

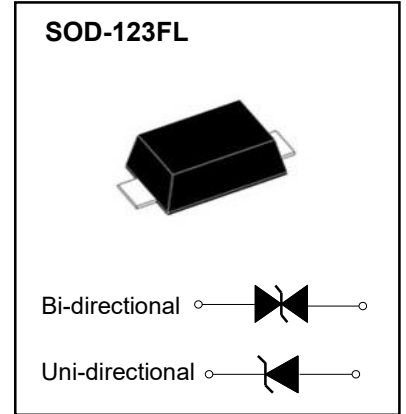


SOD-123FL Plastic-Encapsulate Diode

SM4F SERIES

Transient Voltage Suppressor Diodes

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{RWM}	5-8	V
I_R	100-50	μA
I_{PP}	43.4-29.4	A
V_C	9.2-13.6	V
P_{PPM}	400	W



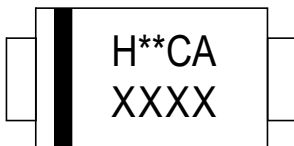
Features

- For surface mounted applications in order to optimize board space
- Glass passivated chip junction
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- 400W peak pulse power capability with a 10/1000 us waveform by 0.01% duty cycle
- RoHS Compliant
- ESD protection of data lines in accordance with IEC 61000-4-2,
- 30kV(Air), 30kV (Contact)

Mechanical Data

- Case: SOD-123FL
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Polarity: Color band denotes cathode end

Marking



Cathode Band: for uni-directional products only

H**CA = Device code, **=Voltage

C: Bi-directional or not

XXXX=Data Code

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Peak pulse power dissipation	P_{PPM}	W	with a 10/1000us waveform	400
Peak pulse current(note 1)	I_{PPM}	A	with a 10/1000us waveform	See Next Table
Power dissipation	P_D	W	On infinite heat sink at $T_L=75^{\circ}\text{C}$	2.5
Peak forward surge current	I_{FSM}	A	8.3 ms single half sine-wave uni-directional only (note 2)	80
Operating junction and storage temperature range	T_J, T_{STG}	$^{\circ}\text{C}$		-55 to +150

Electrical Characteristics($T_A=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage	V _F	V	at 25A for uni-directional only	3.5
Thermal resistance	$R_{\theta JL}$	$^{\circ}\text{C}/\text{W}$	junction to lead $T_L=50^{\circ}\text{C}$	30
	$R_{\theta JLA}$	$^{\circ}\text{C}/\text{W}$	junction to ambient $T_A=25^{\circ}\text{C}$	125

Notes:

- (1) Non-repetitive current pulse at $T_A=25^{\circ}\text{C}$, per waveform of Figure 2.
- (2) 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum
- (3) Thermal resistance from junction to ambient and from junction to lead mounted on 1" x 1"(25.4mm x 25.4mm)FR4 PCB, double sided copper, with minimum pad layout

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number		Device Marking Code		Breakdown Voltage VBR@IT		Test Current	Max Reverse Leakage @ V_{RWM}	Reverse Standoff Voltage	Max Peak Pulse Current ⁽¹⁾	Max Clamping Voltage @ I_{PP}
UNI	BI	UNI	BI	Min.(V)	Max.(V)	IT(mA)	I_R (uA)	V_{RWM} (V)	I_{PP} (A)	V_C (V)
SM4F5.0A	SM4F5.0CA	H5.0A XXXX	H5.0CA XXXX	6.40	7.00	10	100	5	43.4	9.2
SM4F5.5A	SM4F5.5CA	H5.5A XXXX	H5.5CA XXXX	6.40	7.00	10	100	5.5	43.4	9.2
SM4F6.0A	SM4F6.0CA	H6.0A XXXX	H6.0CA XXXX	6.67	7.37	10	100	6	38.9	10.3
SM4F6.5A	SM4F6.5CA	H6.5A XXXX	H6.5CA XXXX	7.22	7.98	10	50	6.5	35.7	11.2
SM4F7.0A	SM4F7.0CA	H7.0A XXXX	H7.0CA XXXX	7.80	8.60	10	50	7.0	33.3	12.0
SM4F7.5A	SM4F7.5CA	H7.5A XXXX	H7.5CA XXXX	8.33	9.21	1	50	7.5	31.0	12.9
SM4F8.0A	SM4F8.0CA	H8.0A XXXX	H8.0CA XXXX	8.89	9.83	1	50	8.0	29.4	13.6

Typical Characteristics

Figure 1. Peak Pulse Power Rating Curve

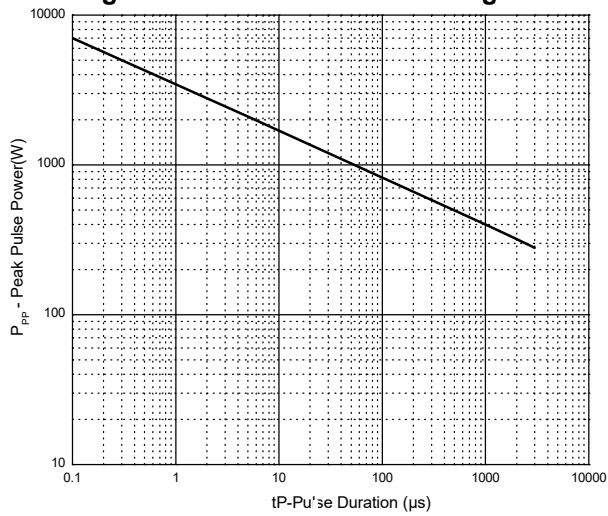


Figure 2. Pulse Derating Curve

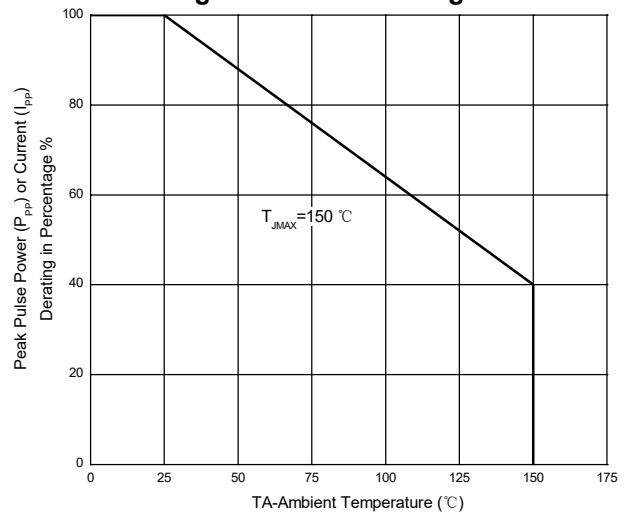


Figure 3. Pulse Waveform

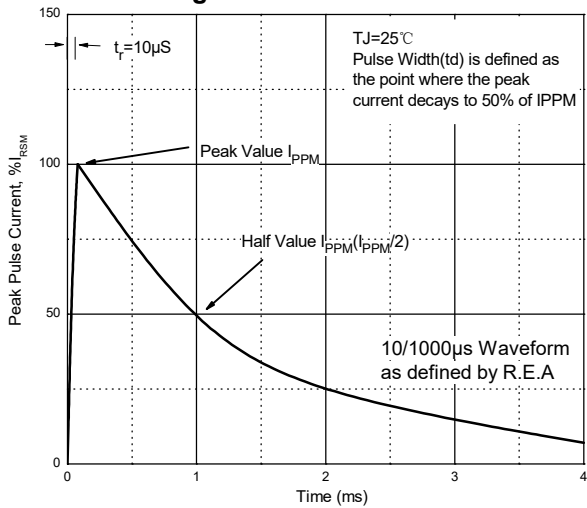


Figure 4. Typical Junction Capacitance

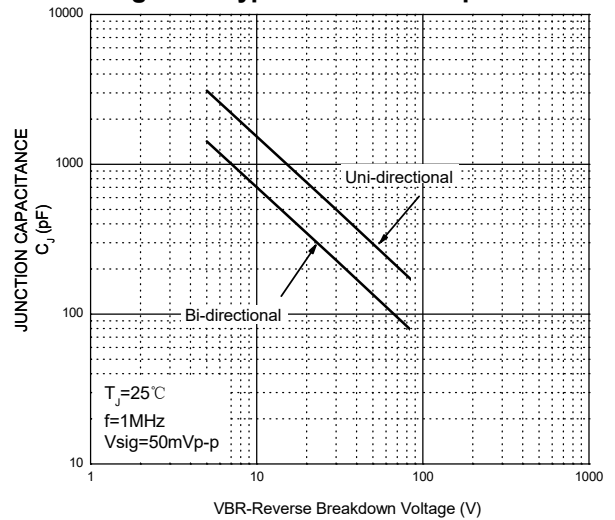


Figure 5. Steady State Power Dissipation Derating Curve

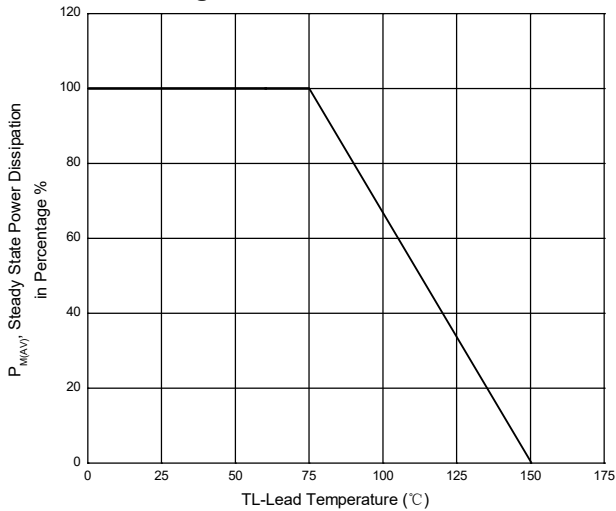
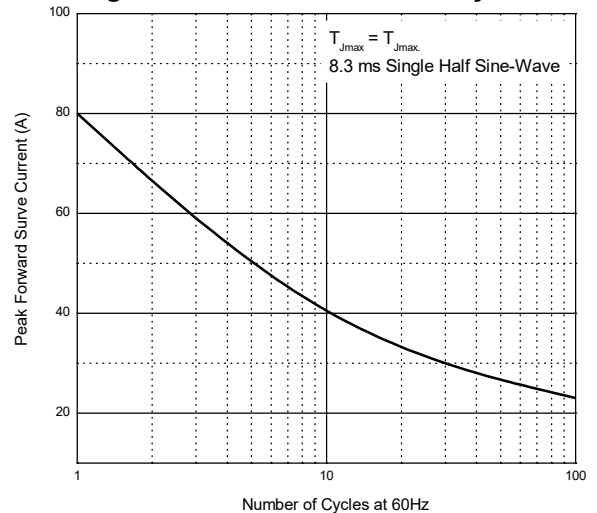
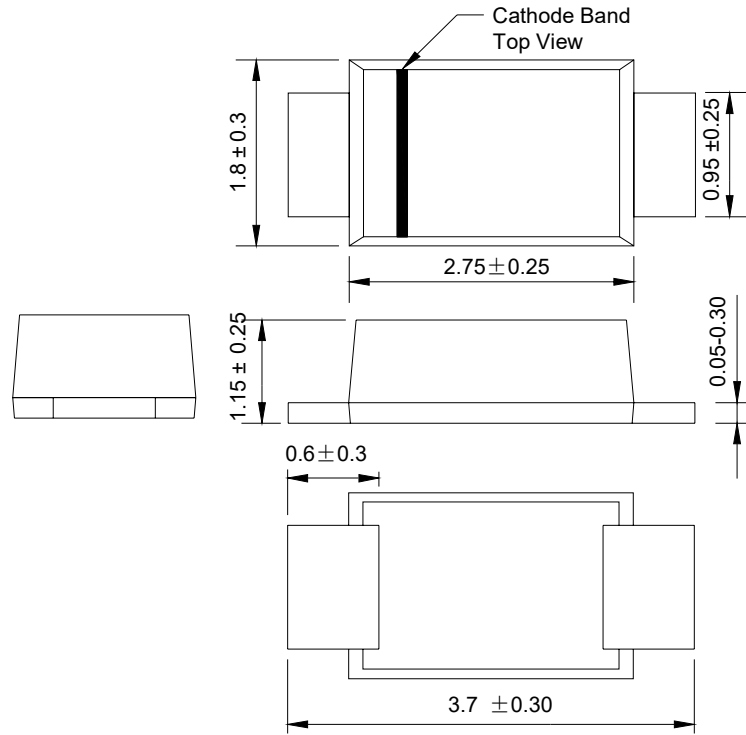


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

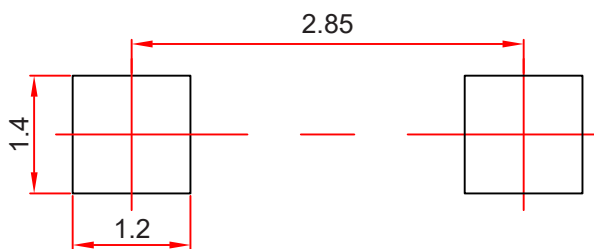


SOD-123FL Package Outline Dimensions



Dimensions in millimeters

SOD-123FL Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

Reel Taping Specifications For Surface Mount Devices-SOD-123FL

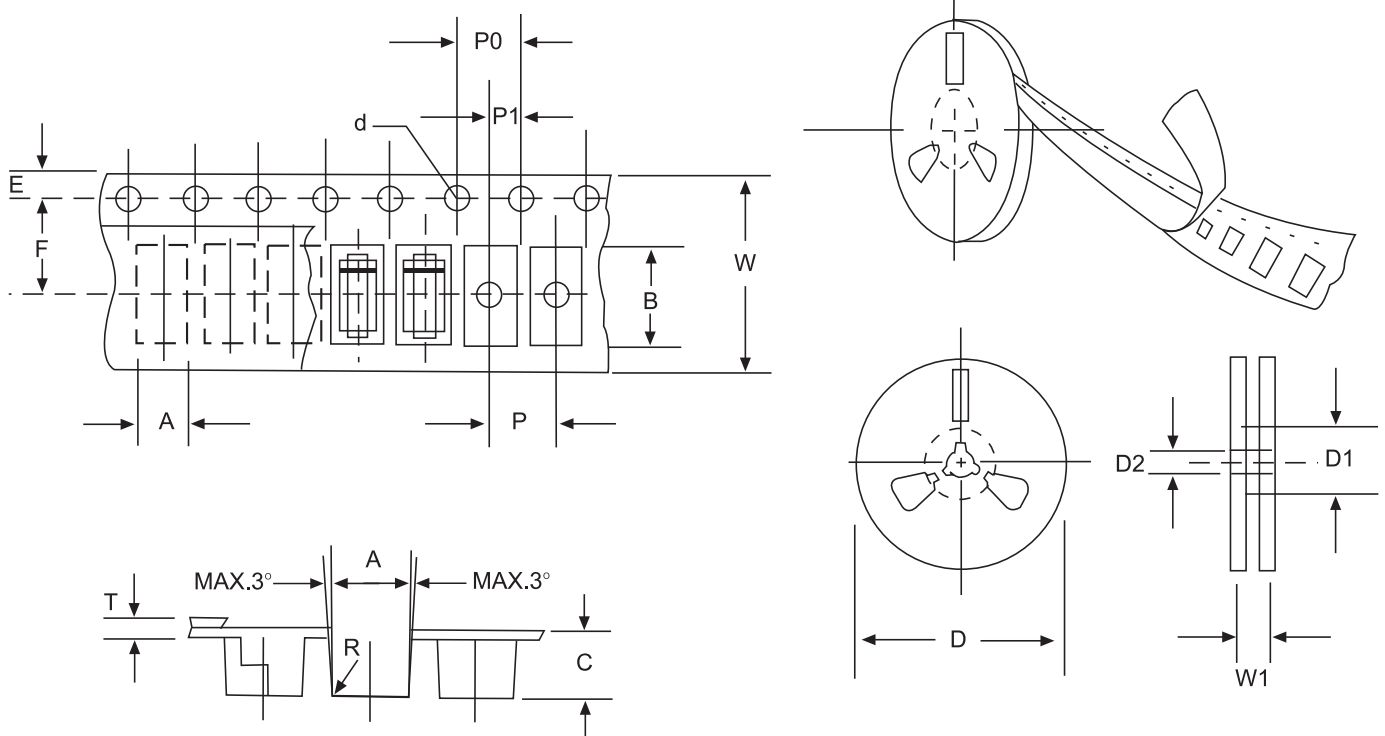


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

ITEM	SYMBOL	SOD-123FL mm (inch)
Carrier width	A	2.05±0.1 (0.081±0.004)
Carrier length	B	3.95±0.1 (0.156±0.004)
Carrier depth	C	1.45±0.1 (0.057±0.004)
Sprocket hole	d	1.55±0.05 (0.061±0.002)
Reel outside diameter	D	178±2.0 (7.0±0.079)
Reel inside diameter	D1	54±1.0 (2.13±0.039)
Feed hole position	D2	13±0.5 (0.512±0.020)
Strocket hole position	E	1.75±0.1 (0.069±0.004)
Punch hole position	F	3.5±0.05 (0.138±0.002)
Punch hole pitch	P	4.0±0.1 (0.157±0.004)
Strocket hole pitch	P0	4.0±0.1 (0.157±0.004)
Embossment center	P1	2.0±0.1 (0.079±0.004)
Total tape thickness	T	0.21±0.025 (0.011±0.010)
Tape width	W	8.0±0.2 (0.472±0.008)
Reel width	W1	10.0±2.0 (0.661±0.079)

NOTE: Devices are packer in accordance with EIA standard RS-481-A and specification given above.