SMF5V0A THRU SMF170A

200W Surface Mount Unidirectional
Transient Voltage Suppressors Diodes

Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Excellent clamping capability.
- IEC61000-4-2 ESD 30kV Air,15kV contact compliance
- Protects one I/O line
- Lead-free parts meet RoHS requirments.
- Compliant to Halogen-free

Applications

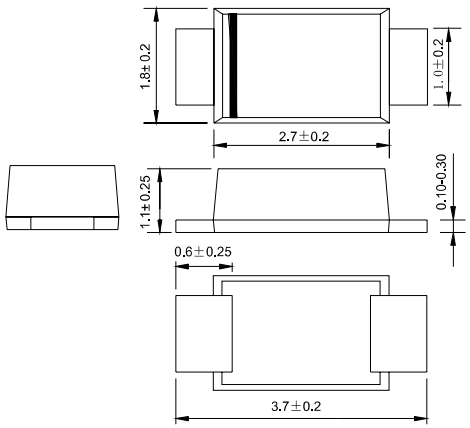
- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Portable devices
- Portable instrumentation
- Handhelds and notebooks
- Digital cameras

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

SOD-123



Dimensions in inches and (millimeters)

Maximum ratings and Electrical Characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	Value	UNIT
Peak Power Dissipation	Peak Pulse Power Dissipation at TA=25°C by 10x1000us (Note 1)	P_{PPM}	200	W
Operating junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-55 to +150	°C

Note: 1. Non-repetitive current pulse, per Fig. 2 and derated above TA=25°C per Fig. 1

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

Part Number Add C For Bi-Directional (Note 4)	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 5)		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 6)	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current I_{pp}	Marking Code
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (μA)	V_C (V)	(A)	UNI-
SMF5V0A	5.0	6.40	7.25	10	800	9.2	21.7	AE
SMF6V0A	6.0	6.67	7.37	10	800	10.3	19.4	AG
SMF6V5A	6.5	7.22	7.98	10	500	11.2	17.9	AK
SMF7V0A	7.0	7.78	8.60	10	200	12.0	16.7	AM
SMF7V5A	7.5	8.33	9.21	1.0	100	12.9	15.5	AP
SMF8V0A	8.0	8.89	9.83	1.0	50	13.6	14.7	AR
SMF8V5A	8.5	9.44	10.4	1.0	10	14.4	13.9	AT
SMF9V0A	9.0	10.0	11.1	1.0	5.0	15.4	13.0	AV
SMF10A	10	11.1	12.3	1.0	5.0	17.0	11.8	AX
SMF11A	11	12.2	13.5	1.0	5.0	18.2	11.0	AZ
SMF12A	12	13.3	14.7	1.0	5.0	19.9	10.1	BE
SMF13A	13	14.4	15.9	1.0	5.0	21.5	9.3	BG
SMF14A	14	15.6	17.2	1.0	5.0	23.2	8.6	BK
SMF15A	15	16.7	18.5	1.0	5.0	24.4	8.2	BM
SMF16A	16	17.8	19.7	1.0	5.0	26.0	7.7	BP
SMF17A	17	18.9	20.9	1.0	5.0	27.6	7.2	BR
SMF18A	18	20.0	22.1	1.0	5.0	29.2	6.8	BT
SMF20A	20	22.2	24.5	1.0	5.0	32.4	6.2	BV
SMF22A	22	24.4	26.9	1.0	5.0	35.5	5.6	BX
SMF24A	24	26.7	29.5	1.0	5.0	38.9	5.1	BZ
SMF26A	26	28.9	31.9	1.0	5.0	42.1	4.8	CE
SMF28A	28	31.1	34.4	1.0	5.0	45.4	4.4	CG
SMF30A	30	33.3	36.8	1.0	5.0	48.4	4.2	CK
SMF33A	33	36.7	40.6	1.0	5.0	53.3	3.8	CM
SMF36A	36	40.0	44.2	1.0	5.0	58.1	3.5	CP
SMF40A	40	44.4	49.1	1.0	5.0	64.5	3.1	CR
SMF43A	43	47.8	52.8	1.0	5.0	69.4	2.9	CT
SMF45A	45	50.0	55.3	1.0	5.0	72.7	2.8	CV
SMF48A	48	53.3	58.9	1.0	5.0	77.4	2.6	CX
SMF51A	51	56.7	62.7	1.0	5.0	82.4	2.5	CZ
SMF54A	54	60.0	66.3	1.0	5.0	87.1	2.3	DE
SMF58A	58	64.4	71.2	1.0	5.0	93.6	2.3	DG
SMF60A	60	66.7	73.7	1.0	5.0	96.8	2.1	DK
SMF64A	64	71.1	78.6	1.0	5.0	103	2.0	DM
SMF70A	70	77.8	86.0	1.0	5.0	113	1.8	DP
SMF75A	75	83.3	92.1	1.0	5.0	121	1.7	DR
SMF78A	78	86.7	95.8	1.0	5.0	126	1.6	DT
SMF85A	85	94.4	104	1.0	5.0	137	1.5	DV
SMF90A	90	100	111	1.0	5.0	146	1.4	DX
SMF100A	100	111	123	1.0	5.0	162	1.3	DZ
SMF110A	110	122	135	1.0	5.0	177	1.2	EE
SMF120A	120	133	147	1.0	5.0	193	1.1	EG
SMF130A	130	144	159	1.0	5.0	209	1.0	EK
SMF150A	150	167	185	1.0	5.0	243	0.8	EM
SMF160A	160	178	197	1.0	5.0	259	0.8	EP
SMF170A	170	189	209	1.0	5.0	275	0.8	ER

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Rating and characteristic curves

FIG.1 - PULSE DERATING CURVE

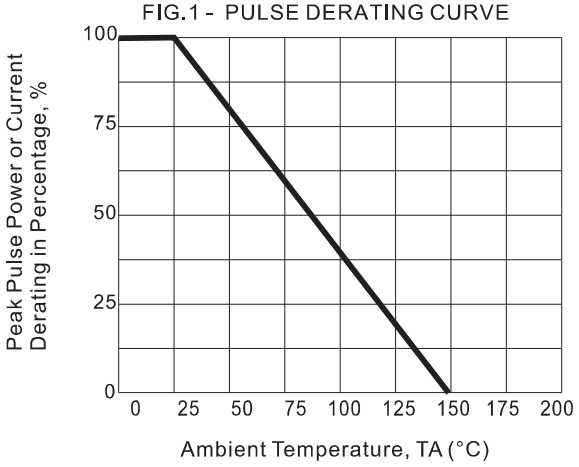


FIG.2 - 10X1000us PULSE WAVEFORM

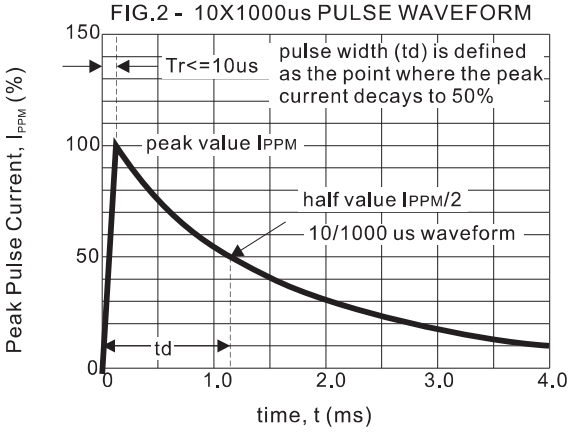


FIG.3 - 8X20us PULSE WAVEFORM

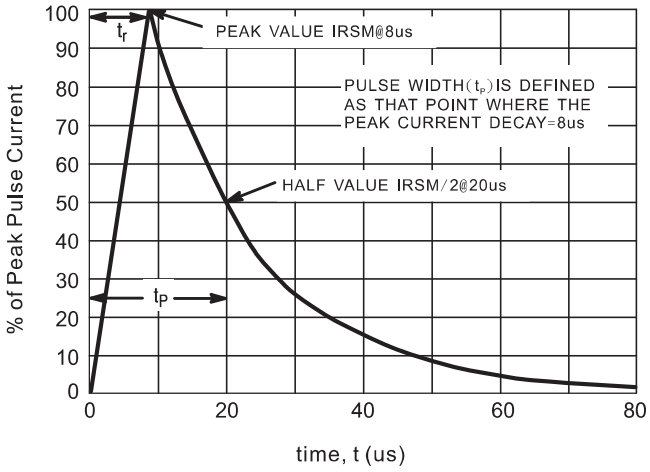


FIG.4 - PEALK PULSE POWER RATING CURVE

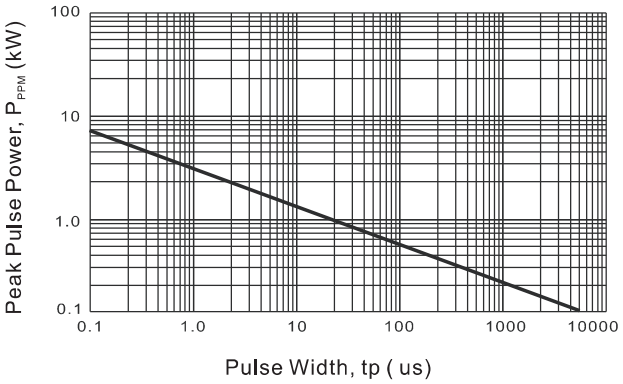
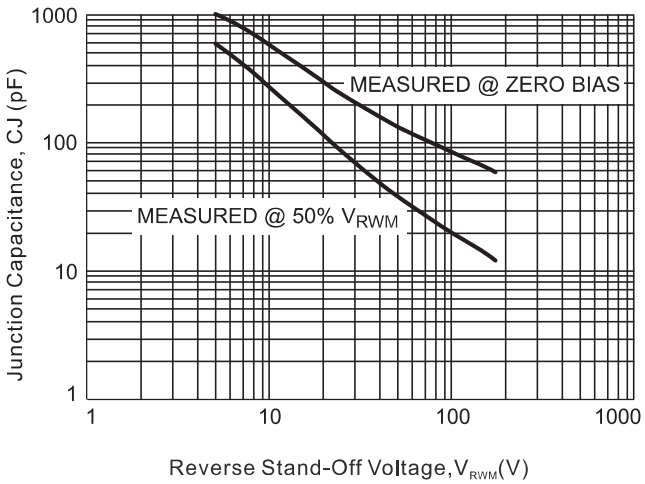


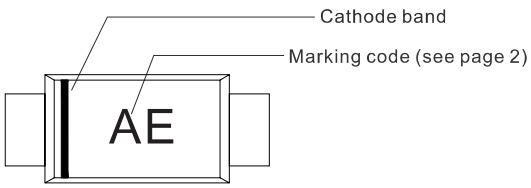
FIG.5 - TYPICAL JUNCTION CAPACITANCE



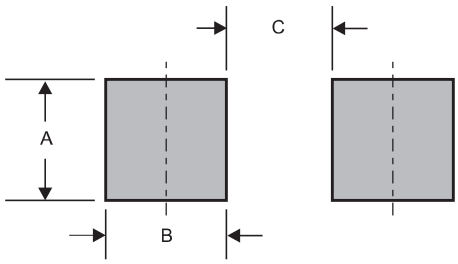
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Example
Uni-Directional	

Suggested solder pad layout

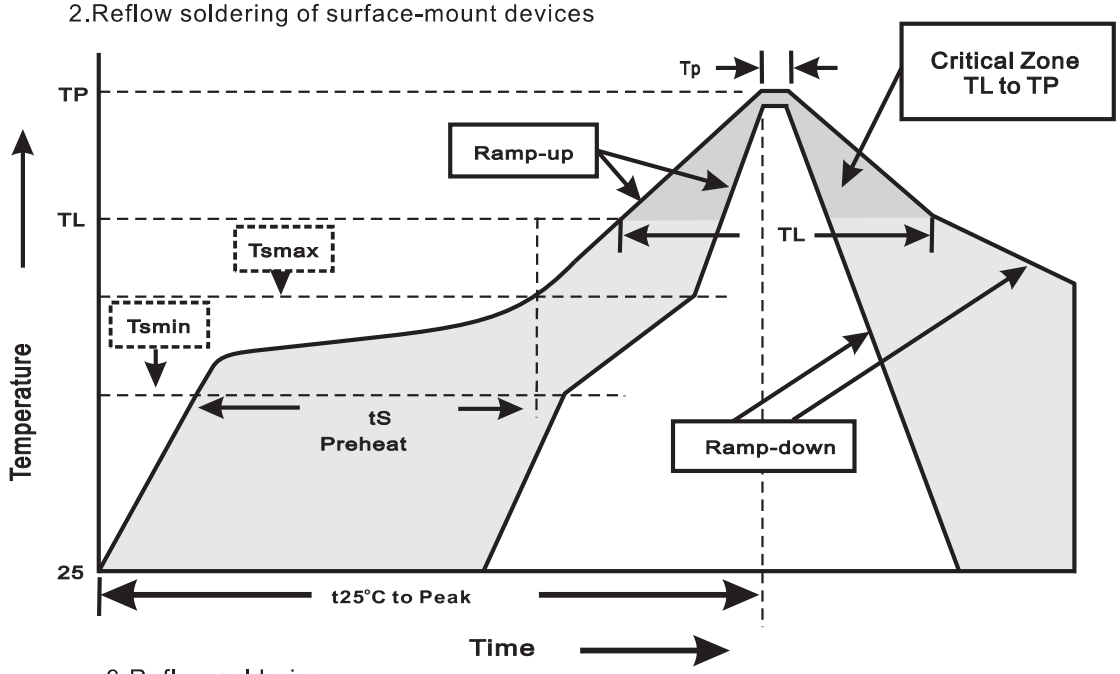


Dimensions in inches and (millimeters)

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_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes