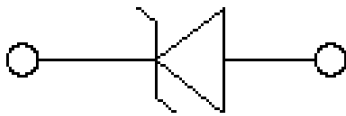
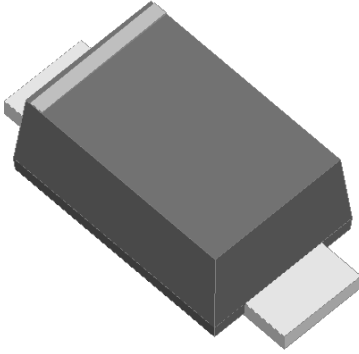


## Surface Mount Transient Voltage Suppressor

### 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  $\mu$ 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
- Part no. with suffix "Q" means AEC-Q101 qualified

### 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, automotive and 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 ( $T_A=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	Max
Peak power dissipation <sup>(1)</sup> <sup>(2)</sup> (Fig.1)	$P_{PPM}$	W	with a 10/1000us waveform	200
Peak pulse current <sup>(1)</sup>	$I_{PPM}$	A	with a 10/1000us waveform	(See Next Table)
Power dissipation, on infinite heat sink	$P_D$	W	$T_L=75^\circ\text{C}$	0.4
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(3)</sup>	$I_{FSM}$	A		20
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$		-55 to +150
Thermal resistance	$R_{\theta JL}$	$^\circ\text{C/W}$	Between junction and lead	26
	$R_{\theta JA}$		Between junction and Ambient	300
	$R_{\theta JC}$		Between junction and Curve	40

Notes:

(1). Non-repetitive current pulse at  $T_A=25^\circ\text{C}$ , per waveform of Figure 2.

(2).  $T_L=30^\circ\text{C}$  unless otherwise noted,  $V_F \leq 1.25\text{V}@200\text{mA}$ .

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



# SMF7AQ THRU SMF100AQ

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMF SERIES	F1	0.0177	3000	15000	120000	7" reel

## ■ Electrical Characteristics (TA=25°C unless otherwise noted)

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 $I_{PP}^{(2)} (A)$	Maximum Clamping Voltage $V_C @ I_{PP} (V)$
		Min(V)	Max (V)	$I_T^{(1)}(mA)$				
SMF7.0AQ	7.0A	7.78	8.60	10	100.0	7.0	16.67	12.0
SMF7.5AQ	7.5A	8.33	9.21	1	50.0	7.5	15.50	12.9
SMF8.0AQ	8.0A	8.89	9.83	1	25.0	8.0	14.71	13.6
SMF8.5AQ	8.5A	9.44	10.40	1	10.0	8.5	13.89	14.4
SMF9.0AQ	9.0A	10.00	11.10	1	5.0	9.0	12.99	15.4
SMF10AQ	10A	11.10	12.30	1	2.5	10.0	11.76	17.0
SMF11AQ	11A	12.20	13.50	1	2.5	11.0	10.99	18.2
SMF12AQ	12A	13.30	14.70	1	2.5	12.0	10.05	19.9
SMF13AQ	13A	14.40	15.90	1	1.0	13.0	9.30	21.5
SMF14AQ	14A	15.60	17.20	1	1.0	14.0	8.62	23.2
SMF15AQ	15A	16.70	18.50	1	1.0	15.0	8.20	24.4
SMF16AQ	16A	17.80	19.70	1	1.0	16.0	7.69	26.0
SMF17AQ	17A	18.90	20.90	1	1.0	17.0	7.25	27.6
SMF18AQ	18A	20.00	22.10	1	1.0	18.0	6.85	29.2
SMF19AQ	19A	21.10	23.30	1	1.0	19.0	6.54	30.6
SMF20AQ	20A	22.20	24.50	1	1.0	20.0	6.17	32.4
SMF22AQ	22A	24.40	26.90	1	1.0	22.0	5.63	35.5
SMF24AQ	24A	26.70	29.50	1	1.0	24.0	5.14	38.9
SMF26AQ	26A	28.90	31.90	1	1.0	26.0	4.75	42.1
SMF28AQ	28A	31.10	34.40	1	1.0	28.0	4.41	45.4
SMF30AQ	30A	33.30	36.80	1	1.0	30.0	4.13	48.4
SMF33AQ	33A	36.70	40.60	1	1.0	33.0	3.75	53.3
SMF36AQ	36A	40.00	44.20	1	1.0	36.0	3.44	58.1
SMF40AQ	40A	44.40	49.10	1	1.0	40.0	3.10	64.5
SMF43AQ	43A	47.80	52.80	1	1.0	43.0	2.88	69.4
SMF45AQ	45A	50.00	55.30	1	1.0	45.0	2.75	72.7
SMF48AQ	48A	53.30	58.90	1	1.0	48.0	2.58	77.4
SMF51AQ	51A	56.70	62.70	1	1.0	51.0	2.43	82.4
SMF54AQ	54A	60.00	66.30	1	1.0	54.0	2.30	87.1
SMF58AQ	58A	64.40	71.20	1	1.0	58.0	2.14	93.6
SMF60AQ	60A	66.70	73.70	1	1.0	60.0	2.07	96.8
SMF64AQ	64A	71.10	78.60	1	1.0	64.0	1.94	103.0
SMF70AQ	70A	77.80	86.00	1	1.0	70.0	1.77	113.0
SMF75AQ	75A	83.30	92.10	1	1.0	75.0	1.65	121.0
SMF78AQ	78A	86.70	95.80	1	1.0	78.0	1.59	126.0
SMF80AQ	80A	88.80	97.60	1	1.0	80.0	1.55	129.0
SMF85AQ	85A	94.40	104.00	1	1.0	85.0	1.46	137.0
SMF90AQ	90A	100.00	111.00	1	1.0	90.0	1.37	146.0
SMF100AQ	100A	111.00	123.00	1	1.0	100.0	1.23	162.0

Notes:

- (1)  $t_p \leq 50ms$  Pulse test:  $t_p \leq 50ms$ .
- (2) Surge current waveform per Fig. 2 and derated per Fig.3.



# SMF7AQ THRU SMF100AQ

## ■ Characteristics(Typical)

FIG1: Peak Pulse Power Rating Curve

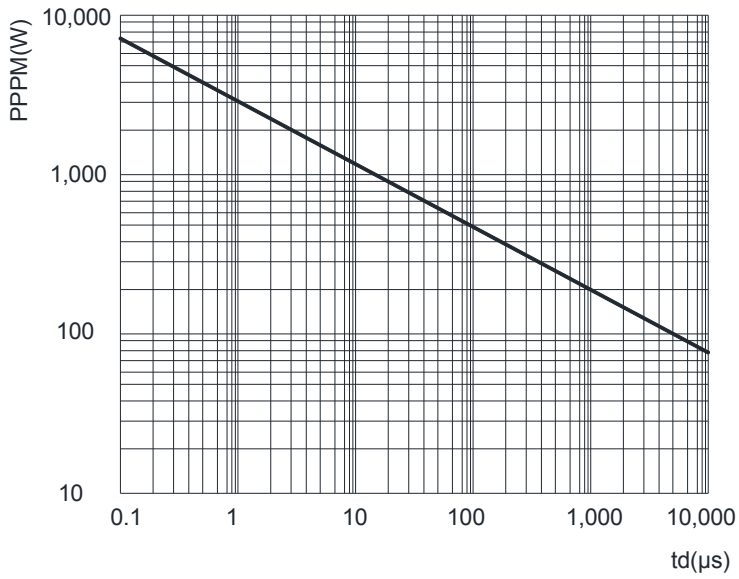


FIG2: Pulse Waveform

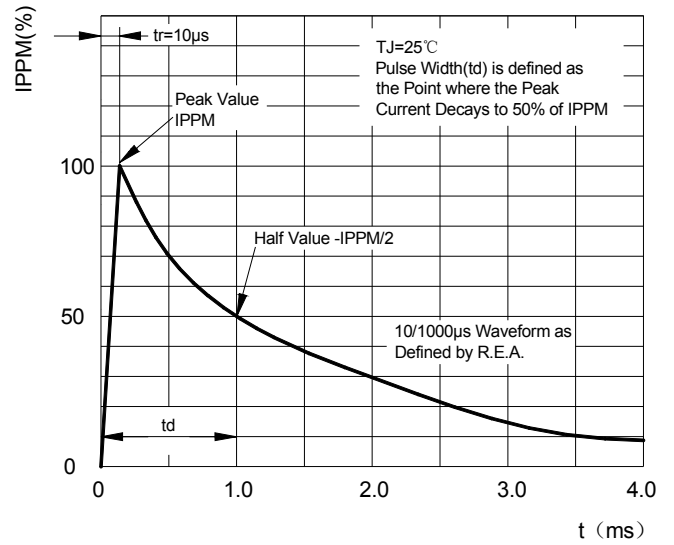


FIG3: Pulse Power or Current vs. Initial Junction Temperature

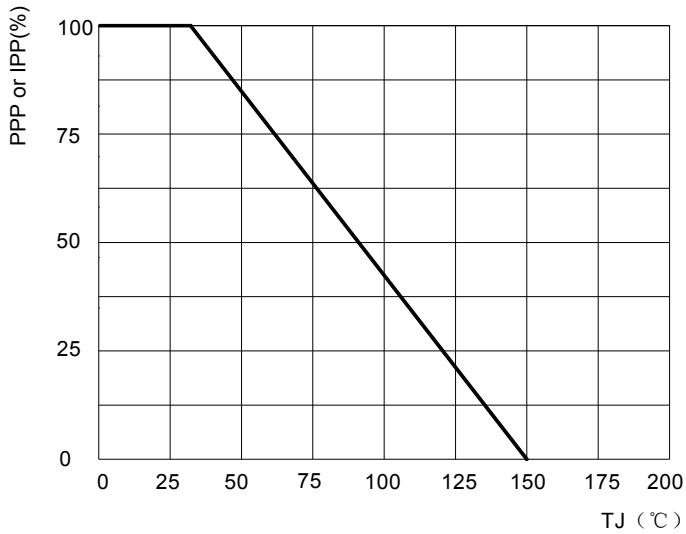
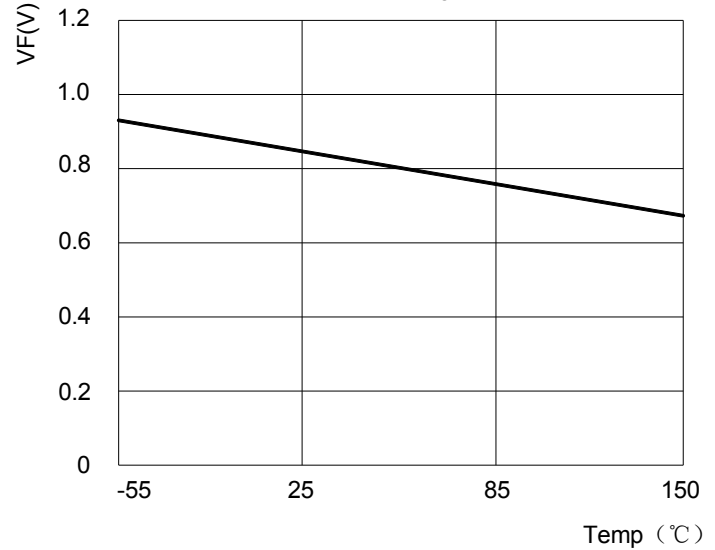


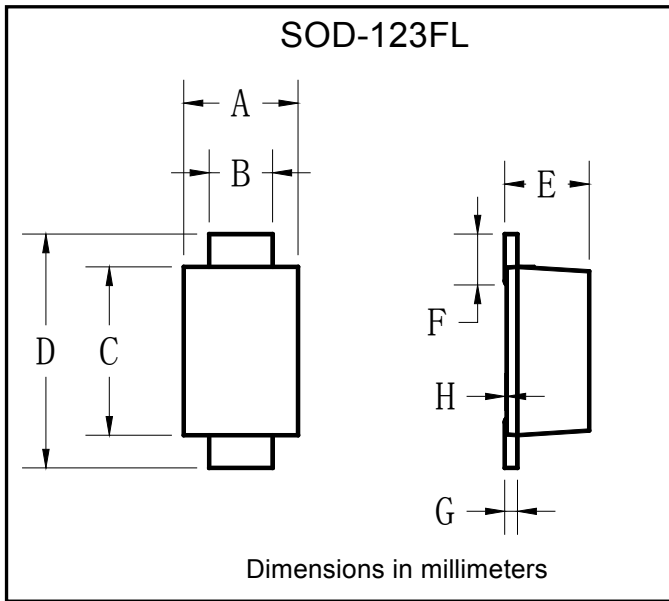
FIG4: Forward Voltage Curve





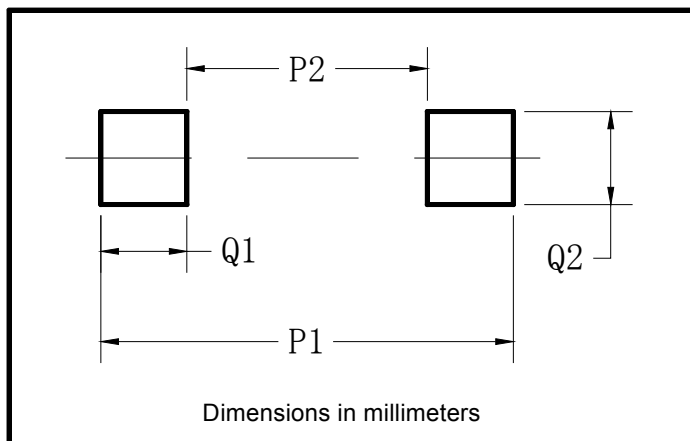
# SMF7AQ THRU SMF100AQ

## ■ 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



## SMF7AQ THRU SMF100AQ

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