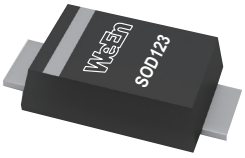
SOD Series

200W Transient Voltage Suppressor

Rev.01 - 23 December 2020 Product data sheet

1. General description

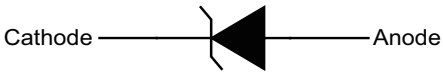
SOD series, 200W transient voltage suppressor (TVS) in SOD123 package, designed to protect electronic circuits against damage induced by lightning surges or other transient voltage events.



2. Features and benefits

- Peak pulse power 200W @ 10/1000μs waveform
- Excellent clamping capability
- Low incremental surge resistance
- Surface mount package for easy assembly and PCB space-saving
- Typical I_R < 1μA when V_R > 12V
- Fast response time: typically < 1.0ps from 0V to V_{BR} minimum
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- Guaranteed high temperature for reflow soldering: 260°C/10sec
- Mold compound complies to UL94V-0 flammability classification
- Meets MSL level 1, per J-STD-020
- Pb-free lead finish
- Halogen free and RoHS compliant

Bi-directional



Uni-directional

3. Applications

- Power supplies
- Industrial applications
- Power management circuits
- I/O interfaces

4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
SODxxxXX	SOD123	SODxxxXXX	Tape and reel	3000	SOD123J	18-Oct-2020
eg. SOD5.0CA	SOD123	SOD5.0CAX	Tape and reel	3000	SOD123J	18-Oct-2020

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
P_{PPM}	peak pulse power	[1]	200	W
$P_{M(AV)}$	steady state power dissipation	on infinite heatsink at T_a = 50 °C	1	W
I_{FSM}	peak forward surge current	t_p = 8.3 ms; single half sine-wave pulse; duty cycle = 4 pulses per minute maximum; unidirectional units only	30	A
T_{stg}	storage temperature range		-65 to 150	°C
T_j	operating temperature range		-65 to 150	°C

[1] In accordance with IEC 61643-321 (10/1000 μs current waveform).

6. Characteristics

T_j = 25 °C unless otherwise specified.

PN (Uni)	PN (Bi)	Reverse Stand off Voltage V_R (V)	Breakdown Voltage V_{BR} @ I_T (V)		Test current I_T (mA)	Max. Clamping Voltage V_C @ I_{pp} (V)	Max. Peak Pulse Current I_{pp} (A)	Maximum Reverse Leakage I_R @ V_R (µA)	Marking	
			Min	Max					Uni	Bi
SOD5.0A	SOD5.0CA	5	6.45	6.98	10	9.2	21.7	200	05	05
SOD6.0A	SOD6.0CA	6	6.8	7.32	10	10.3	19.4	200	06	06
SOD6.5A	SOD6.5CA	6.5	7.27	7.92	10	11.2	17.9	150	6F	6F
SOD7.0A	SOD7.0CA	7	7.82	8.57	10	12	16.7	75	07	07
SOD8.0A	SOD8.0CA	8	8.95	9.76	1	13.6	14.7	25	08	08
SOD9.0A	SOD9.0CA	9	10.08	11.03	1	15.4	13	5	09	09
SOD10A	SOD10CA	10	11.21	12.19	1	17	11.8	2.5	10	10
SOD11A	SOD11CA	11	12.32	13.38	1	18.2	11.1	2.5	11	11
SOD12A	SOD12CA	12	13.43	14.57	1	19.9	10.1	2.5	12	12
SOD13A	SOD13CA	13	14.51	15.79	1	21.5	9.3	1	13	13
SOD14A	SOD14CA	14	15.72	17.08	1	23.2	8.6	1	14	14
SOD15A	SOD15CA	15	16.83	18.37	1	24.4	8.2	1	15	15
SOD16A	SOD16CA	16	17.93	19.56	1	26	7.7	1	16	16
SOD17A	SOD17CA	17	19.08	20.72	1	27.6	7.2	1	17	17
SOD18A	SOD18CA	18	20.19	21.9	1	29.2	6.8	1	18	18
SOD20A	SOD20CA	20	22.41	24.28	1	32.4	6.2	1	20	20
SOD22A	SOD22CA	22	24.63	26.66	1	35.5	5.6	1	22	22
SOD24A	SOD24CA	24	26.95	29.23	1	38.9	5.1	1	24	24
SOD26A	SOD26CA	26	29.12	31.67	1	42.1	4.8	1	26	26
SOD28A	SOD28CA	28	31.33	34.16	1	45.4	4.4	1	28	28
SOD30A	SOD30CA	30	33.55	36.54	1	48.4	4.1	1	30	30
SOD33A	SOD33CA	33	36.98	40.3	1	53.3	3.8	1	33	33
SOD36A	SOD36CA	36	40.3	43.9	1	58.1	3.4	1	36	36
SOD40A	SOD40CA	40	44.7	48.8	1	64.5	3.1	1	40	40
SOD43A	SOD43CA	43	48.2	52.4	1	69.4	2.9	1	43	43
SOD45A	SOD45CA	45	50.4	54.9	1	72.7	2.8	1	45	45
SOD48A	SOD48CA	48	53.7	58.5	1	77.4	2.6	1	48	48
SOD51A	SOD51CA	51	57.1	62.3	1	82.4	2.4	1	51	51
SOD54A	SOD54CA	54	60.5	65.8	1	87.1	2.3	1	54	54
SOD58A	SOD58CA	58	64.9	70.6	1	93.6	2.1	1	58	58
SOD60A	SOD60CA	60	67.2	73.1	1	96.8	2.1	1	60	60
SOD64A	SOD64CA	64	71.7	77.9	1	103	1.9	1	64	64
SOD70A	SOD70CA	70	78.4	85.3	1	113	1.7	1	70	70
SOD75A	SOD75CA	75	84	91.4	1	121	1.6	1	75	75
SOD78A	SOD78CA	78	87.4	95	1	126	1.6	1	78	78
SOD85A	SOD85CA	85	95.2	103.2	1	137	1.5	1	85	85

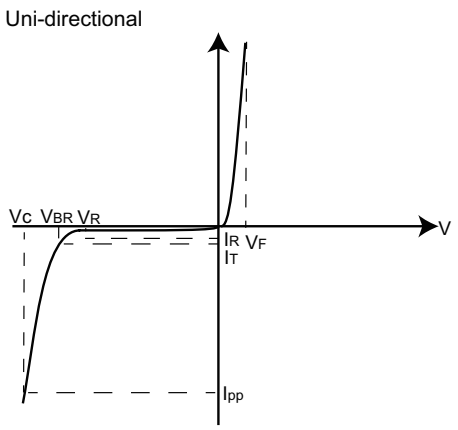


Fig. 1. I-V curve characteristics; Uni-directional

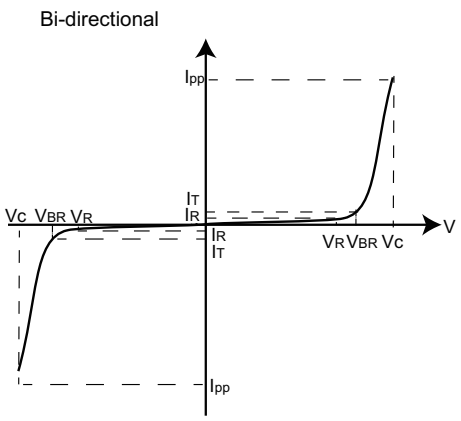


Fig. 2. I-V curve characteristics; Bi-directional

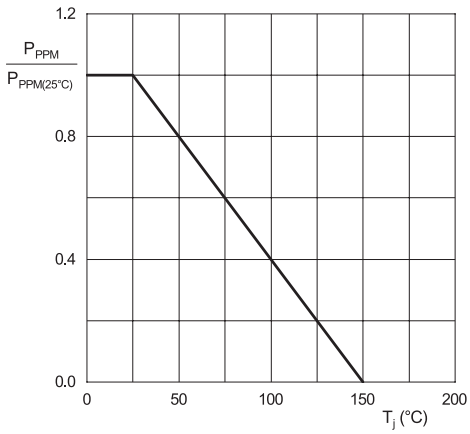


Fig. 3. Peak pulse power derating curve

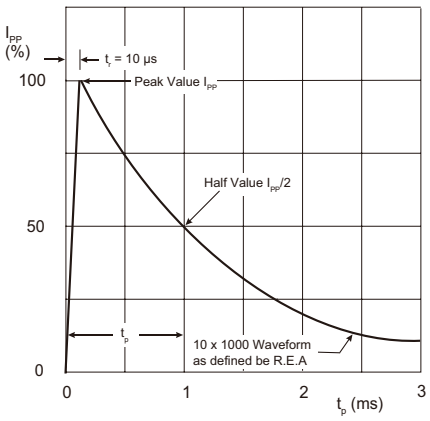


Fig. 4. Pulse waveform

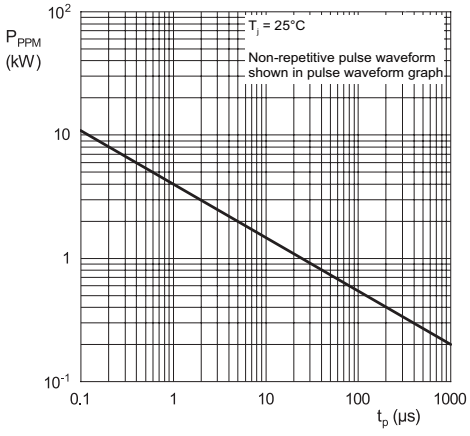


Fig. 5. Peak pulse power rating curve

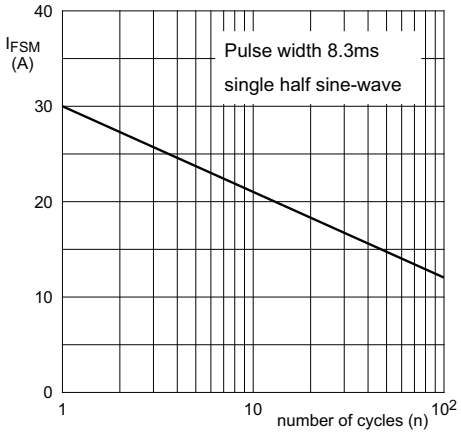


Fig. 6. Maximum non-repetitive surge current Uni-directional only

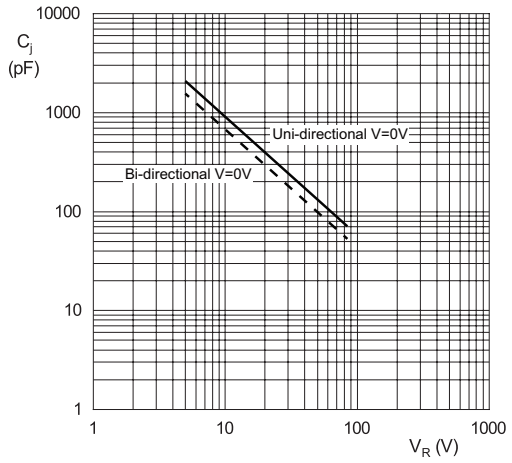


Fig. 7. Typical junction capacitance

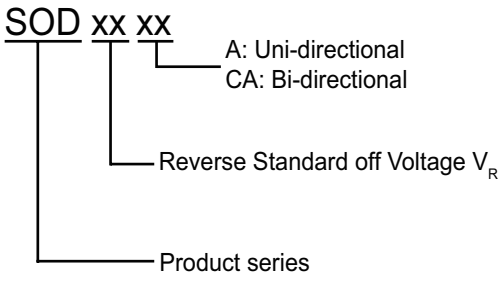


Fig. 8. Part numbering

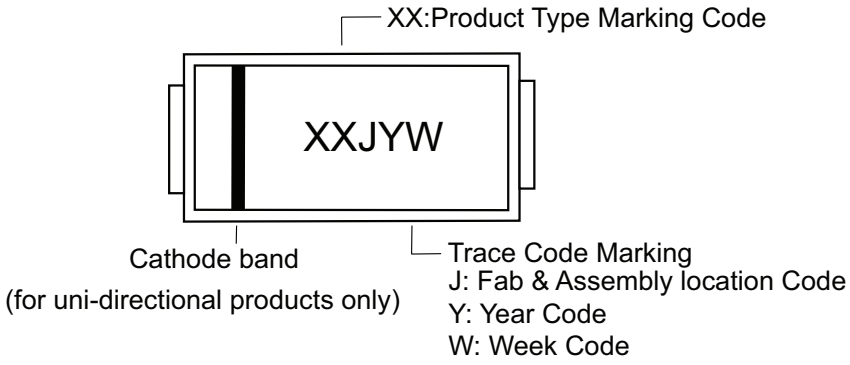
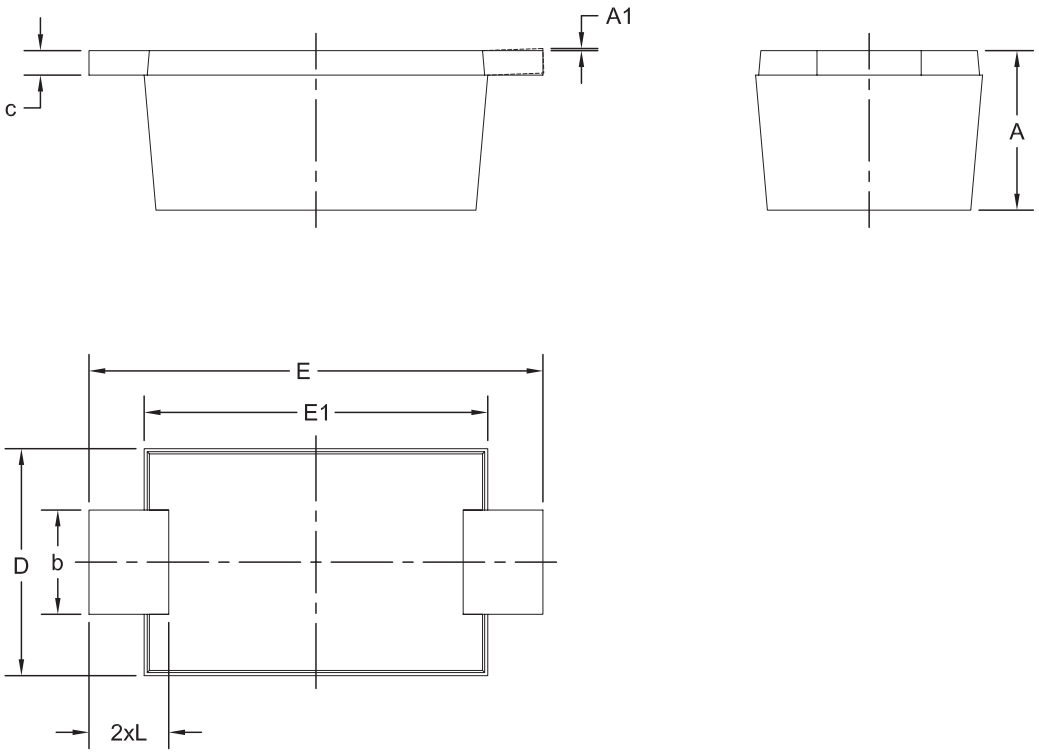


Fig. 9. Part marking

7. Package outline

SOD123



UNIT		A	A1	b	c	D	E	E1	L
mm	Max	1.35	0.20	0.90	0.25	1.95	4.05	3.05	0.95
	Min	1.10	0.00	0.70	0.15	1.65	3.35	2.55	0.35

Remark: Dimensions D and E1 do not include mold flash & gate remain.

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Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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[2] The term 'short data sheet' is explained in section "Definitions".
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