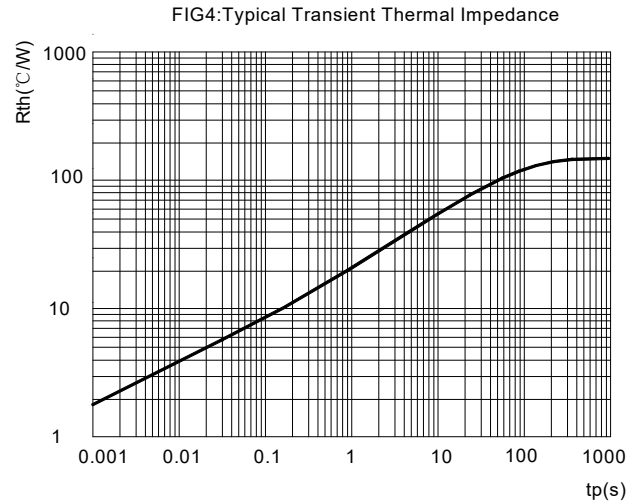
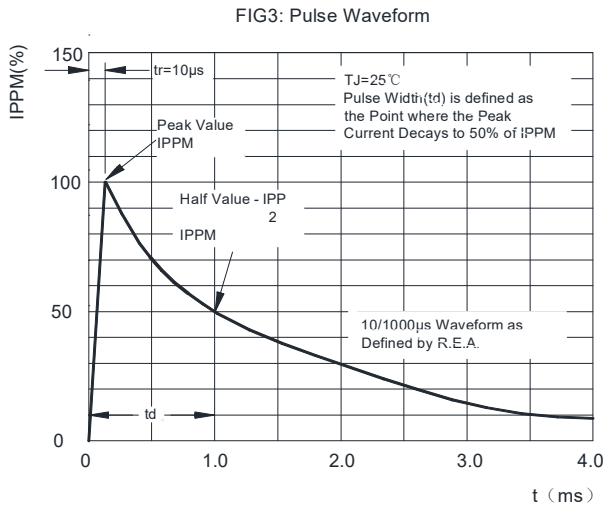
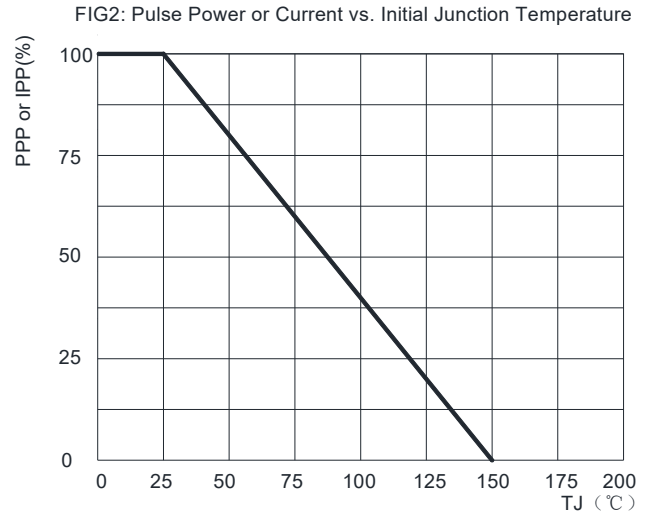
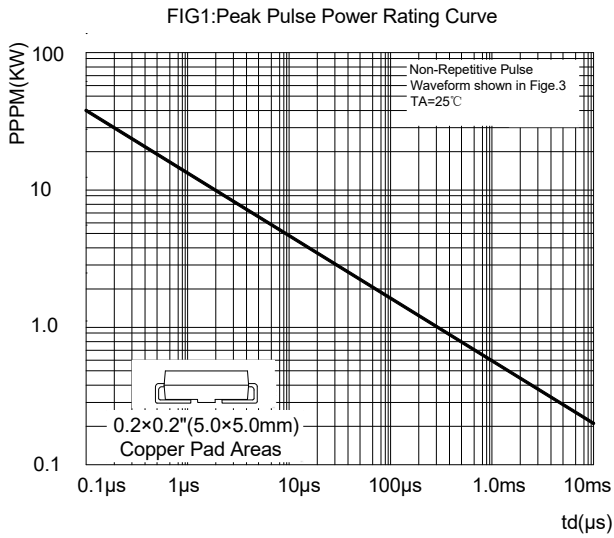
(3) Pulse test:  $t_p \leq 50ms$ .

(4) Surge current waveform per Fig. 3 and derated per Fig.2.



# SMA6F SERIES

## ■ Characteristics (Typical)



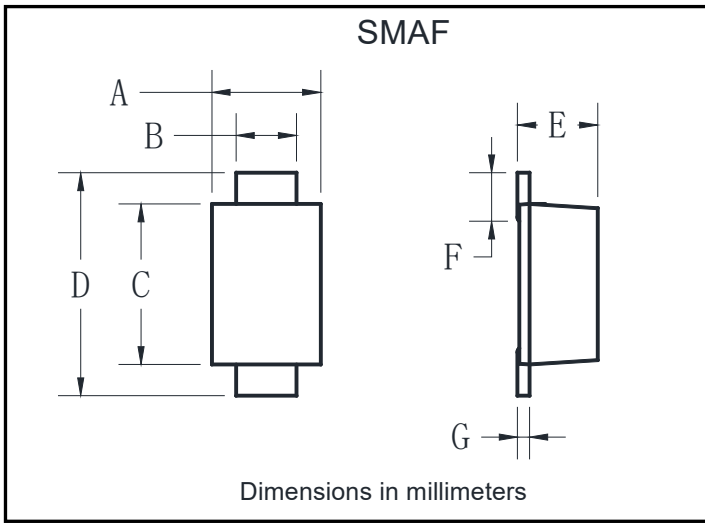
## ■ Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMF6J SERIES	F1	Approximate 0.034	3000	12000	96000	7" reel



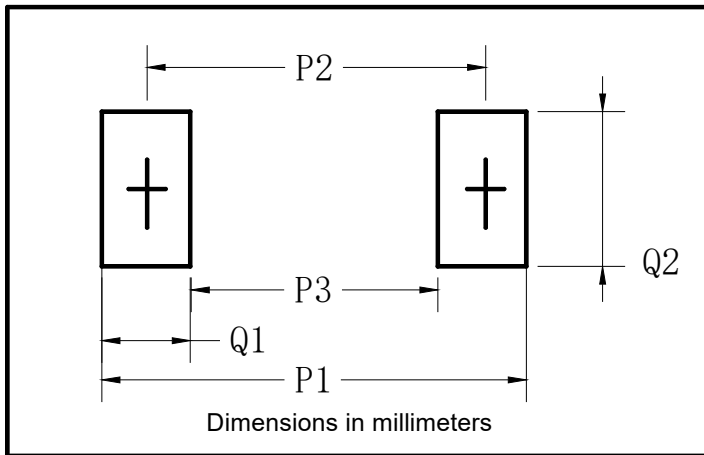
# SMA6F SERIES

## ■ 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



## SMA6F SERIES

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