

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 400W peak pulse power capability with
- Excellent clamping capability
- Very fast response time

SOD-123



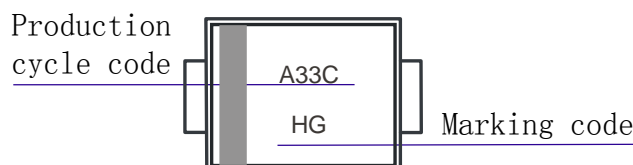
### TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and for consumer, computer, industrial, automotive and telecommunication.

### MECHANICAL DATA

Case: SOD-123  
 Epoxy meets UL 94V-0 flammability rating  
 reliability grade (AEC Q101 qualified)  
 Polarity: Color band denotes cathode end

### Printing description



MAXIMUM RATINGS (TA=25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 $\mu$ s waveform	PPPM	400	W
Peak pulse current with a waveform	IPPM	See next table	A
Peak forward surge current 8.3 ms single half sine-wave uni-directional only	IFSM	30	A
Operating junction and storage temperature range	TJ, TSTG	-55 to +150	°C

**Notes:**

- (1) Non-repetitive current pulse, per Fig. 3 and derated above TA = 25°C per
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

## ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)

Part Number		Marking code		Breakdown voltage VBR@IT		Test Current IT	Reverse Stand off Voltage VRMV	Max. Reverse Leakage@VRM	Max. Clamping Voltage@IPP	Max. Peak Pulse Current
UNI	Bi	UNI	Bi	MIN(V)	MAX(V)	(mA)	V	uA	V	A
SMF5.0AL	SMF5.0CAL	AE	5CL	6.4	7	10	5	400	9.2	40.1
SMF6.0AL	SMF6.0CAL	AG	6CL	6.67	7.37	10	6	400	10.3	35.9
SMF6.5AL	SMF6.5CAL	AK	6VCL	7.22	7.98	10	6.5	250	11.2	33.1
SMF7.0AL	SMF7.0CAL	AM	7CL	7.78	8.6	10	7	100	12	30.9
SMF7.5AL	SMF7.5CAL	AP	7VCL	8.33	9.21	1	7.5	50	12.9	28.7
SMF8.0AL	SMF8.0CAL	AR	8CL	8.89	9.83	1	8	25	13.6	27.2
SMF9.0AL	SMF9.0CAL	AV	9CL	10	11.1	1	9	5	15.4	24.1
SMF10AL	SMF10CAL	AX	10CL	11.1	12.3	1	10	2.5	17	23.5
SMF11AL	SMF11CAL	AZ	11CL	12.2	13.5	1	11	2.5	18.2	22
SMF12AL	SMF12CAL	BE	12CL	13.3	14.7	1	12	2.5	19.9	20.1
SMF13AL	SMF13CAL	BG	13CL	14.4	15.9	1	13	1	21.5	18.6
SMF14AL	SMF14CAL	BK	14CL	15.6	17.2	1	14	1	23.2	17.2
SMF15AL	SMF15CAL	BM	15CL	16.7	18.5	1	15	1	24.4	16.4
SMF17AL	SMF17CAL	BN	17CL	18.9	19.9	1	17	1	27.6	14.5
SMF18AL	SMF18CAL	BT	18CL	20	22.1	1	18	1	29.2	13.7
SMF20AL	SMF20CAL	BV	20CL	22.2	24.5	1	20	1	32.4	12.3
SMF22AL	SMF22CAL	BX	22CL	24.4	26.9	1	22	1	35.5	11.3
SMF24AL	SMF24CAL	BZ	24CL	26.7	29.5	1	24	1	38.9	10.3
SMF26AL	SMF26CAL	CE	26CL	28.9	31.9	1	26	1	42.1	9.5
SMF28AL	SMF28CAL	CG	28CL	31.1	34.4	1	28	1	45.4	8.8
SMF30AL	SMF30CAL	CK	30CL	33.3	36.8	1	30	1	48.4	8.3
SMF33AL	SMF33CAL	CM	33CL	36.7	40.6	1	33	1	53.3	7.5
SMF36AL	SMF36CAL	CP	36CL	40	44.2	1	36	1	58.1	6.9
SMF40AL	SMF40CAL	CR	40CL	44.4	49.1	1	40	1	64.5	6.2
SMF43AL	SMF43CAL	CT	43CL	47.8	52.8	1	43	1	69.4	5.8
SMF45AL	SMF45CAL	CV	45CL	50	55.3	1	45	1	72.7	5.5
SMF48AL	SMF48CAL	CX	48CL	53.3	58.9	1	48	1	77.4	5.2

**RATINGS AND CHARACTERISTICS CURVES**

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

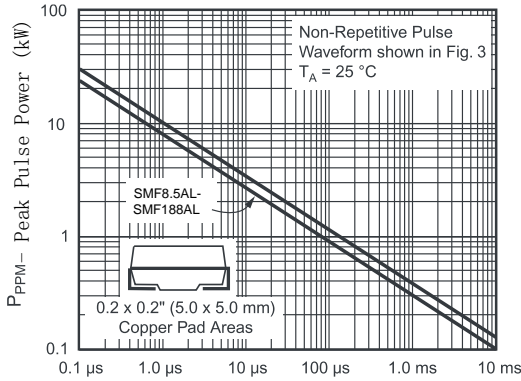


Figure 1. Peak Pulse Power Rating Curve

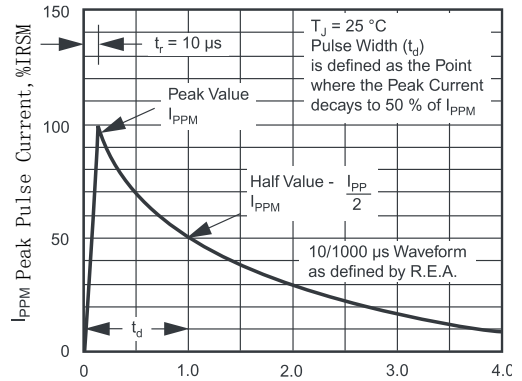


Figure 3. Pulse Waveform

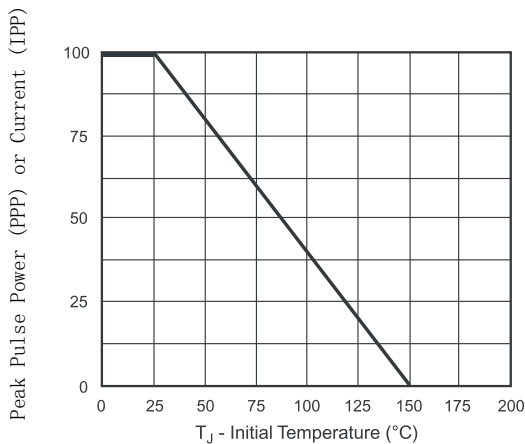


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

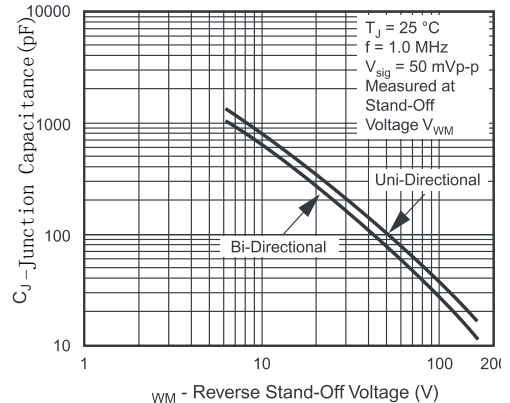


Figure 4. Typical Junction Capacitance

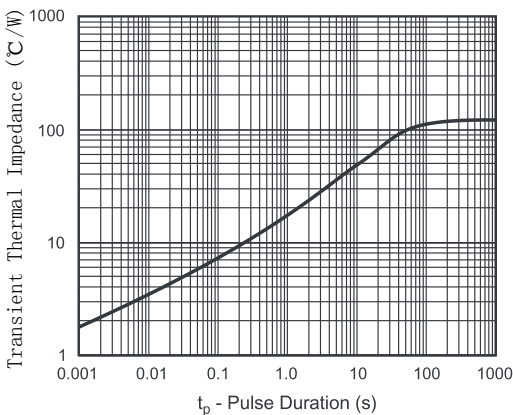


Figure 5. Typical Transient Thermal Impedance

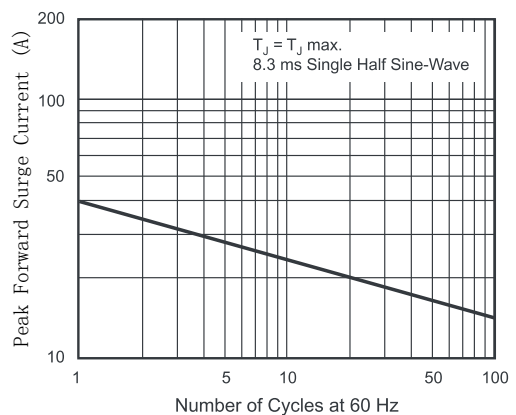
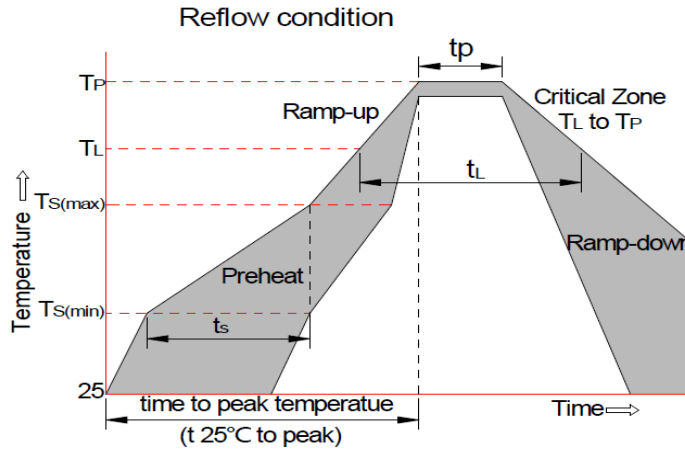


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

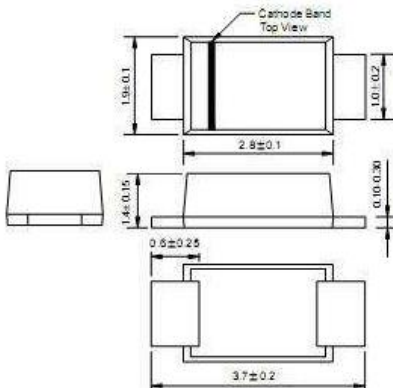
## Soldering Parameters



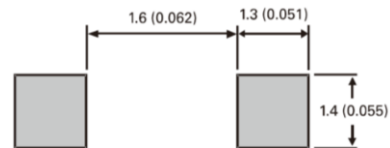
Reflow Condition		PbFree assembly (see asbellow)
Pre Heat	-Temperature Min (Ts(Min))	+150°C
	-Temperature Max(Ts(max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (TL) to peak)		3°C/sec. Max
	Ts(max) to TL -Ramp-up Rate	3°C/sec. Max
Reflow	-Temperature(TL)(Liquid us)	+217°C
	-Temperature(tL)	60-150 secs.
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (Tp)		8 min. Max
Do not exceed		+260°C

## PACKAGE OUTLINE DIMENSIONS

in inches (millimeters)



## Mounting Pad Layout



Unmarked tolerance: +0.2mm