

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

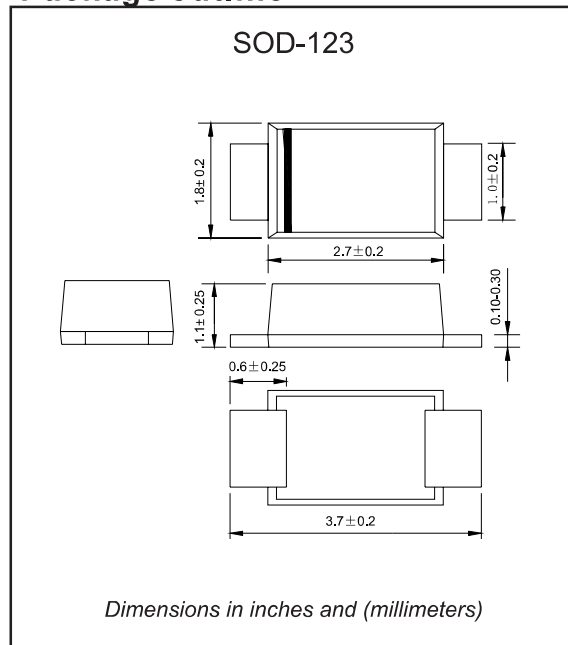
Applications

- 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 $10 \times 1000\mu\text{s}$ (Note 1)	P_{PPM}	400	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

400W Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors Diodes- 5.0V- 100V

■ Electrical Characteristics TA=25°C unless otherwise noted

Part Number		Marking		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R @ V_{RWM}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)
(Uni)	(Bi)	(Uni)	(Bi)	Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
TPSMF4L5.0A	TPSMF4L5.0CA	A2	F5.0CA	6.40	7.00	10	500	5.0	43.6	9.2
TPSMF4L6.0A	TPSMF4L6.0CA	A3	F6.0CA	6.67	7.37	10	400	6.0	38.8	10.3
TPSMF4L6.5A	TPSMF4L6.5CA	A4	F6.5CA	7.22	7.79	10	350	6.5	35.8	11.2
TPSMF4L7.0A	TPSMF4L7.0CA	A5	F7.0CA	7.78	8.60	10	200	7.0	33.4	12.0
TPSMF4L7.5A	TPSMF4L7.5CA	A6	F7.5CA	8.33	9.21	1	100	7.5	31.0	12.9
TPSMF4L8.0A	TPSMF4L8.0CA	A7	F8.0CA	8.89	9.83	1	50	8.0	29.4	13.6
TPSMF4L8.5A	TPSMF4L8.5CA	A8	F8.5CA	9.44	10.4	1	20	8.5	27.8	14.4
TPSMF4L9.0A	TPSMF4L9.0CA	A9	F9.0CA	10.00	11.10	1	10	9.0	26.0	15.4
TPSMF4L10A	TPSMF4L10CA	AA	F10CA	11.10	12.30	1	2.5	10.0	23.52	17.0
TPSMF4L11A	TPSMF4L11CA	AB	F11CA	12.20	13.50	1	2.5	11.0	21.98	18.2
TPSMF4L12A	TPSMF4L12CA	AC	F12CA	13.30	14.70	1	2.5	12.0	20.1	19.9
TPSMF4L13A	TPSMF4L13CA	AD	F13CA	14.40	15.90	1	1.0	13.0	18.6	20.0
TPSMF4L14A	TPSMF4L14CA	AE	F14CA	15.60	17.20	1	1.0	14.0	17.24	23.2
TPSMF4L15A	TPSMF4L15CA	AF	F15CA	16.70	18.50	1	1.0	15.0	16.4	24.4
TPSMF4L16A	TPSMF4L16CA	AG	F16CA	17.80	19.70	1	1.0	16.0	15.38	26.0
TPSMF4L17A	TPSMF4L17CA	AH	F17CA	18.90	20.90	1	1.0	17.0	14.5	27.6
TPSMF4L18A	TPSMF4L18CA	AK	F18CA	20.00	22.10	1	1.0	18.0	13.7	29.2
TPSMF4L19A	TPSMF4L19CA	F19A	F19CA	21.10	23.30	1	1.0	19.0	13.08	30.6
TPSMF4L20A	TPSMF4L20CA	AL	F20CA	22.20	24.50	1	1.0	20.0	12.34	32.4
TPSMF4L22A	TPSMF4L22CA	AM	F22CA	24.40	26.90	1	1.0	22.0	11.26	35.5
TPSMF4L24A	TPSMF4L24CA	AN	F24CA	26.70	29.50	1	1.0	24.0	10.28	38.9
TPSMF4L26A	TPSMF4L26CA	AP	F26CA	28.90	31.90	1	1.0	26.0	9.5	42.1
TPSMF4L28A	TPSMF4L28CA	AR	F28CA	31.10	34.40	1	1.0	28.0	8.82	45.4
TPSMF4L30A	TPSMF4L30CA	AS	F30CA	33.30	36.80	1	1.0	30.0	8.26	48.4
TPSMF4L33A	TPSMF4L33CA	AT	F33CA	36.70	40.60	1	1.0	33.0	7.5	53.3
TPSMF4L36A	TPSMF4L36CA	AU	F36CA	40.00	44.20	1	1.0	36.0	6.88	58.1
TPSMF4L40A	TPSMF4L40CA	AV	F40CA	44.40	49.10	1	1.0	40.0	6.2	64.5

■ **Electrical Characteristics** TA=25°C unless otherwise noted

Part Number		Marking		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R @ V_{RWM}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)
(Uni)	(Bi)	(Uni)	(Bi)	Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
TPSMF4L43A	TPSMF4L43CA	AW	F43CA	47.80	52.80	1	1.0	43.0	5.76	69.4
TPSMF4L45A	TPSMF4L45CA	AX	F45CA	50.00	55.30	1	1.0	45.0	5.5	72.7
TPSMF4L48A	TPSMF4L48CA	AY	4VX	53.30	58.90	1	1.0	48.0	5.16	77.4
TPSMF4L51A	TPSMF4L51CA	AZ	4VZ	56.70	62.70	1	1.0	51.0	4.86	82.4
TPSMF4L54A	TPSMF4L54CA	B1	4WE	60.00	66.30	1	1.0	54.0	4.6	87.1
TPSMF4L58A	TPSMF4L58CA	B2	4WG	64.40	71.20	1	1.0	58.0	4.28	93.6
TPSMF4L60A	TPSMF4L60CA	B3	4WK	66.70	73.70	1	1.0	60.0	4.14	96.8
TPSMF4L64A	TPSMF4L64CA	B4	4WM	71.10	78.60	1	1.0	64.0	3.88	103.0
TPSMF4L70A	TPSMF4L70CA	B5	4WP	77.80	86.00	1	1.0	70.0	3.54	113.0
TPSMF4L75A	TPSMF4L75CA	B6	4WR	83.30	92.10	1	1.0	75.0	3.3	121.0
TPSMF4L78A	TPSMF4L78CA	B7	4WT	86.70	95.80	1	1.0	78.0	3.18	126.0
TPSMF4L80A	TPSMF4L80CA	B8	4WU	88.80	97.60	1	1.0	80.0	3.1	129.0
TPSMF4L85A	TPSMF4L85CA	B9	4WV	94.40	104.00	1	1.0	85.0	2.92	137.0
TPSMF4L90A	TPSMF4L90CA	B10	4WX	100.00	111.00	1	1.0	90.0	2.74	146.0
TPSMF4L100A	TPSMF4L100CA	B11	4WZ	111.00	123.00	1	1.0	100.0	2.46	162.0

Rating and characteristic curves

FIG.1 - PULSE DERATING CURVE

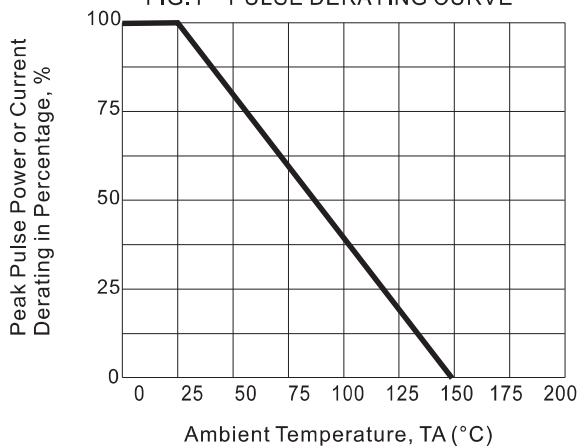


FIG.2 - 10X1000us PULSE WAVEFORM

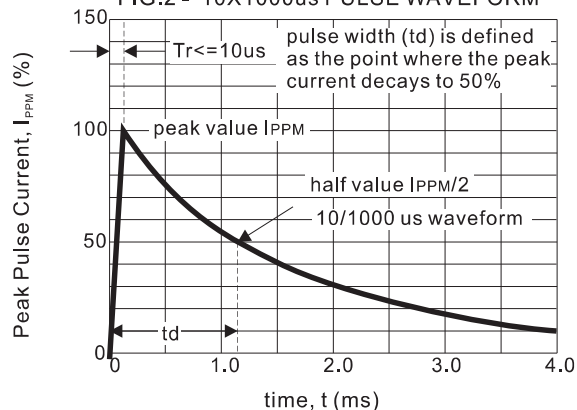


FIG.3 - 8X20us PULSE WAVEFORM

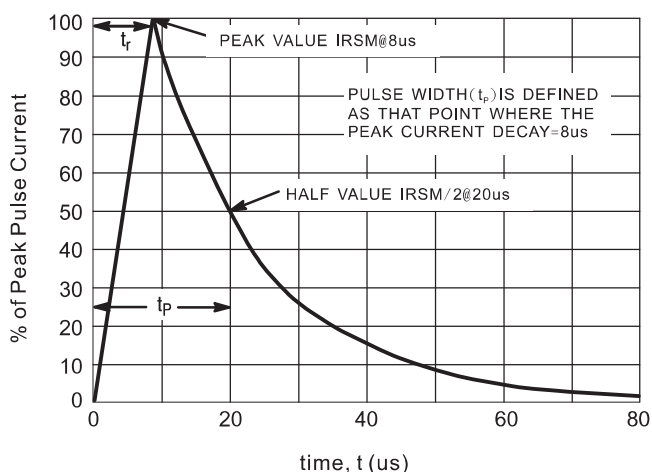


FIG.4 - PEALK PULSE POWER RATING CURVE

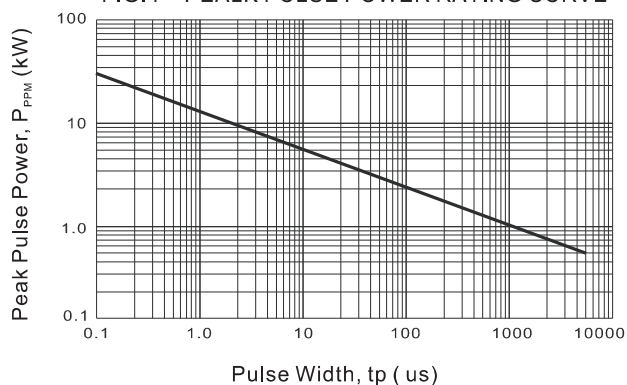
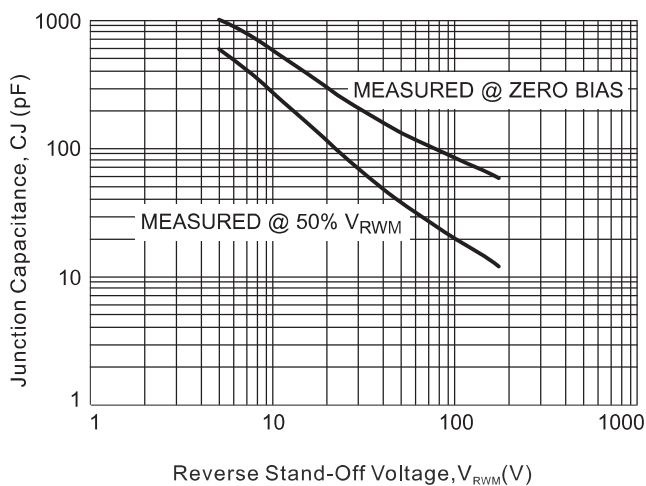


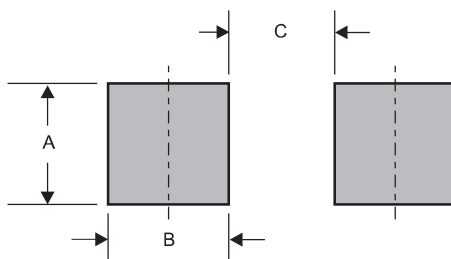
FIG.5 - TYPICAL JUNCTION CAPACITANCE



Pinning information

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

Suggested solder pad layout

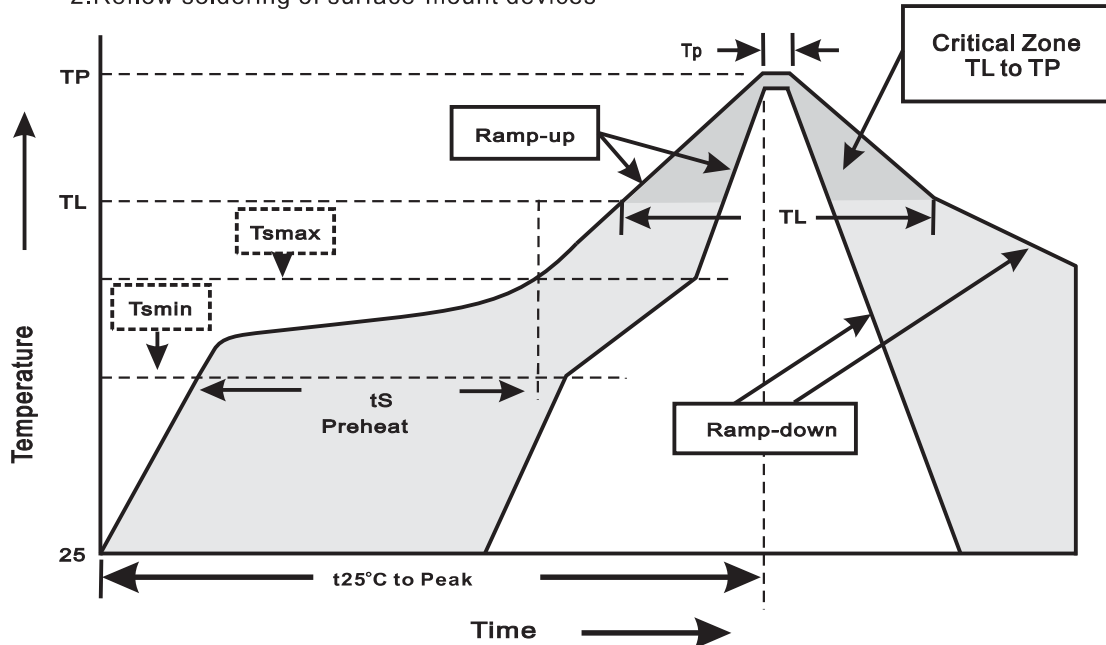


Dimensions in inches and (millimeters)

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_L to T_P)	<3°C/sec
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} 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