SZCJ Shenzhen Changji Semiconductor Co., LTD.

SOD-123FL Plastic-Encapsulate Diode

SMF SERIES Transient Voltage Suppressor Diodes

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{RWM}	5-220	V
I_R	400-1	uA
I_{PP}	21.7-0.5	A
V_C	9.2-356	V
P_{PPM}	200	W

SOD-123FL



Bi-directional

Uni-directional

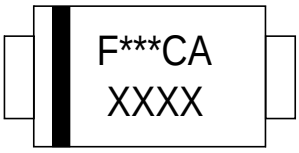
Features

- For surface mounted applications in order to optimize board space
- Glass passivated chip junction
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- 200W 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

F***CA = Device code,***=Voltage

C:Bi-directional or not

XXXX=data code

Electrical Characteristics(T_A=25℃ 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	200
Peakpulse 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=50℃	1.0
Peak forward surge current	I_{FSM}	A	8.3 ms single half sine-wave uni-directional only (note 2)	20
Operating junction and storage temperature range	T_J,T_{STG}	℃		-55 to +150

Electrical Characteristics(Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage	VF	V	at 25A for uni-directional only	3.5
Thermal resistance	$R_{\theta JL}$	℃/W	junction to lead T_L=50℃	100
	$R_{\theta JLA}$	℃/W	junction to ambient T_A=25℃	200

Notes:

(1) Non-repetitive current pulse at T_A=25℃， 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℃ 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)
SMF5.0A	SMF5.0CA	F5.0A XXXX	F5.0CA XXXX	6.4	7	10	800	5	21.7	9.2
SMF6.0A	SMF6.0CA	F6.0A XXXX	F6.0CA XXXX	6.67	7.37	10	800	6	19.4	10.3
SMF6.5A	SMF6.5CA	F6.5A XXXX	F6.5CA XXXX	7.22	7.98	10	500	6.5	17.9	11.2
SMF7.0A	SMF7.0CA	F7.0A XXXX	F7.0CA XXXX	7.78	8.6	10	200	7.0	16.7	12
SMF7.5A	SMF7.5CA	F7.5A XXXX	F7.5CA XXXX	8.33	9.21	1	100	7.5	15.5	12.9
SMF8.0A	SMF8.0CA	F8.0A XXXX	F8.0CA XXXX	8.89	9.83	1	50	8.0	14.7	13.6
SMF8.5A	SMF8.5CA	F8.5A XXXX	F8.5CA XXXX	9.44	10.4	1	20	8.5	13.9	14.4
SMF9.0A	SMF9.0CA	F9.0A XXXX	F9.0CA XXXX	10	11.1	1	10	9.0	13.0	15.4
SMF10A	SMF10CA	F10A XXXX	F10CA XXXX	11.1	12.3	1	5	10	11.8	17
SMF11A	SMF11CA	F11A XXXX	F11CA XXXX	12.2	13.5	1	1	11	11.0	18.2
SMF12A	SMF12CA	F12A XXXX	F12CA XXXX	13.3	14.7	1	1	12	10.1	19.9
SMF13A	SMF13CA	F13A XXXX	F13CA XXXX	14.4	15.9	1	1	13	9.3	21.5
SMF14A	SMF14CA	F14A XXXX	F14CA XXXX	15.6	17.2	1	1	14	8.6	23.2
SMF15A	SMF15CA	F15A XXXX	F15CA XXXX	16.7	18.5	1	1	15	8.2	24.4
SMF16A	SMF16CA	F16A XXXX	F16CA XXXX	17.8	19.7	1	1	16	7.7	26
SMF17A	SMF17CA	F17A XXXX	F17CA XXXX	18.9	20.9	1	1	17	7.2	27.6
SMF18A	SMF18CA	F18A XXXX	F18CA XXXX	20	22.1	1	1	18	6.8	29.2
SMF20A	SMF20CA	F20A XXXX	F20CA XXXX	22.2	24.5	1	1	20	6.2	32.4
SMF22A	SMF22CA	F22A XXXX	F22CA XXXX	24.4	26.9	1	1	22	5.6	35.5
SMF24A	SMF24CA	F24A XXXX	F24CA XXXX	26.7	29.5	1	1	24	5.1	38.9

Electrical Characteristics(T_A=25℃ 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)
SMF26A	SMF26CA	F26A XXXX	F26CA XXXX	28.9	31.9	1	1	26	4.8	42.1
SMF28A	SMF28CA	F28A XXXX	F28CA XXXX	31.1	34.4	1	1	28	4.4	45.4
SMF30A	SMF30CA	F30A XXXX	F30CA XXXX	33.3	36.8	1	1	30	4.1	48.4
SMF33A	SMF33CA	F33A XXXX	F33CA XXXX	36.7	40.6	1	1	33	3.8	53.3
SMF36A	SMF36CA	F36A XXXX	F36CA XXXX	40	44.2	1	1	36	3.4	58.1
SMF40A	SMF40CA	F40A XXXX	F40CA XXXX	44.4	49.1	1	1	40	3.1	64.5
SMF43A	SMF43CA	F43A XXXX	F43CA XXXX	47.8	52.8	1	1	43	2.8	69.4
SMF45A	SMF45CA	F45A XXXX	F45CA XXXX	50	55.3	1	1	45	2.7	72.7
SMF48A	SMF48CA	F48A XXXX	F48CA XXXX	53.3	58.9	1	1	48	2.6	77.4
SMF51A	SMF51CA	F51A XXXX	F51CA XXXX	56.7	62.7	1	1	51	2.4	82.4
SMF54A	SMF54CA	F54A XXXX	F54CA XXXX	60	66.3	1	1	54	2.3	87.1
SMF58A	SMF58CA	F58A XXXX	F58CA XXXX	64.4	71.2	1	1	58	2.1	93.6
SMF60A	SMF60CA	F60A XXXX	F60CA XXXX	66.7	73.7	1	1	60	2.0	96.8
SMF64A	SMF64CA	F64A XXXX	F64CA XXXX	71.1	78.6	1	1	64	1.9	103
SMF70A	SMF70CA	F70A XXXX	F70CA XXXX	77.8	86	1	1	70	1.8	113
SMF75A	SMF75CA	F75A XXXX	F75CA XXXX	83.3	92.1	1	1	75	1.7	121
SMF78A	SMF78CA	F78A XXXX	F78CA XXXX	86.7	95.8	1	1	78	1.6	126
SMF80A	SMF80CA	F80A XXXX	F80CA XXXX	88.8	97.6	1	1	80	1.6	130
SMF85A	SMF85CA	F85A XXXX	F85CA XXXX	94.4	104	1	1	85	1.5	137
SMF90A	SMF90CA	F90A XXXX	F90CA XXXX	100	111	1	1	90	1.4	146

Electrical Characteristics(T_A=25℃ 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)
SMF100A	SMF100CA	F100A XXXX	F100CA XXXX	111	123	1	1	100	1.2	162
SMF110A	SMF110CA	F110A XXXX	F110CA XXXX	122	135	1	1	110	1.1	177
SMF120A	SMF120CA	F120A XXXX	F120CA XXXX	133	147	1	1	120	1.0	193
SMF130A	SMF130CA	F130A XXXX	F130CA XXXX	144	159	1	1	130	0.9	209
SMF150A	SMF150CA	F150A XXXX	F150CA XXXX	167	185	1	1	150	0.8	243
SMF160A	SMF160CA	F160A XXXX	F160CA XXXX	178	197	1	1	160	0.8	259
SMF170A	SMF170CA	F170A XXXX	F170CA XXXX	189	209	1	1	170	0.7	275
SMF180A	SMF180CA	F180A XXXX	F180CA XXXX	201	222	1	1	180	0.7	292
SMF200A	SMF200CA	F200A XXXX	F200CA XXXX	224	247	1	1	200	0.6	324
SMF220A	SMF220CA	F220A XXXX	F220CA XXXX	246	272	1	1	220	0.5	356

Notes:

(1) Waveform of SMF5.0A -SMF220CA are defined as per fig.3

Typical Characteristics

Figure 1. Peak Pulse Power Rating Curve

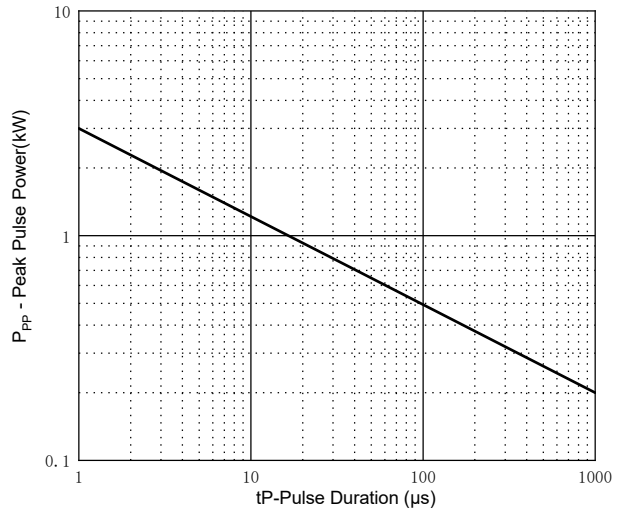


Figure 2. Pulse Derating Curve

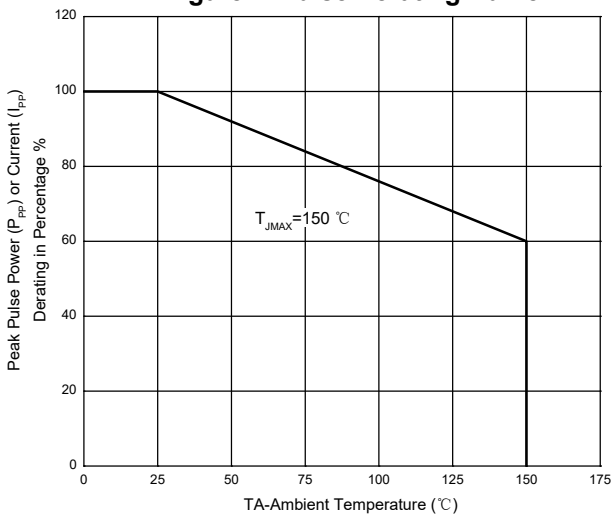


Figure 3. Pulse Waveform

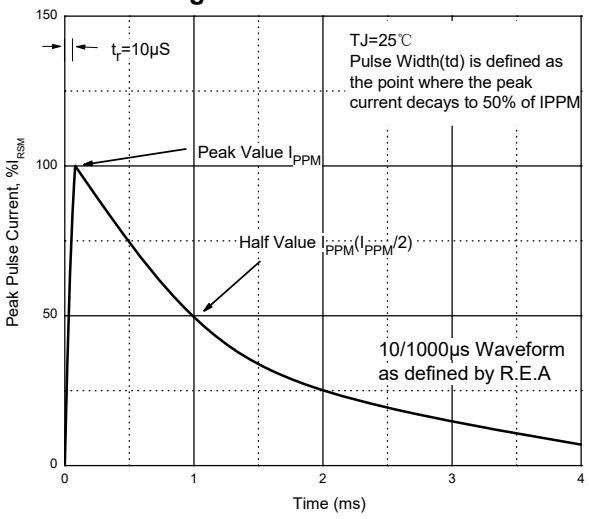


Figure 4. Typical Junction Capacitance

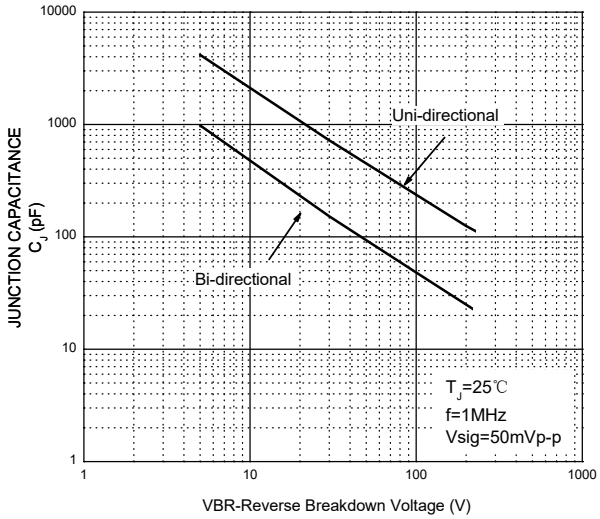


Figure 5. Steady State Power Dissipation Derating Curve

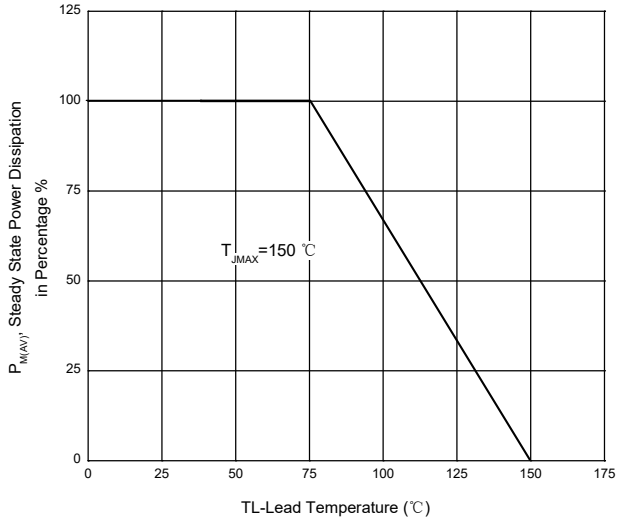
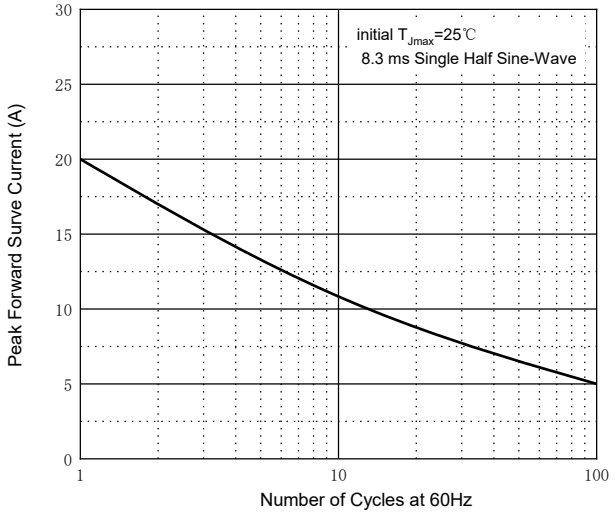
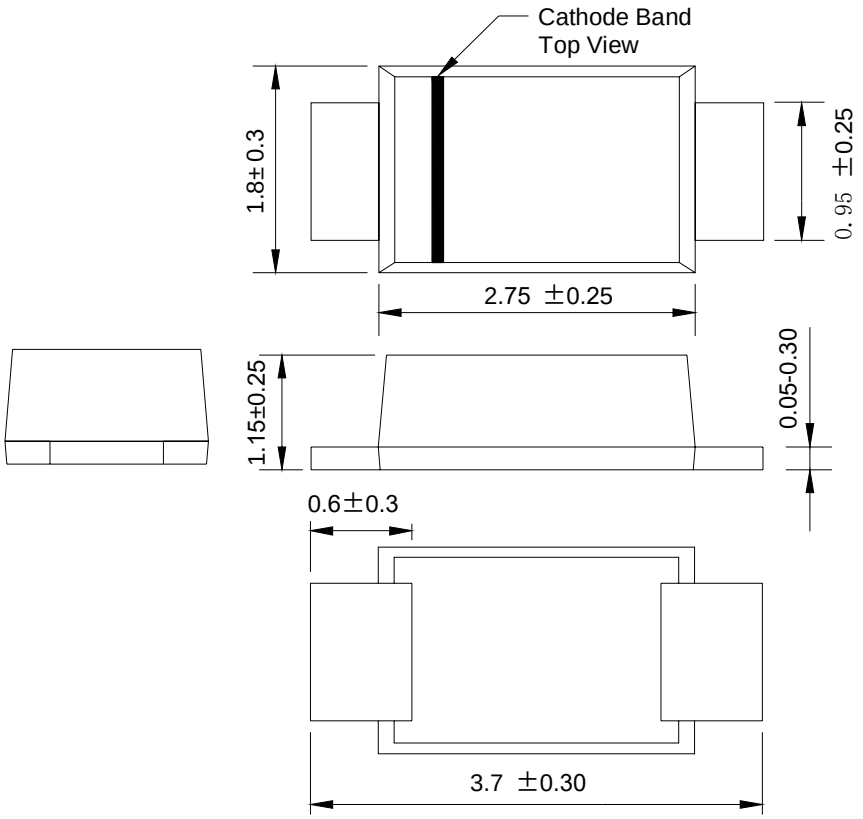


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

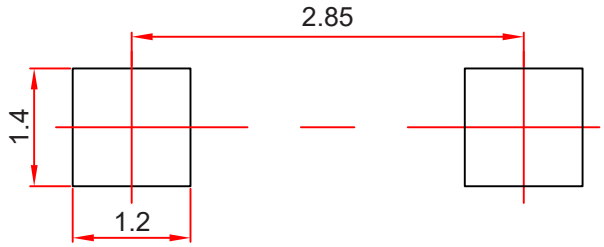


SOD-123FL Package Outline Dimensions



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

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

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

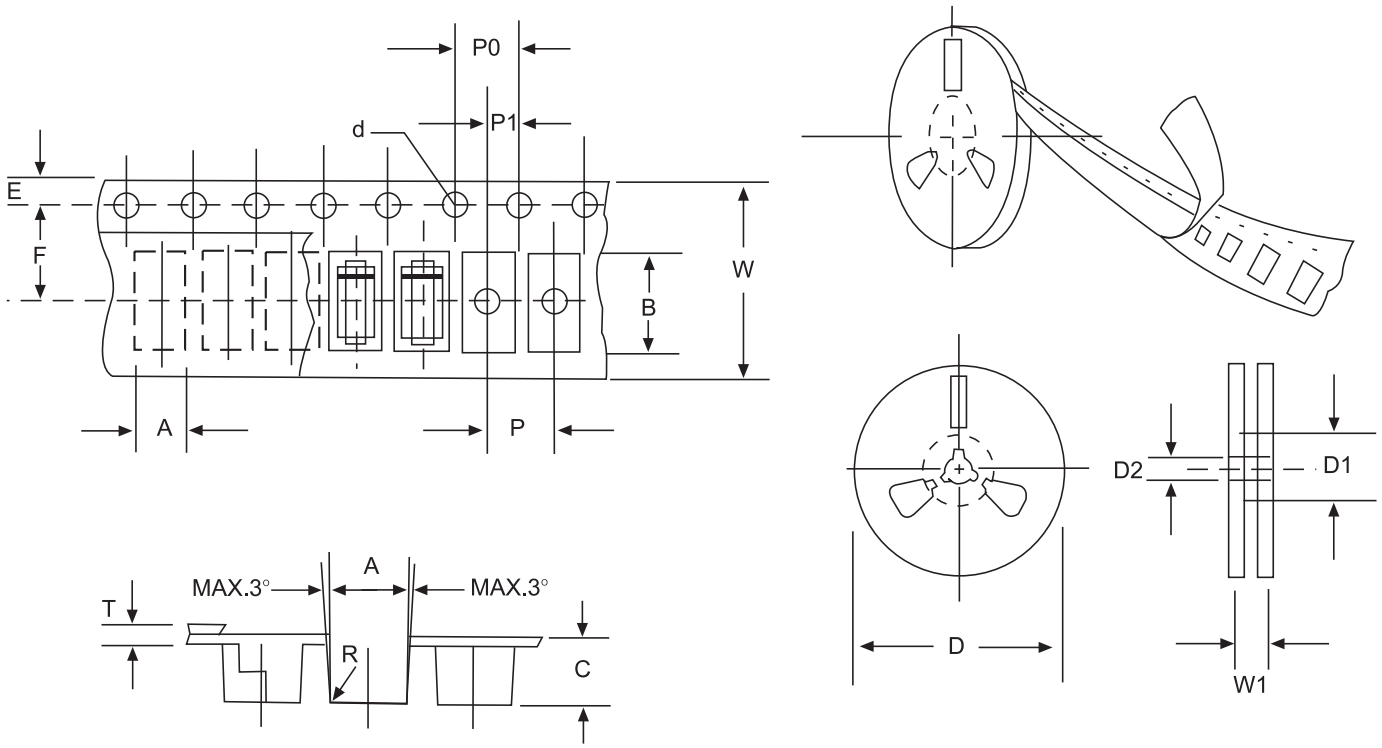


FIG:CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

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)
Totall 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.