

1. General description

400W transient voltage suppressor (TVS) in SOD123 package, designed to protect electronic circuit which induced by lightning surge or other transient voltage situation.

2. Features and benefits

- Peak pulse power 400W @ 10/1000µs waveform
- Excellent clamping capability
- Low incremental surge resistance
- Surface mount package for easy assembly and board space saving
- Fast response time: Typically less than 1.0ps from 0V to BV min
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- High temperature to reflow soldering guaranteed: 260°C/10sec
- Meet UL94V-0 flammability classification which guaranteed by mold compound
- Meet MSL level1, per J-STD-020
- Lead free lead finish
- Halogen free and RoHS compliant



Bi-directional



Uni-directional

3. Applications

- Power supply protection
- Industrial application
- Power management
- I/O interface protection



4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
P4SODxxxXX	SOD123	P4SODxxxXXX	Tape and reel	3000	SOD123J	18-Oct-2020
eg. P4SOD5.0CA	SOD123	P4SOD5.0CAX	Tape and reel	3000	SOD123J	18-Oct-2020

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).

$T_j = 25\text{ °C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
P_{PPM}	peak pulse power	[1]	400	W
$P_{M(AV)}$	steady state power dissipation	on infinite heatsink at $T_a = 50\text{ °C}$	1	W
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

$T_j = 25\text{ }^\circ\text{C}$ 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 (μ A)	Marking	
			Min	Max					Uni	Bi
P4SOD5.0A	P4SOD5.0CA	5	6.4	7	10	9.2	43.5	200	05	05
P4SOD6.0A	P4SOD6.0CA	6	6.67	7.37	10	10.3	38.8	200	06	06
P4SOD6.5A	P4SOD6.5CA	6.5	7.22	7.98	10	11.2	35.7	125	6F	6F
P4SOD7.0A	P4SOD7.0CA	7	7.78	8.6	10	12	33.3	75	07	07
P4SOD8.0A	P4SOD8.0CA	8	8.89	9.83	1	13.6	29.4	25	08	08
P4SOD9.0A	P4SOD9.0CA	9	10	11.1	1	15.4	26	5	09	09
P4SOD10A	P4SOD10CA	10	11.1	12.3	1	17	23.5	2.5	10	10
P4SOD11A	P4SOD11CA	11	12.2	13.5	1	18.2	22	1	11	11
P4SOD12A	P4SOD12CA	12	13.3	14.7	1	19.9	20.1	1	12	12
P4SOD13A	P4SOD13CA	13	14.4	15.9	1	21.5	18.6	1	13	13
P4SOD14A	P4SOD14CA	14	15.6	17.2	1	23.2	17.2	1	14	14
P4SOD15A	P4SOD15CA	15	16.7	18.5	1	24.4	16.4	1	15	15
P4SOD16A	P4SOD16CA	16	17.8	19.7	1	26	15.4	1	16	16
P4SOD17A	P4SOD17CA	17	18.9	20.9	1	27.6	14.5	1	17	17
P4SOD18A	P4SOD18CA	18	20	22.1	1	29.2	13.7	1	18	18
P4SOD20A	P4SOD20CA	20	22.2	24.5	1	32.4	12.3	1	20	20
P4SOD22A	P4SOD22CA	22	24.4	26.9	1	35.5	11.3	1	22	22
P4SOD24A	P4SOD24CA	24	26.7	29.5	1	38.9	10.3	1	24	24
P4SOD26A	P4SOD26CA	26	28.9	31.9	1	42.1	9.5	1	26	26
P4SOD28A	P4SOD28CA	28	31.1	34.4	1	45.4	8.8	1	28	28
P4SOD30A	P4SOD30CA	30	33.3	36.8	1	48.4	8.3	1	30	30
P4SOD33A	P4SOD33CA	33	36.7	40.6	1	53.3	7.5	1	33	33
P4SOD36A	P4SOD36CA	36	40	44.2	1	58.1	6.9	1	36	36
P4SOD40A	P4SOD40CA	40	44.4	49.1	1	64.5	6.2	1	40	40
P4SOD43A	P4SOD43CA	43	47.8	52.8	1	69.4	5.8	1	43	43
P4SOD45A	P4SOD45CA	45	50	55.3	1	72.7	5.5	1	45	45
P4SOD48A	P4SOD48CA	48	53.3	58.9	1	77.4	5.2	1	48	48
P4SOD51A	P4SOD51CA	51	56.7	62.7	1	82.4	4.9	1	51	51
P4SOD54A	P4SOD54CA	54	60	66.3	1	87.1	4.6	1	54	54
P4SOD58A	P4SOD58CA	58	64.4	71.2	1	93.6	4.3	1	58	58
P4SOD60A	P4SOD60CA	60	66.7	73.7	1	96.8	4.1	1	60	60
P4SOD64A	P4SOD64CA	64	71.1	78.6	1	103	3.9	1	64	64
P4SOD70A	P4SOD70CA	70	77.8	86	1	113	3.5	1	70	70
P4SOD75A	P4SOD75CA	75	83.3	92.1	1	121	3.3	1	75	75
P4SOD78A	P4SOD78CA	78	86.7	95.8	1	126	3.2	1	78	78
P4SOD85A	P4SOD85CA	85	94.4	104	1	137	2.9	1	85	85

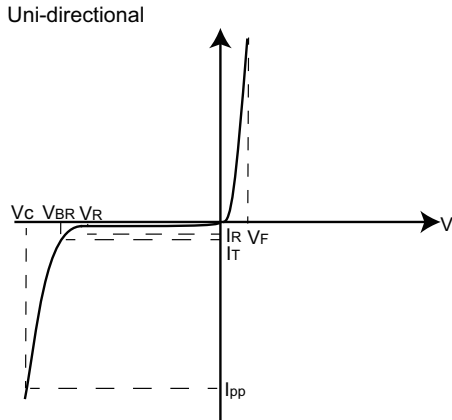


Fig. 1. I-V curve characteristics; Uni-directional

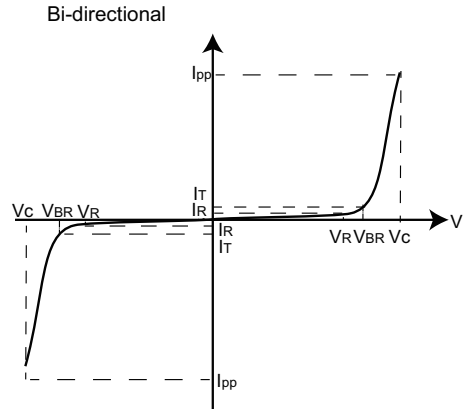


Fig. 2. I-V curve characteristics; Bi-directional

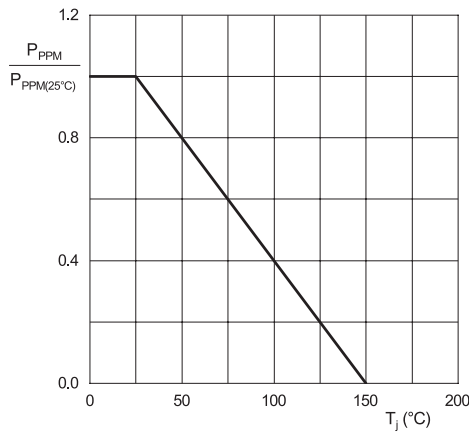


Fig. 3. Peak pulse power derating curve

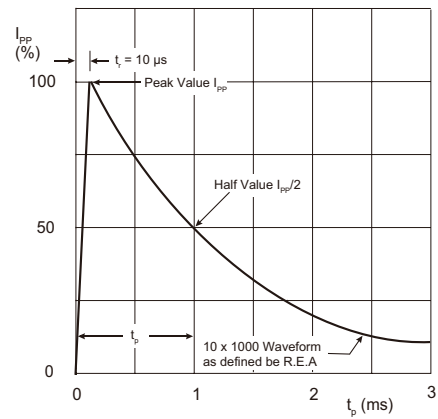


Fig. 4. Pulse waveform

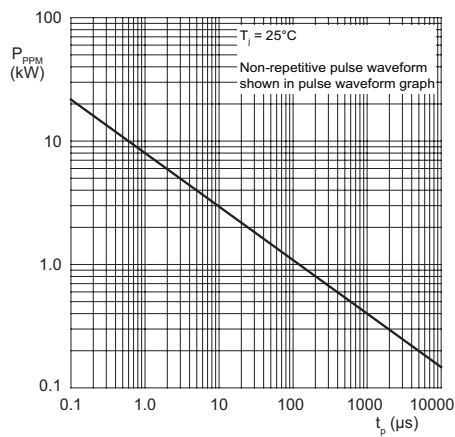


Fig. 5. Pulse rating curve

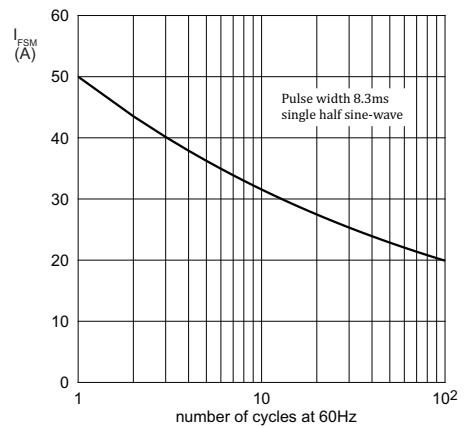


Fig. 6. Maximum non-repetitive surge current

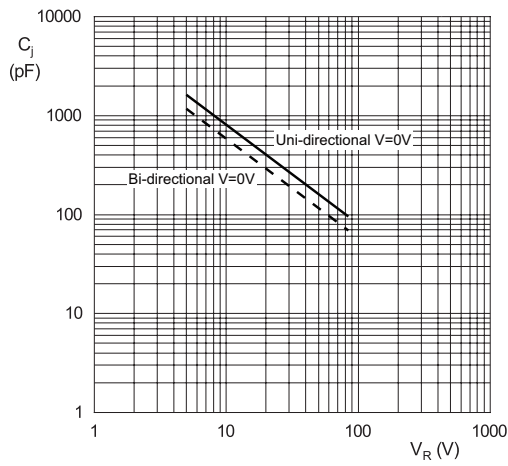


Fig. 7. Typical junction capacitance

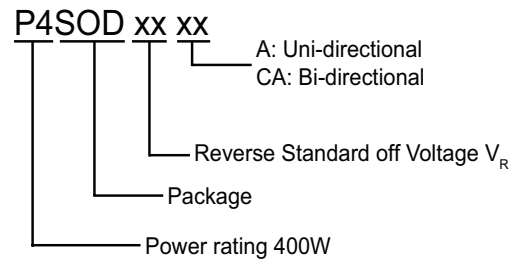


Fig. 8. Part numbering

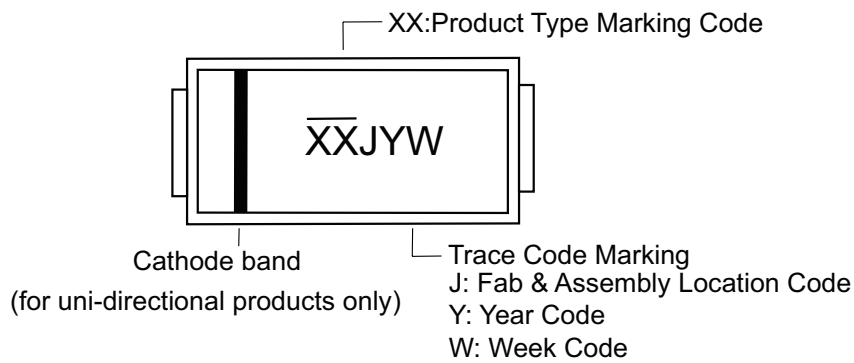
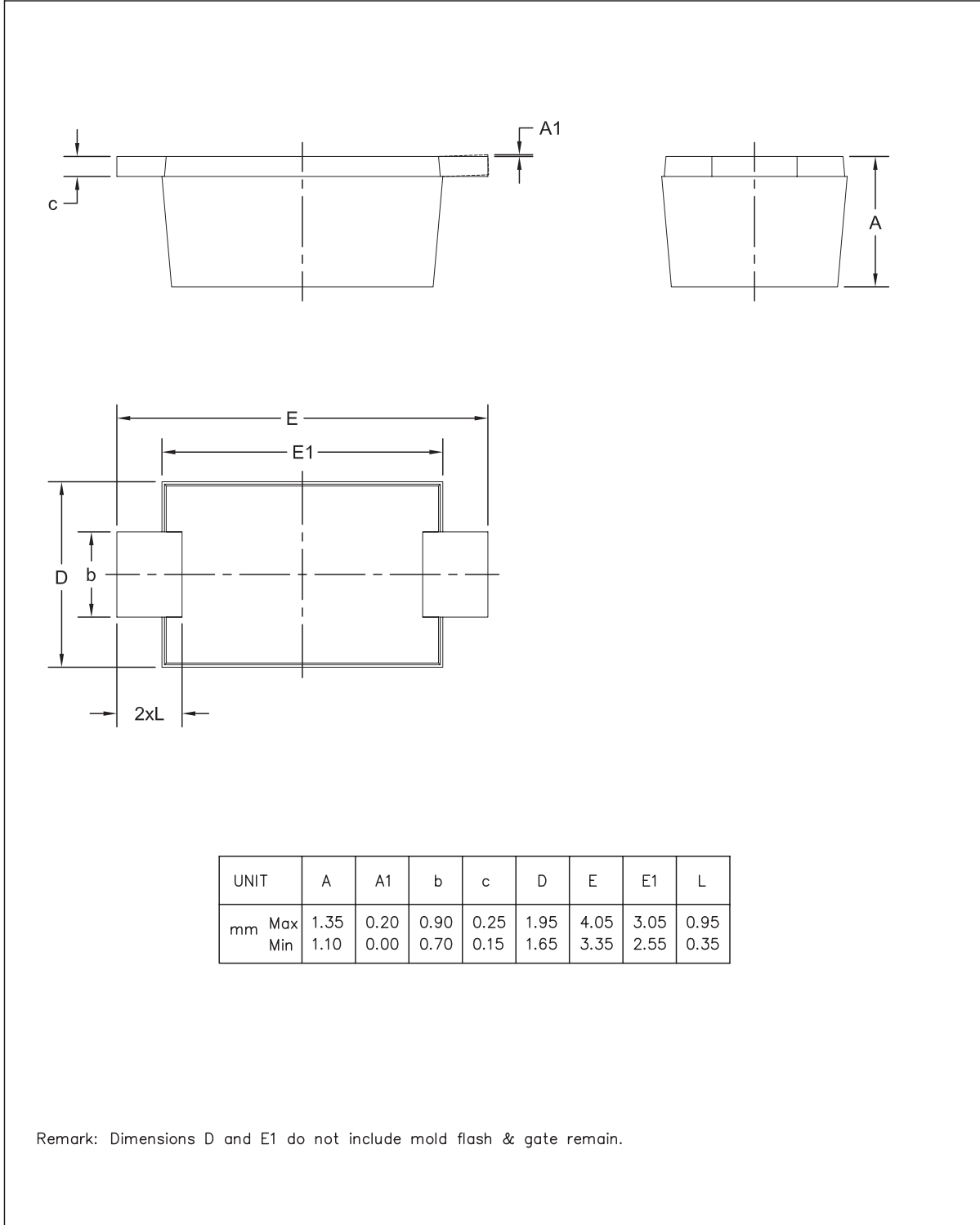


Fig. 9. Part marking

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.

8. Legal information

Data sheet status

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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