

## Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Excellent clamping capability.
- IEC61000-4-2 ESD 30kV Air, 30kV contact compliance
- Protects one I/O line
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

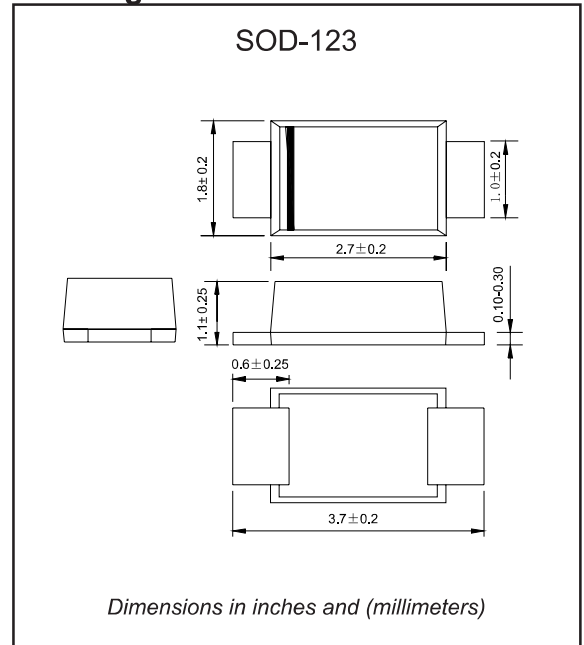
## Applications

- 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

## 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 10x1000us (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

### Electrical characteristics (at $T_A=25^{\circ}\text{C}$ 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) $I_R$ ( $\mu\text{A}$ )	Max. Clamping Voltage @ $I_{PP}$ $V_C$ (V)	Max. Peak Pulse Current $I_{PP}$ (A)	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
SMFJ5.0(C)A	5.0	6.40	7.00	10	400	9.2	21.7	CAE	AE
SMFJ6.0(C)A	6.0	6.67	7.37	10	400	10.3	19.4	CAG	AG
SMFJ6.5(C)A	6.5	7.22	7.98	10	250	11.2	17.9	CAK	AK
SMFJ7.0(C)A	7.0	7.78	8.60	10	100	12.0	16.7	CAM	AM
SMFJ7.5(C)A	7.5	8.33	9.21	1.0	50	12.9	15.5	CAP	AP
SMFJ8.0(C)A	8.0	8.89	9.83	1.0	25	13.6	14.7	CAR	AR
SMFJ8.5(C)A	8.5	9.44	10.4	1.0	10	14.4	13.9	CAT	AT
SMFJ9.0(C)A	9.0	10.0	11.1	1.0	2.5	15.4	13.0	CAV	AV
SMFJ10(C)A	10	11.1	12.3	1.0	2.5	17.0	11.8	CAX	AX
SMFJ11(C)A	11	12.2	13.5	1.0	2.5	18.2	11.0	CAZ	AZ
SMFJ12(C)A	12	13.3	14.7	1.0	1.0	19.9	10.1	CBE	BE
SMFJ13(C)A	13	14.4	15.9	1.0	1.0	21.5	9.3	CBG	BG
SMFJ(14C)A	14	15.6	17.2	1.0	1.0	23.2	8.6	CBK	BK
SMFJ(15C)A	15	16.7	18.5	1.0	1.0	24.4	8.2	CBM	BM
SMFJ(16C)A	16	17.8	19.7	1.0	1.0	26.0	7.7	CBP	BP
SMFJ17(C)A	17	18.9	20.9	1.0	1.0	27.6	7.2	CBR	BR
SMFJ18(C)A	18	20.0	22.1	1.0	1.0	29.2	6.8	CBT	BT
SMFJ20(C)A	20	22.2	24.5	1.0	1.0	32.4	6.2	CBV	BV
SMFJ22(C)A	22	24.4	26.9	1.0	1.0	35.5	5.6	CBX	BX
SMFJ24(C)A	24	26.7	29.5	1.0	1.0	38.9	5.1	CBZ	BZ
SMFJ26(C)A	26	28.9	31.9	1.0	1.0	42.1	4.8	CCE	CE
SMFJ28(C)A	28	31.1	34.4	1.0	1.0	45.4	4.4	CCG	CG
SMFJ30(C)A	30	33.3	36.8	1.0	1.0	48.4	4.2	CCK	CK
SMFJ33(C)A	33	36.7	40.6	1.0	1.0	53.3	3.8	CCM	CM
SMFJ36(C)A	36	40.0	44.2	1.0	1.0	58.1	3.5	CCP	CP
SMFJ40(C)A	40	44.4	49.1	1.0	1.0	64.5	3.1	CCR	CR
SMFJ43(C)A	43	47.8	52.8	1.0	1.0	69.4	2.9	CCT	CT
SMFJ45(C)A	45	50.0	55.3	1.0	1.0	72.7	2.8	CCV	CV
SMFJ48(C)A	48	53.3	58.9	1.0	1.0	77.4	2.6	CCX	CX
SMFJ51(C)A	51	56.7	62.7	1.0	1.0	82.4	2.5	CCZ	CZ
SMFJ54(C)A	54	60.0	66.3	1.0	1.0	87.1	2.3	CDE	DE
SMFJ58(C)A	58	64.4	71.2	1.0	1.0	93.6	2.3	CDG	DG
SMFJ60(C)A	60	66.7	73.7	1.0	1.0	96.8	2.1	CDK	DK
SMFJ64(C)A	64	71.1	78.6	1.0	1.0	103	2.0	CDM	DM
SMFJ70(C)A	70	77.8	86.0	1.0	1.0	113	1.8	CDP	DP
SMFJ75(C)A	75	83.3	92.1	1.0	1.0	121	1.7	CDR	DR
SMFJ78(C)A	78	86.7	95.8	1.0	1.0	126	1.6	CDT	DT
SMFJ85(C)A	85	94.4	104	1.0	1.0	137	1.5	CDV	DV
SMFJ90(C)A	90	100	111	1.0	1.0	146	1.4	CDX	DX
SMFJ100(C)A	100	111	123	1.0	1.0	162	1.3	CDZ	DZ
SMFJ110(C)A	110	122	135	1.0	1.0	177	1.2	CEE	EE
SMFJ120(C)A	120	133	147	1.0	1.0	193	1.1	CEG	EG
SMFJ130(C)A	130	144	159	1.0	1.0	209	1.0	CEK	EK
SMFJ150(C)A	150	167	185	1.0	1.0	243	0.8	CEM	EM
SMFJ160(C)A	160	178	197	1.0	1.0	259	0.8	CEP	EP
SMFJ170(C)A	170	189	209	1.0	1.0	275	0.8	CER	ER

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

## Rating and characteristic curves

FIG.1 - PULSE DERATING CURVE

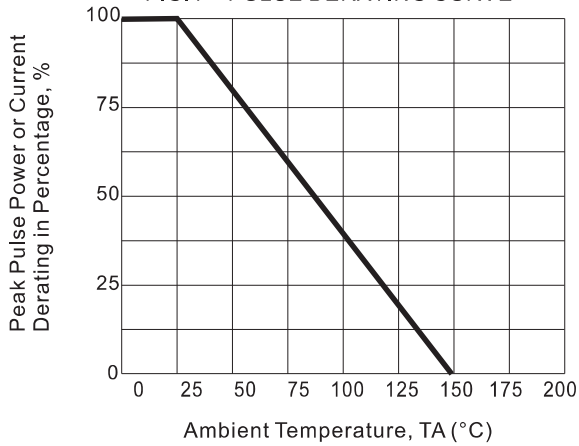


FIG.2 - 10X1000us PULSE WAVEFORM

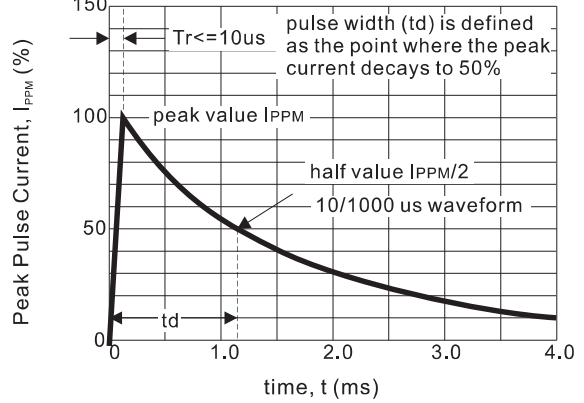


FIG.3 - 8X20us PULSE WAVEFORM

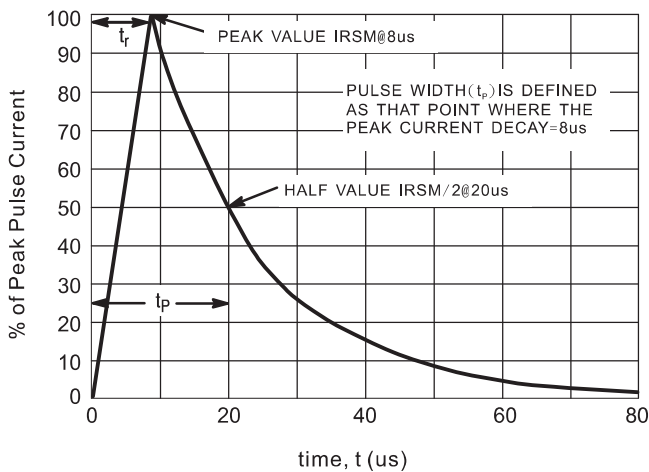


FIG.4 - PEAK PULSE POWER RATING CURVE

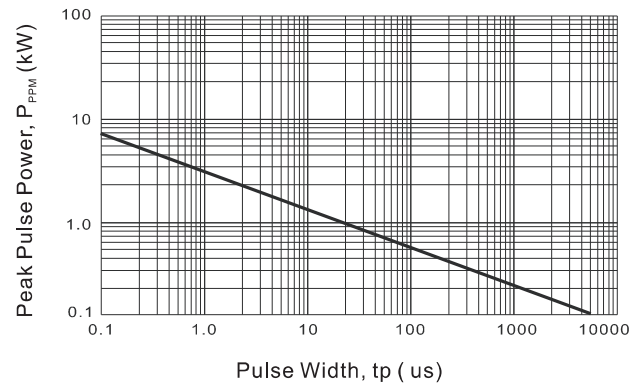
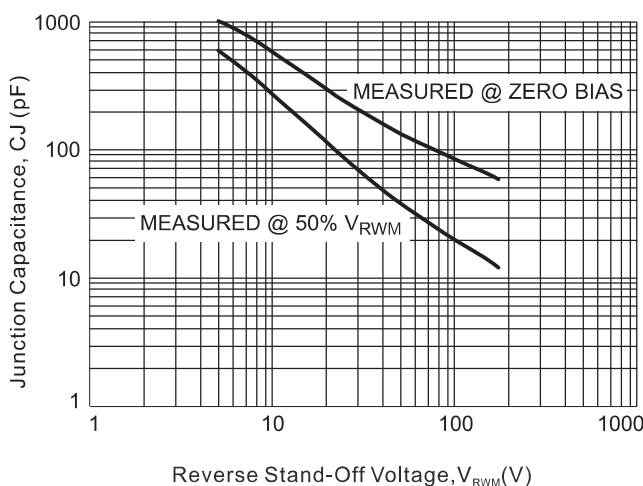






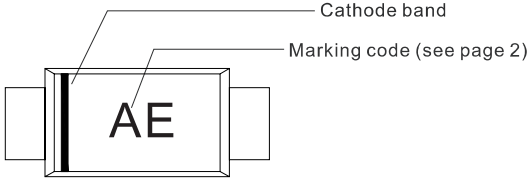
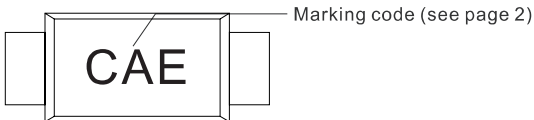
FIG.5 - TYPICAL JUNCTION CAPACITANCE



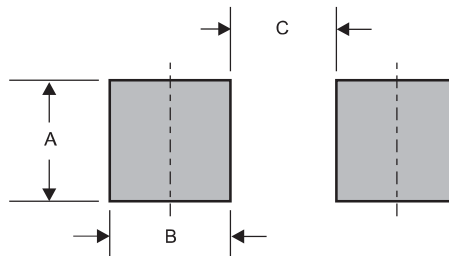
### Pinning information

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

### Marking

Type number	Example
Uni-Directional	
Bi-Directional	

### Suggested solder pad layout

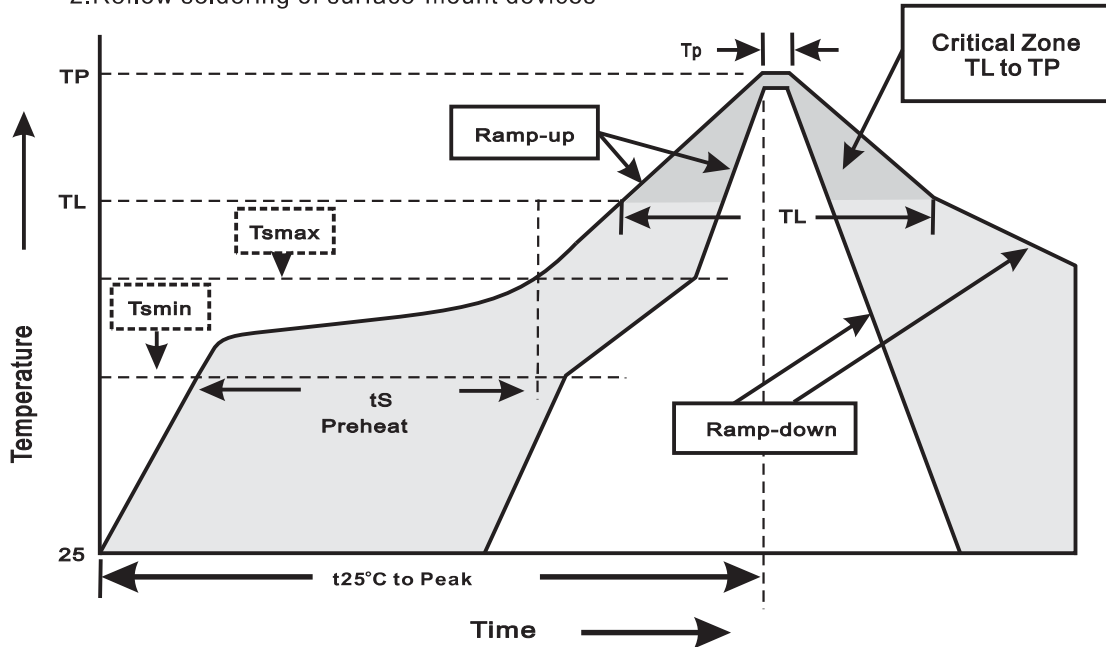


Dimensions in inches and (millimeters)

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

## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T <sub>L</sub> to T <sub>P</sub> )	<3°C/sec
Preheat -Temperature Min(T <sub>smmin</sub> ) -Temperature Max(T <sub>smmax</sub> ) -Time(min to max)(t <sub>s</sub> )	150°C 200°C 60~120sec
T <sub>smmax</sub> to T <sub>L</sub> -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T <sub>L</sub> ) -Time(t <sub>L</sub> )	217°C 60~260sec
Peak Temperature(T <sub>P</sub> )	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t <sub>P</sub> )	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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