

# SMF5.0(C)A THRU SMF170(C)A

**200W Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors Diodes- 5.0V- 170V**

## Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Excellent clamping capability.
- IEC61000-4-2 ESD 15kV Air, 8kV contact compliance
- Protects one I/O line
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

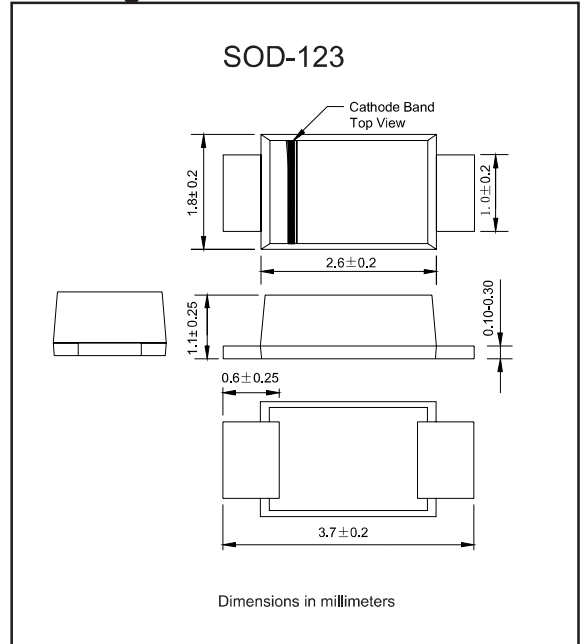
## Applications

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Portable devices
- Portable instrumentation
- Handhelds and notebooks
- Digital cameras

## Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.02 gram

## Package outline



## Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	Value	UNIT
Peak Power Dissipation	Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by $10 \times 1000\mu\text{s}$ (Note 1)	$P_{PPM}$	200	W
Operating junction temperature range		$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage temperature range		$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

Note: 1. Non-repetitive current pulse, per Fig. 2 and derated above  $T_A=25^{\circ}\text{C}$  per Fig. 1

## SMF5.0(C)A THRU SMF170(C)A

Electrical characteristics (at T = 25°C unless otherwise noted)

Part Number Add C For Bi-Directional (Note 4)	Reverse Standoff Voltage $V_{RWM}$ (V)	Breakdown Voltage $V_{BR}$ @ $I_T$ (Note 5)		Test Current $I_T$ (mA)	Max. Reverse Leakage @ $V_{RWM}$ (Note 6) $I_R$ ( $\mu$ A)	Max. Clamping Voltage @ $I_{pp}$ $V_C$ (V)	Max. Peak Pulse Current $I_{pp}$ (A)	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
SMF5.0(C)A	5.0	6.40	7.25	10	800	9.2	21.7	TE	KE
SMF6.0(C)A	6.0	6.67	7.37	10	800	10.3	19.4	TG	KG
SMF6.5(C)A	6.5	7.22	7.98	10	500	11.2	17.9	TK	KK
SMF7.0(C)A	7.0	7.78	8.60	10	200	12.0	16.7	TM	KM
SMF7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	15.5	TP	KP
SMF8.0(C)A	8.0	8.89	9.83	1.0	50	13.6	14.7	TR	KR
SMF8.5(C)A	8.5	9.44	10.4	1.0	10	14.4	13.9	TT	KT
SMF9.0(C)A	9.0	10.0	11.1	1.0	5.0	15.4	13.0	TV	KV
SMF10(C)A	10	11.1	12.3	1.0	5.0	17.0	11.8	TX	KX
SMF11(C)A	11	12.2	13.5	1.0	5.0	18.2	11.0	TZ	KZ
SMF12(C)A	12	13.3	14.7	1.0	5.0	19.9	10.1	UE	LE
SMF13(C)A	13	14.4	15.9	1.0	5.0	21.5	9.3	UG	LG
SMF14(C)A	14	15.6	17.2	1.0	5.0	23.2	8.6	UK	LK
SMF15(C)A	15	16.7	18.5	1.0	5.0	24.4	8.2	UM	LM
SMF16(C)A	16	17.8	19.7	1.0	5.0	26.0	7.7	UP	LP
SMF17(C)A	17	18.9	20.9	1.0	5.0	27.6	7.2	UR	LR
SMF18(C)A	18	20.0	22.1	1.0	5.0	29.2	6.8	UT	LT
SMF20(C)A	20	22.2	24.5	1.0	5.0	32.4	6.2	UV	LV
SMF22(C)A	22	24.4	26.9	1.0	5.0	35.5	5.6	UX	LX
SMF24(C)A	24	26.7	29.5	1.0	5.0	38.9	5.1	UZ	LZ
SMF26(C)A	26	28.9	31.9	1.0	5.0	42.1	4.8	VE	ME
SMF28(C)A	28	31.1	34.4	1.0	5.0	45.4	4.4	VG	MG
SMF30(C)A	30	33.3	36.8	1.0	5.0	48.4	4.2	VK	MK
SMF33(C)A	33	36.7	40.6	1.0	5.0	53.3	3.8	VM	MM
SMF36(C)A	36	40.0	44.2	1.0	5.0	58.1	3.5	VP	MP
SMF40(C)A	40	44.4	49.1	1.0	5.0	64.5	3.1	VR	MR
SMF43(C)A	43	47.8	52.8	1.0	5.0	69.4	2.9	VT	MT
SMF45(C)A	45	50.0	55.3	1.0	5.0	72.7	2.8	VV	MV
SMF48(C)A	48	53.3	58.9	1.0	5.0	77.4	2.6	VX	MX
SMF51(C)A	51	56.7	62.7	1.0	5.0	82.4	2.5	VZ	MZ
SMF54(C)A	54	60.0	66.3	1.0	5.0	87.1	2.3	WE	NE
SMF58(C)A	58	64.4	71.2	1.0	5.0	93.6	2.3	WG	NG
SMF60(C)A	60	66.7	73.7	1.0	5.0	96.8	2.1	WK	NK
SMF64(C)A	64	71.1	78.6	1.0	5.0	103	2.0	WM	NM
SMF70(C)A	70	77.8	86.0	1.0	5.0	113	1.8	WP	NP
SMF75(C)A	75	83.3	92.1	1.0	5.0	121	1.7	WR	NR
SMF78(C)A	78	86.7	95.8	1.0	5.0	126	1.6	WT	NT
SMF85(C)A	85	94.4	104	1.0	5.0	137	1.5	WV	NV
SMF90(C)A	90	100	111	1.0	5.0	146	1.4	WX	NX
SMF100(C)A	100	111	123	1.0	5.0	162	1.3	WZ	NZ
SMF110(C)A	110	122	135	1.0	5.0	177	1.2	XE	PE
SMF120(C)A	120	133	147	1.0	5.0	193	1.1	XG	PG
SMF130(C)A	130	144	159	1.0	5.0	209	1.0	XK	PK
SMF150(C)A	150	167	185	1.0	5.0	243	0.8	XM	PM
SMF160(C)A	160	178	197	1.0	5.0	259	0.8	XP	PP
SMF170(C)A	170	189	209	1.0	5.0	275	0.8	XR	PR

- Notes: 4. Suffix C denotes Bi-directional device.  
5.  $V_{BR}$  measured with  $I_T$  current pulse = 300 $\mu$ s  
6. For Bi-Directional devices having  $V_{RWM}$  of 10V and under, the  $I_R$  is doubled.

## Rating and characteristic curves (SMF SERIES)

FIG.1 - PULSE DERATING CURVE

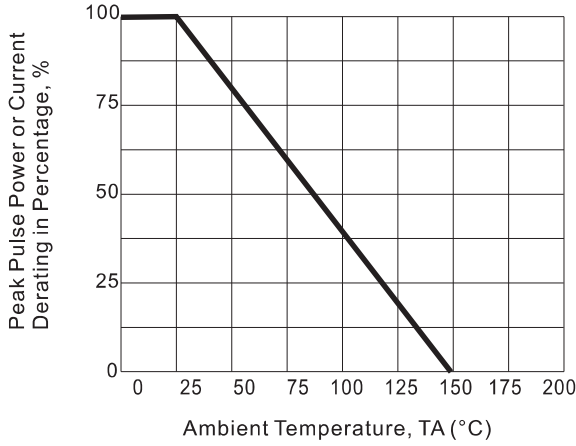


FIG.2 - 10X1000us PULSE WAVEFORM

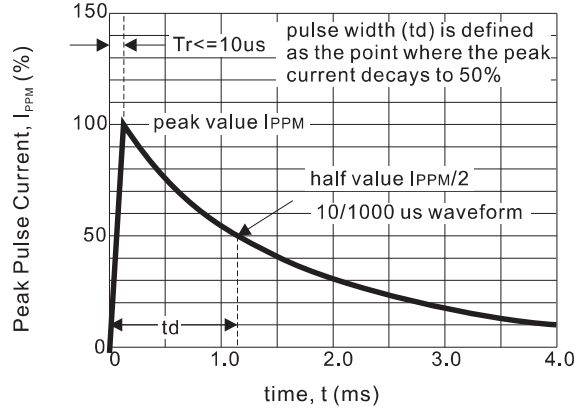


FIG.3 - 8X20us PULSE WAVEFORM

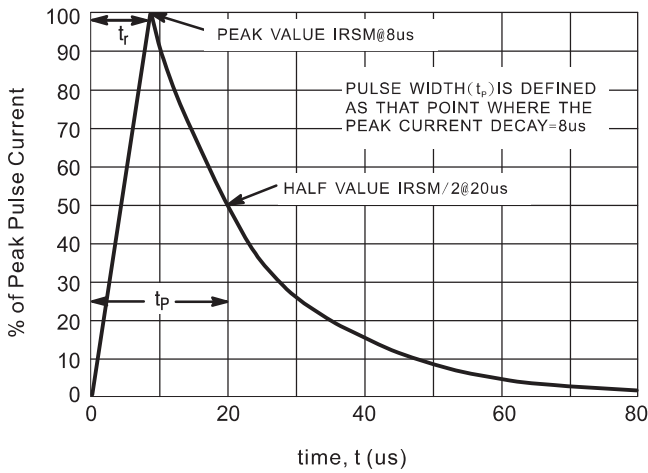


FIG.4 - PEAK PULSE POWER RATING CURVE

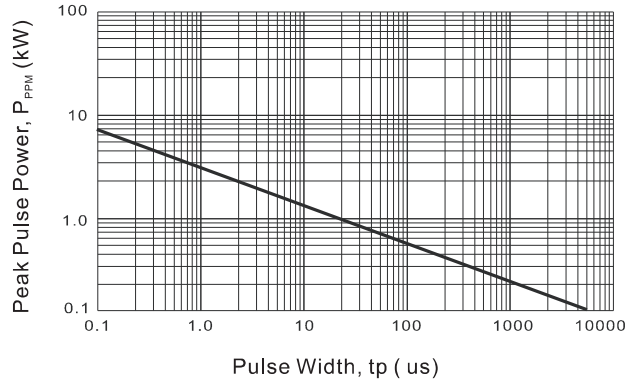
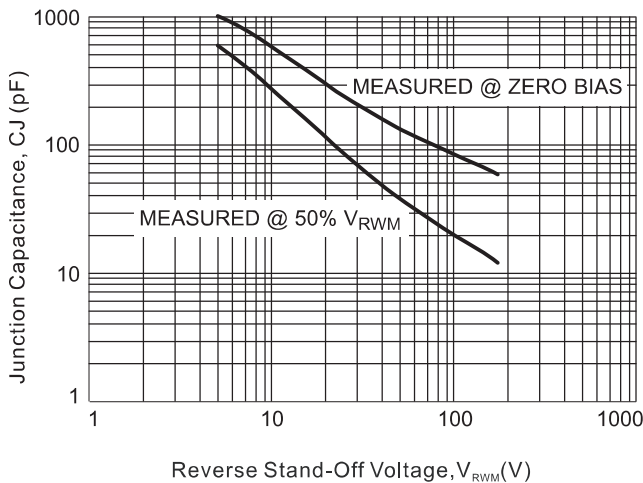


FIG.5 - TYPICAL JUNCTION CAPACITANCE



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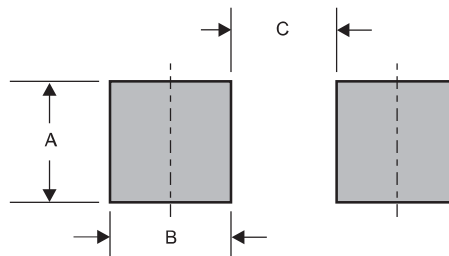
## Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

## Marking

Type number	Example
Uni-Directional	 <p>Cathode band</p> <p>Marking code (see page 3)</p>
Bi-Directional	 <p>Marking code (see page 3)</p>

## Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123	0.044 (1.10)	0.040 (1.00)	0.079 (2.00)

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