

**SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**

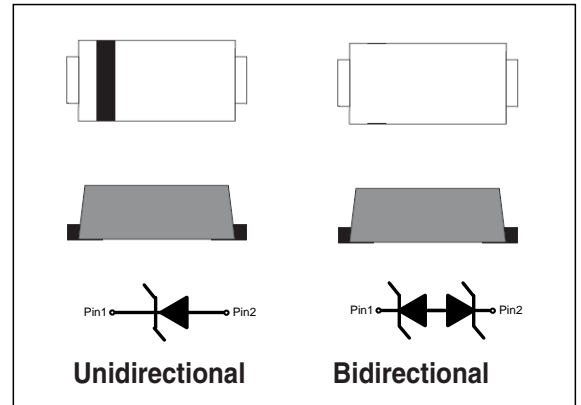
**200 Watt Peak Pulse Power**

**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 requirements

**Applications**

- \* Personal digital assistants (PDA)
- \* Cellular handsets & Accessories
- \* Portable devices
- \* Portable instrumentation



**Mechanical data**

- \* **Epoxy** : UL94-V0 rated flame retardant
- \* **Case** : Molded plastic, SOD123-FL/SMF
- \* **Terminals** :Plated terminals, solderable per MIL-STD-750,Method 2026
- \* **Polarity** : Indicated by cathode band; Bidirectional without color band.
- \* **Mounting Position** : Any
- \* **Weight** : Approximated 0.0155 gram

**Order information**

Device	Package	Shipping
SODAXXV/B-SH	SOD-123FL	3000/Tape&Reel

**1.Maximum ratings and Electrical Characteristics(AT T =25 AoC unless otherwise noted)**

PARAMETER	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^{\circ}C$ , $T_P=1ms$ (Note 1)	$P_{PPM}$	Minimum 200	Watts
Steady State Power Dissipation at $T_A=75^{\circ}C$ (Note 2)	$P_{M(AV)}$	0.4	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 3)	$I_{FSM}$	20	Amps
Operating Temperature Range	$T_{J,}$	-55 to +150	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^{\circ}C$

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^{\circ}C$  per Fig. 2.
2. 8.0mm<sup>2</sup> (.013mm thick) land areas
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

**ELECTRICAL CHARACTERISTICS**

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min.@IT	Breakdown Voltage Max.@IT	Test Current	Maximum Clamping Voltage	Peak Pulse Current	Reverse Leakage @VRWM
Uni	Bi	Uni	Bi	VRWM(V)	VBR (V)	VBR (V)	IT(mA)	VC(V)	Ipp(A)	Ir(μA)
SODA5.0V-SH	SODA5.0B-SH	AE	FE	5.0	6.40	7.00	10	9.2	21.74	400
SODA6.0V-SH	SODA6.0B-SH	AG	FG	6.0	6.67	7.37	10	10.3	19.42	400
SODA6.5V-SH	SODA6.5B-SH	AK	FK	6.5	7.22	7.98	10	11.2	17.86	250
SODA7.0V-SH	SODA7.0B-SH	AM	FM	7.0	7.78	8.60	10	12.0	16.67	100
SODA7.5V-SH	SODA7.5B-SH	AP	FP	7.5	8.33	9.21	1	12.9	15.50	50
SODA8.0V-SH	SODA8.0B-SH	AR	FR	8.0	8.89	9.83	1	13.6	14.71	25
SODA8.5V-SH	SODA8.5B-SH	AT	FT	8.5	9.44	10.40	1	14.4	13.89	10
SODA9.0V-SH	SODA9.0B-SH	AV	FV	9.0	10.00	11.10	1	15.4	12.99	5
SODA10V-SH	SODA10B-SH	AX	FX	10.0	11.10	12.30	1	17.0	11.76	2.5
SODA11V-SH	SODA11B-SH	AZ	FZ	11.0	12.20	13.50	1	18.2	10.99	2.5
SODA12V-SH	SODA12B-SH	BE	HE	12.0	13.30	14.70	1	19.9	10.05	2.5
SODA13V-SH	SODA13B-SH	BG	HG	13.0	14.40	15.90	1	21.5	9.30	1
SODA14V-SH	SODA14B-SH	BK	HK	14.0	15.60	17.20	1	23.2	8.62	1
SODA15V-SH	SODA15B-SH	BM	HM	15.0	16.70	18.50	1	24.4	8.20	1
SODA16V-SH	SODA16B-SH	BP	HP	16.0	17.80	19.70	1	26.0	7.69	1
SODA17V-SH	SODA17B-SH	BR	HR	17.0	18.90	20.90	1	27.6	7.25	1
SODA18V-SH	SODA18B-SH	BT	HT	18.0	20.00	22.10	1	29.2	6.85	1
SODA19V-SH	SODA19B-SH	BB	HB	19.0	21.10	23.30	1	30.6	6.54	1
SODA20V-SH	SODA20B-SH	BV	HV	20.0	22.20	24.50	1	32.4	6.17	1
SODA22V-SH	SODA22B-SH	BX	HX	22.0	24.40	26.90	1	35.5	5.63	1
SODA24V-SH	SODA24B-SH	BZ	HZ	24.0	26.70	29.50	1	38.9	5.14	1
SODA26V-SH	SODA26B-SH	CE	JE	26.0	28.90	31.90	1	42.1	4.75	1
SODA28V-SH	SODA28B-SH	CG	JG	28.0	31.10	34.40	1	45.4	4.41	1
SODA30V-SH	SODA30B-SH	CK	JK	30.0	33.30	36.80	1	48.4	4.13	1
SODA33V-SH	SODA33B-SH	CM	JM	33.0	36.70	40.60	1	53.3	3.75	1
SODA36V-SH	SODA36B-SH	CP	JP	36.0	40.00	44.20	1	58.1	3.44	1
SODA40V-SH	SODA40B-SH	CR	JR	40.0	44.40	49.10	1	64.5	3.10	1
SODA43V-SH	SODA43B-SH	CT	JT	43.0	47.80	52.80	1	69.4	2.88	1
SODA45V-SH	SODA45B-SH	CV	JV	45.0	50.00	55.30	1	72.7	2.75	1
SODA48V-SH	SODA48B-SH	CX	JX	48.0	53.30	58.90	1	77.4	2.58	1
SODA51V-SH	SODA51B-SH	CZ	JZ	51.0	56.70	62.70	1	82.4	2.43	1
SODA54V-SH	SODA54B-SH	DE	XE	54.0	60.00	66.30	1	87.1	2.30	1
SODA58V-SH	SODA58B-SH	DG	XG	58.0	64.40	71.20	1	93.6	2.14	1
SODA60V-SH	SODA60B-SH	DK	XK	60.0	66.70	73.70	1	96.8	2.07	1
SODA64V-SH	SODA64B-SH	DM	XM	64.0	71.10	78.60	1	103.0	1.94	1
SODA70V-SH	SODA70B-SH	DP	XP	70.0	77.80	86.00	1	113.0	1.77	1
SODA75V-SH	SODA75B-SH	DR	XR	75.0	83.30	92.10	1	121.0	1.65	1
SODA78V-SH	SODA78B-SH	DT	XT	78.0	86.70	95.80	1	126.0	1.59	1
SODA80V-SH	SODA80B-SH	DV	XV	80.0	88.80	97.60	1	129.0	1.55	1
SODA85V-SH	SODA85B-SH	DV	XB	85.0	94.00	104.10	1	137.0	1.46	1
SODA90V-SH	SODA90B-SH	DX	XX	90.0	100.00	111.30	1	146.0	1.37	1
SODA100V-SH	SODA100B-SH	DZ	XZ	100.0	111.00	123.00	1	162.0	1.23	1
SODA110V-SH	SODA110B-SH	EE	TE	110.0	122.0	135.0	1	177.0	1.13	1
SODA120V-SH	SODA120B-SH	EG	TG	120.0	133.0	147.0	1	193.0	1.04	1
SODA130V-SH	SODA130B-SH	EK	TK	130.0	144.0	159.0	1	209.0	0.96	1
SODA140V-SH	SODA140B-SH	EB	TB	140.0	155.0	171.0	1	224.0	0.89	1
SODA150V-SH	SODA150B-SH	EM	TM	150.0	167.0	185.0	1	243.0	0.82	1
SODA160V-SH	SODA160B-SH	EP	TP	160.0	178.0	197.0	1	259.0	0.77	1
SODA170V-SH	SODA170B-SH	ER	TR	170.0	189.0	209.0	1	275.0	0.73	1
SODA180V-SH	SODA180B-SH	ET	TT	180.0	200.0	220.0	1	292.0	0.69	1
SODA190V-SH	SODA190B-SH	EV	TV	190.0	211.0	232.0	1	308.0	0.69	1

2.Ratings and Characteristic Curves ( TA = 25°C unless otherwise noted )

Fig. 1-Peak Pulse Power Rating Curve

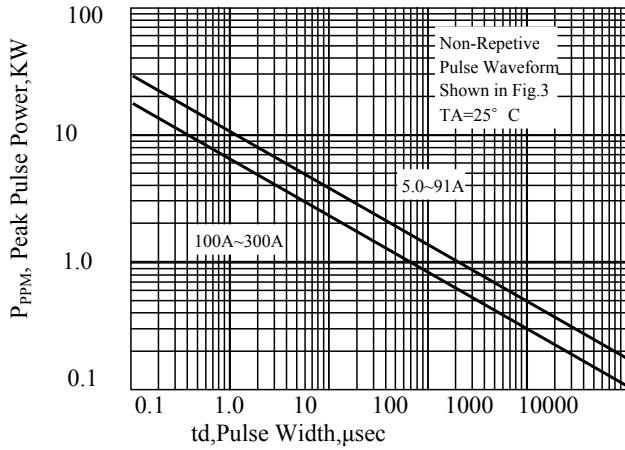


Fig. 2-Power Derating Curve

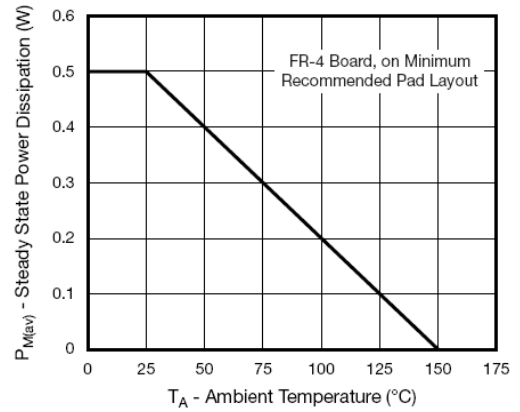


Fig. 3-Pulse Waveform

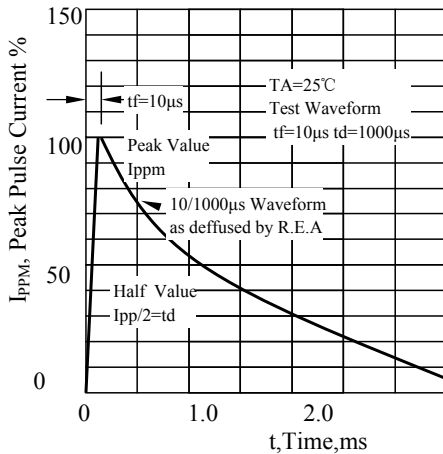


Fig. 4-Typical Junction Capacitance Unidirectional

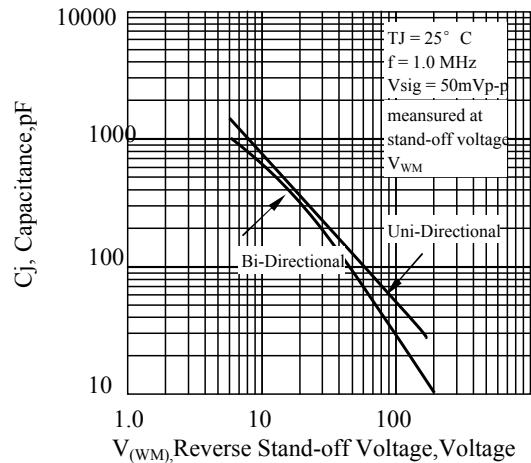


Fig 5. - typical transient thermal impedance

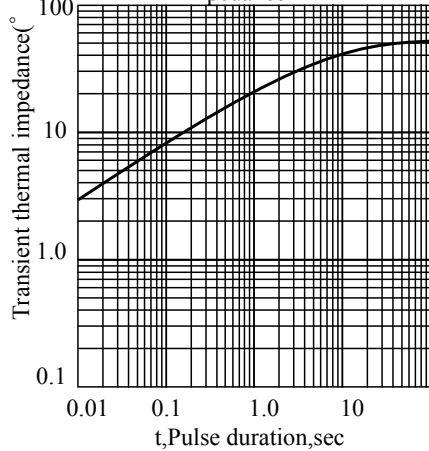
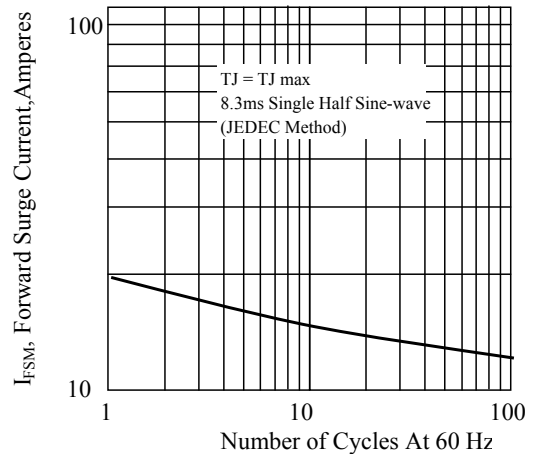
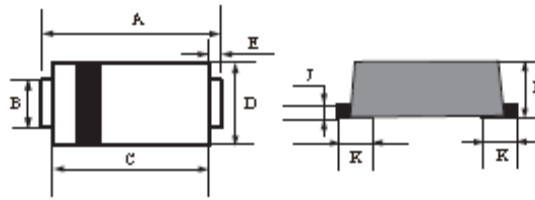


Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



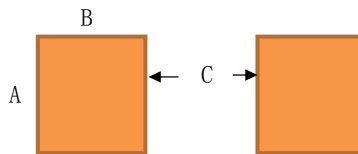
3. dimension:

SOD123-FL



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.5	3.9	0.138	0.159
B	0.75	1.00	0.029	0.040
C	2.6	3.0	0.103	0.119
D	1.6	2.0	0.063	0.079
E	0.45Typ		0.018Typ	
H	0.9	1.2	0.036	0.047
J	0.12	0.22	0.005	0.009
K	0.5-0.8		0.020-0.031	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD123-FL	0.044(1.10)	0.040(1.00)	0.079(2.00)

4.Soldering Parameters

Reflow Condition		Lead-free assembly
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 (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max)to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (Tp)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (Tp)		8 minutes Max.
Do not exceed		260°C

