

1. General description

SM8S series, 6600W transient voltage suppressor (TVS) in DO218 package, designed to protect electronic circuits against damage induced by lightning surges or other transient voltage events.

2. Features and benefits

- Peak pulse power 6600W @ 10/1000µs waveform
- Meet ISO 7637-2 5a/5b and ISO 16750-2 A/B load dump test (varies by test condition)
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- Excellent clamping capability
- 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
- Load switching and lighting



4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
SM8SxxXX	DO218	SM8SxxXXJ	Tape and reel	750	DO218J	30-May-2022
eg. SM8S11CA	DO218	SM8S11CAJ	Tape and reel	750	DO218J	30-May-2022

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]	6600	W
$P_{M(AV)}$	steady state power dissipation	on infinite heatsink at $T_a = 50\text{ °C}$	8	W
I_{FSM}	peak forward surge current	$t_p = 8.3\text{ ms}$; single half sine-wave pulse; duty cycle = 4 pulses per minute maximum; unidirectional units only	700	A
V_F	forward on-state voltage	$I_F = 50\text{ A}$; unidirectional units only	3.5	V
T_{stg}	storage temperature range		-55 to 150	°C
T_j	operating temperature range		-55 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 $I_R @ V_R$ (μA)	Marking	
			Min	Max					Uni	Bi
SM8S11A	SM8S11CA	11	12.2	13.5	5	18.2	363	5	SM8S11AJ	SM8S11CAJ
SM8S12A	SM8S12CA	12	13.3	14.7	5	19.9	332	5	SM8S12AJ	SM8S12CAJ
SM8S13A	SM8S13CA	13	14.4	15.9	5	21.5	307	5	SM8S13AJ	SM8S13CAJ
SM8S14A	SM8S14CA	14	15.6	17.2	5	23.2	284	5	SM8S14AJ	SM8S14CAJ
SM8S15A	SM8S15CA	15	16.7	18.5	5	24.4	270	5	SM8S15AJ	SM8S15CAJ
SM8S16A	SM8S16CA	16	17.8	19.7	5	26	253	5	SM8S16AJ	SM8S16CAJ
SM8S17A	SM8S17CA	17	18.9	20.9	5	27.6	239	5	SM8S17AJ	SM8S17CAJ
SM8S18A	SM8S18CA	18	20	22.1	5	29.2	226	5	SM8S18AJ	SM8S18CAJ
SM8S20A	SM8S20CA	20	22.2	24.5	5	32.4	204	5	SM8S20AJ	SM8S20CAJ
SM8S22A	SM8S22CA	22	24.4	26.9	5	35.5	186	5	SM8S22AJ	SM8S22CAJ
SM8S24A	SM8S24CA	24	26.7	29.5	5	38.9	170	5	SM8S24AJ	SM8S24CAJ
SM8S26A	SM8S26CA	26	28.9	31.9	5	42.1	157	5	SM8S26AJ	SM8S26CAJ
SM8S28A	SM8S28CA	28	31.1	34.4	5	45.4	145	5	SM8S28AJ	SM8S28CAJ
SM8S30A	SM8S30CA	30	33.3	36.8	5	48.4	136	5	SM8S30AJ	SM8S30CAJ
SM8S33A	SM8S33CA	33	36.7	40.6	5	53.3	124	5	SM8S33AJ	SM8S33CAJ
SM8S36A	SM8S36CA	36	40	44.2	5	58.1	114	5	SM8S36AJ	SM8S36CAJ
SM8S40A	SM8S40CA	40	44.4	49.1	5	64.5	102	5	SM8S40AJ	SM8S40CAJ
SM8S43A	SM8S43CA	43	47.8	52.8	5	69.4	95.1	5	SM8S43AJ	SM8S43CAJ

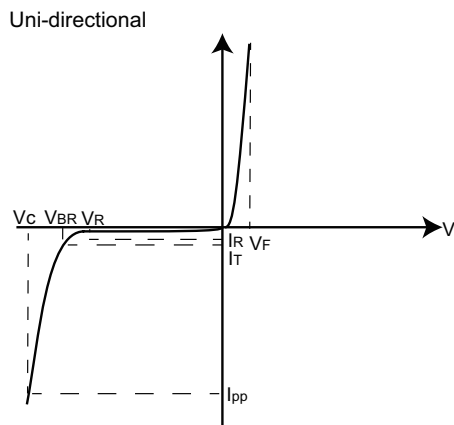


Fig. 1. I-V curve characteristics; Uni-directional

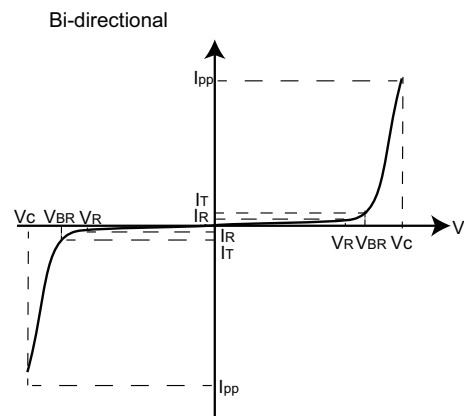


Fig. 2. I-V curve characteristics; Bi-directional

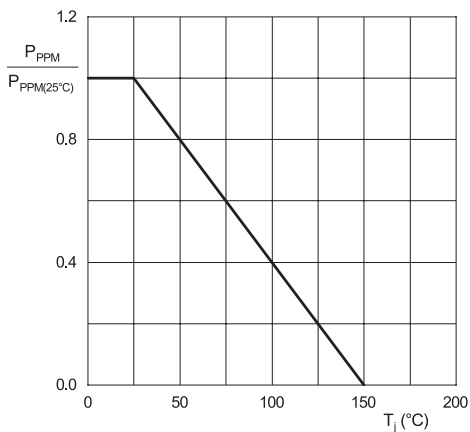


Fig. 3. Peak pulse power derating curve

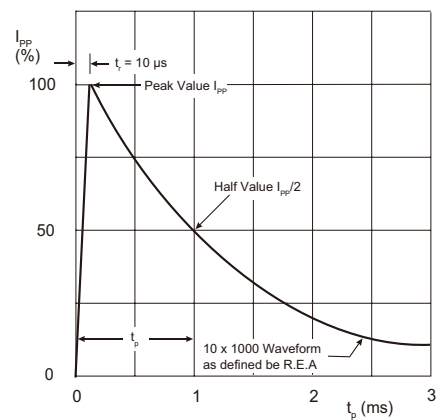


Fig. 4. Pulse waveform

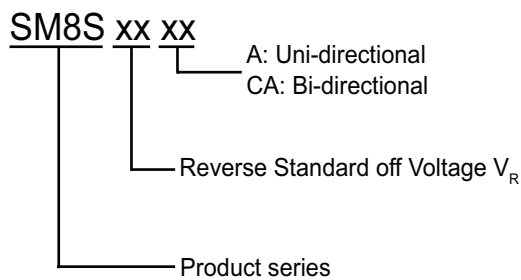


Fig. 5. Part numbering

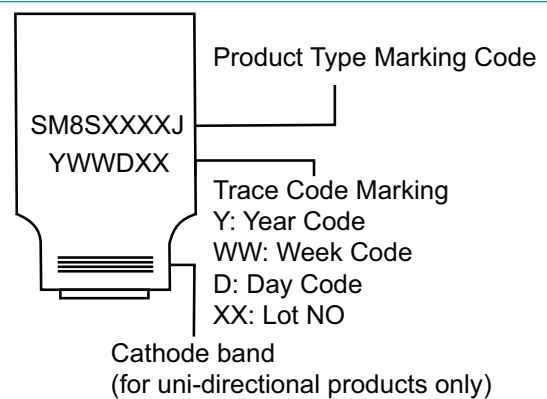
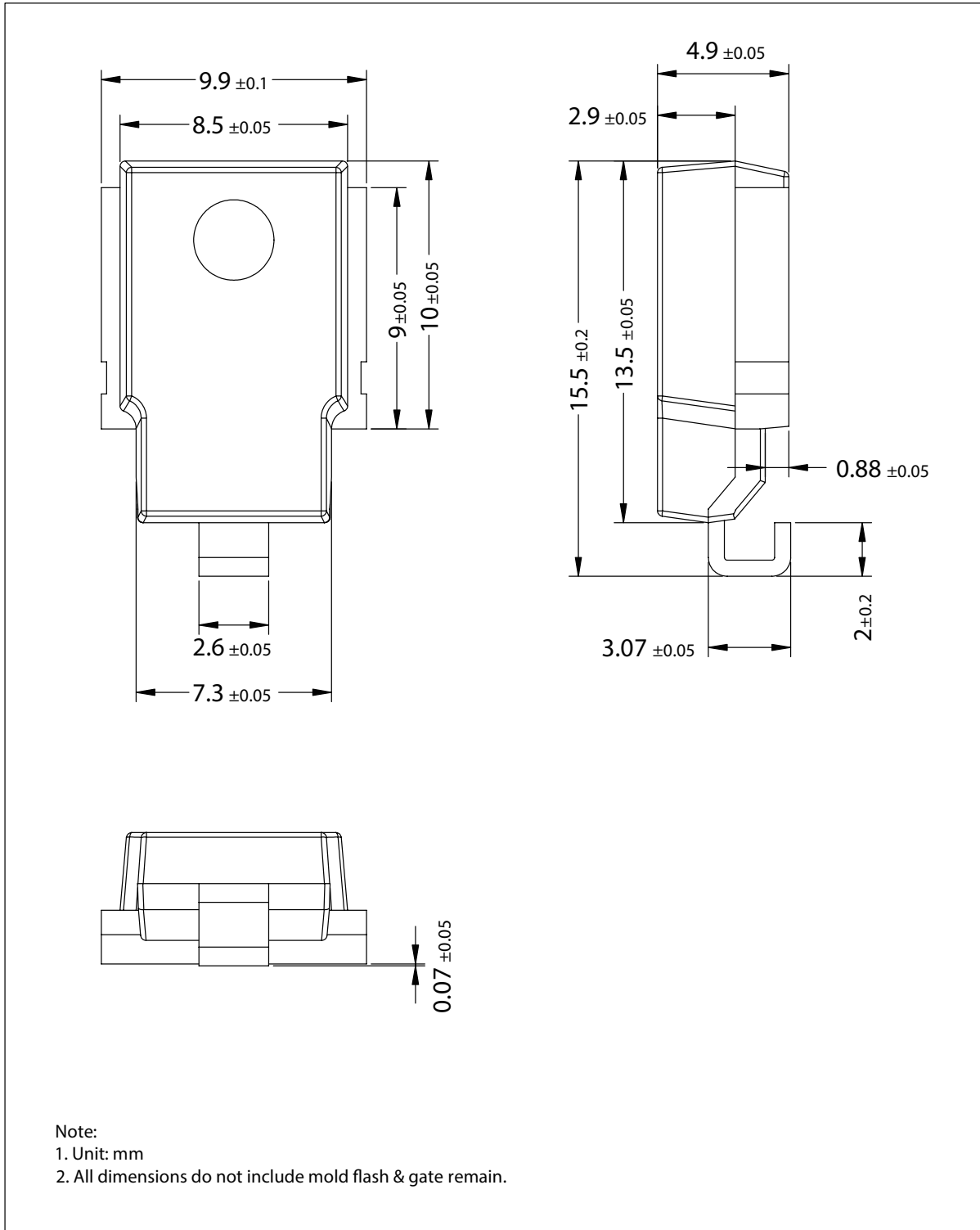


Fig. 6. Part marking

7. Package outline

DO218



Note:
 1. Unit: mm
 2. All dimensions 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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