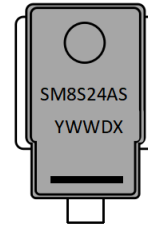


Features

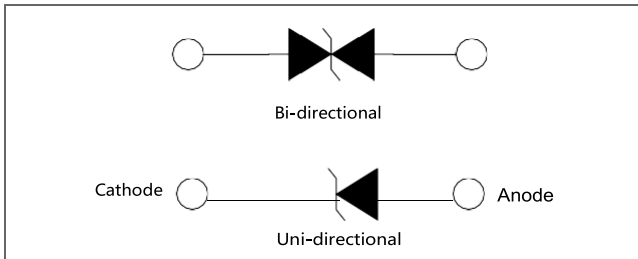
- 6600W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 245°C
- AEC-Q101 qualified



Applications

Typically use in sensitive electronics protection against voltage load dump induced by Automotive generator during current interruption.

Function Diagram




| Maximum Ratings and Thermal Characteristics (T _A =25°C unless otherwise noted) | | | |
|---|------------------|------------|------|
| Parameter | Symbol | Value | Unit |
| Peak Pulse Power Dissipation at T _A =25°C by 10/1000µs Waveform (Fig.4)-- single die | P _{PPM} | 6600 | W |
| Power Dissipation on Infinite Heat Sink at T _L =25°C | P _D | 8 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1) | I _{FSM} | 700 | A |
| Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only | V _F | 3.5 | V |
| Operating Temperature Range | T _J | -55 to 150 | °C |
| Storage Temperature Range | T _{STG} | -55 to 150 | °C |

| AGENCY | AGENCY FILE NUMBER |
|--------|--------------------|
| | Pending |

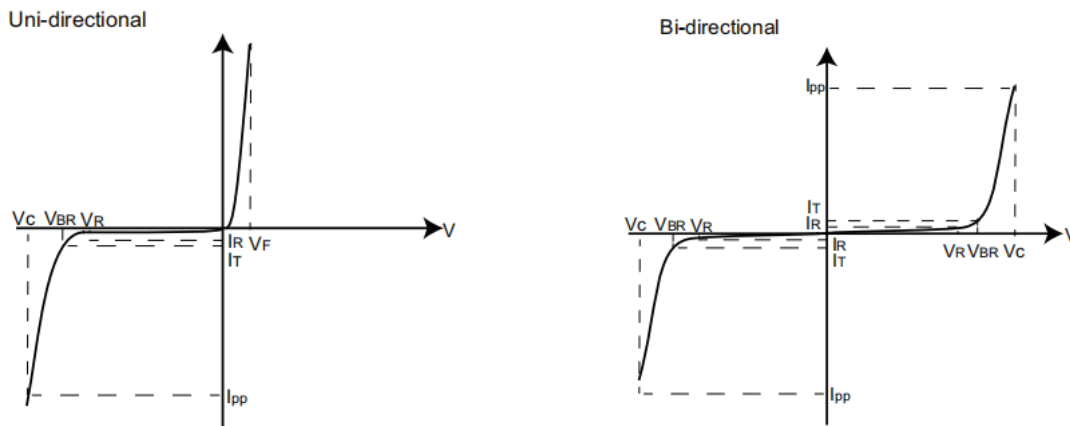
Notes:

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. 3.5V for single die, 5V for stack die

Characteristics (T = 25°C unless otherwise noted)

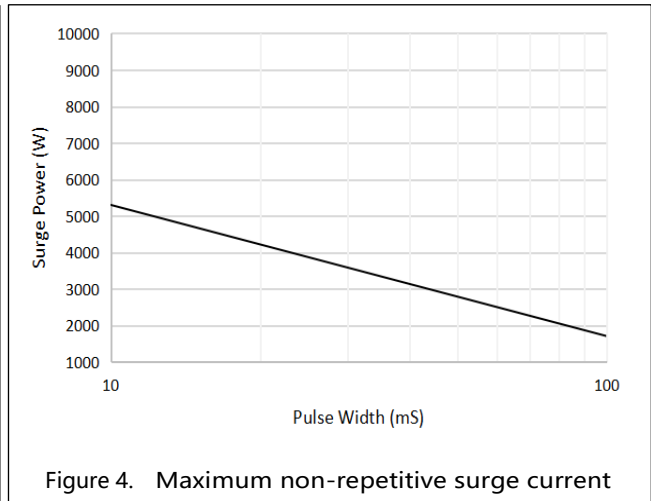
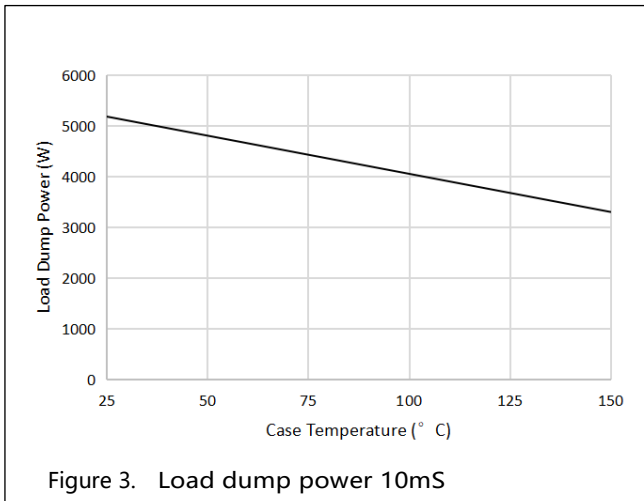
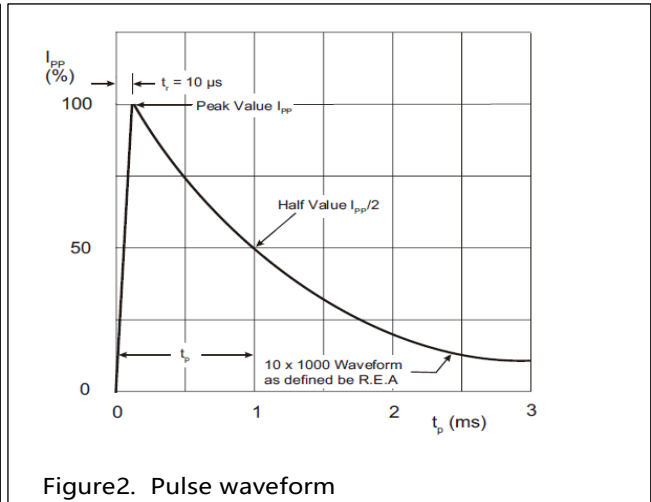
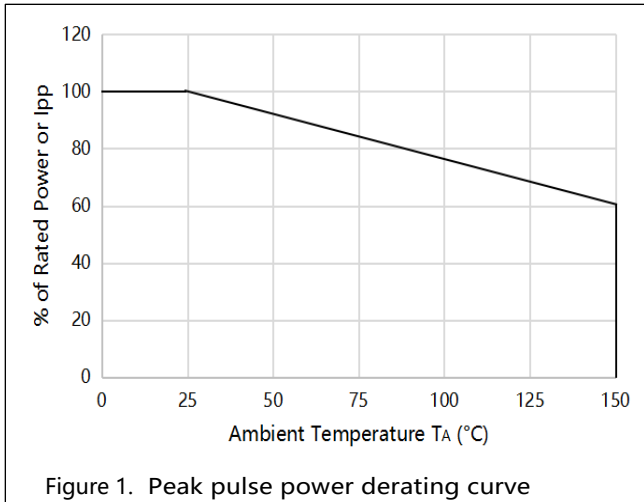
| Part Number (Uni) | Part Number (Bi) | Reverse Stand off Voltage V_R (Volts) | Breakdown Voltage V_{BR} (Volts) @ I_T | | Test Current I_T (mA) | Maximum Clamping Voltage V_C @ I_{DD} (V) | Maximum Peak Pulse Current I_{pp} (A) | Maximum Reverse Leakage I_R @ V_R (μ A) | Agency Approval  |
|----------------------|---------------------|--|---|-------|-------------------------------|---|--|--|---|
| | | | MIN | MAX | | | | | |
| SM8S10A | SM8S10CA | 10.0 | 11.10 | 12.30 | 5 | 17.0 | 388 | 20 | |
| SM8S11A | SM8S11CA | 11.0 | 12.20 | 13.50 | 5 | 18.2 | 363 | 15 | |
| SM8S12A | SM8S12CA | 12.0 | 13.30 | 14.70 | 5 | 19.9 | 332 | 10 | |
| SM8S13A | SM8S13CA | 13.0 | 14.40 | 15.90 | 5 | 21.5 | 307 | 5 | |
| SM8S14A | SM8S14CA | 14.0 | 15.60 | 17.20 | 5 | 23.2 | 284 | 5 | |
| SM8S15A | SM8S15CA | 15.0 | 16.70 | 18.50 | 5 | 24.4 | 270 | 5 | |
| SM8S16A | SM8S16CA | 16.0 | 17.80 | 19.70 | 5 | 26.0 | 253 | 5 | |
| SM8S17A | SM8S17CA | 17.0 | 18.90 | 20.90 | 5 | 27.6 | 239 | 5 | |
| SM8S18A | SM8S18CA | 18.0 | 20.00 | 22.10 | 5 | 29.2 | 226 | 5 | |
| SM8S20A | SM8S20CA | 20.0 | 22.20 | 24.50 | 5 | 32.4 | 204 | 5 | |
| SM8S22A | SM8S22CA | 22.0 | 24.40 | 26.90 | 5 | 35.5 | 186 | 5 | |
| SM8S24A | SM8S24CA | 24.0 | 26.70 | 29.50 | 5 | 38.9 | 170 | 5 | |
| SM8S26A | SM8S26CA | 26.0 | 28.90 | 31.90 | 5 | 42.1 | 157 | 5 | |
| SM8S28A | SM8S28CA | 28.0 | 31.10 | 34.40 | 5 | 45.4 | 145 | 5 | |
| SM8S30A | SM8S30CA | 30.0 | 33.30 | 36.80 | 5 | 48.4 | 136 | 5 | |
| SM8S33A | SM8S33CA | 33.0 | 36.70 | 40.60 | 5 | 53.3 | 124 | 5 | |
| SM8S36A | SM8S36CA | 36.0 | 40.00 | 44.20 | 5 | 58.1 | 114 | 5 | |
| SM8S40A | SM8S40CA | 40.0 | 44.40 | 49.10 | 5 | 64.5 | 102 | 5 | |
| SM8S43A | SM8S43CA | 43.0 | 47.80 | 52.80 | 5 | 69.4 | 95.1 | 5 | |

I-V Curve Characteristics



- P_{PPM} Peak Pulse Power Dissipation -- Max power dissipation
- V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation
- V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)
- V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{ppM} (peak impulse current)
- I_R Reverse Leakage Current -- Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional

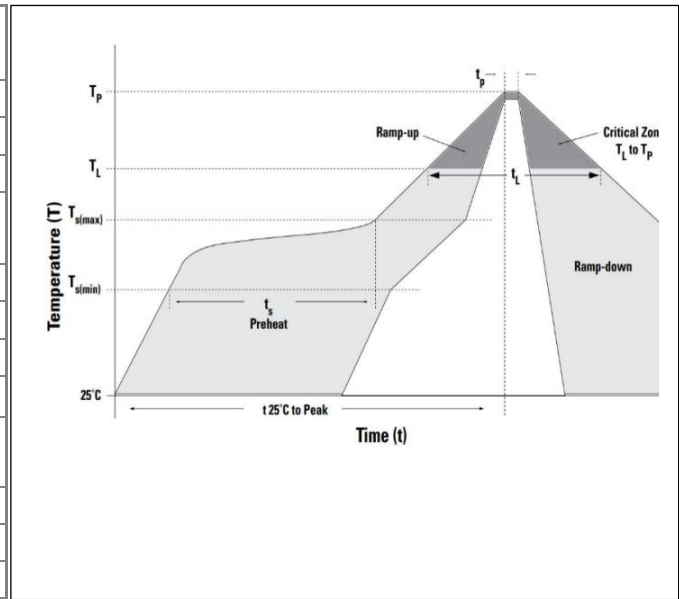
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



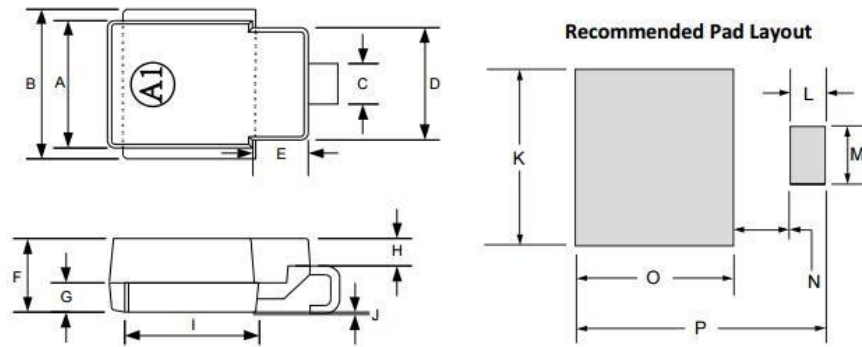
Soldering Parameters

Soldering profile

| | | |
|--|------------------------------------|--------------------|
| Reflow Condition | | Lead-free assembly |
| Pre Heat | - Temperature Min ($T_{S(min)}$) | 150°C |
| | - Temperature Max ($T_{S(max)}$) | 200°C |
| | - Time (min to max) (t_S) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_A) to peak) | | 3°C/second max |
| $T_{S(max)}$ to T_A - Ramp-up Rate | | 3°C/second max |
| Reflow | - Temperature (T_A) (Liquidus) | 217°C |
| | - Time (min to max) (t_S) | 60 – 150 seconds |
| Peak Temperature (T_P) | | 260+0/-5 °C |
| Time within 5°C of actual peak Temperature (t_P) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_P) | | 8 minutes Max. |
| Do not exceed | | 260°C |



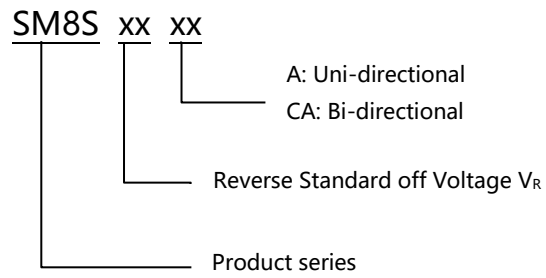
Dimensions



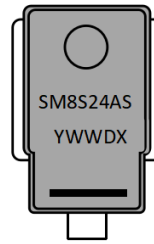
DO-218AB

| DIM | Millimeters | | Inch | |
|-----|-------------|--------|--------|--------|
| | Min | Max | Min | Max |
| A | 8.300 | 8.700 | 0.3268 | 0.3425 |
| B | 9.500 | 10.500 | 0.3740 | 0.4134 |
| C | 2.400 | 3.000 | 0.0945 | 0.1181 |
| D | 7.000 | 8.000 | 0.2756 | 0.3150 |
| E | 3.200 | 3.800 | 0.1260 | 0.1496 |
| F | 4.600 | 5.200 | 0.1811 | 0.2047 |
| G | 1.700 | 2.300 | 0.0669 | 0.0906 |
| H | 1.500 | 2.100 | 0.0591 | 0.0827 |
| I | 8.500 | 9.500 | 0.3346 | 0.3740 |
| J | - | 0.160 | - | 0.0063 |
| K | 9.500 | 10.500 | 0.3740 | 0.4134 |
| L | 1.700 | 2.300 | 0.0669 | 0.0906 |
| M | 2.400 | 3.000 | 0.0945 | 0.1181 |
| N | 3.200 | 3.800 | 0.1260 | 0.1496 |
| O | 8.700 | 9.300 | 0.3425 | 0.3661 |
| P | 14.800 | 15.400 | 0.5827 | 0.6063 |

Part Numbering



Part Marking



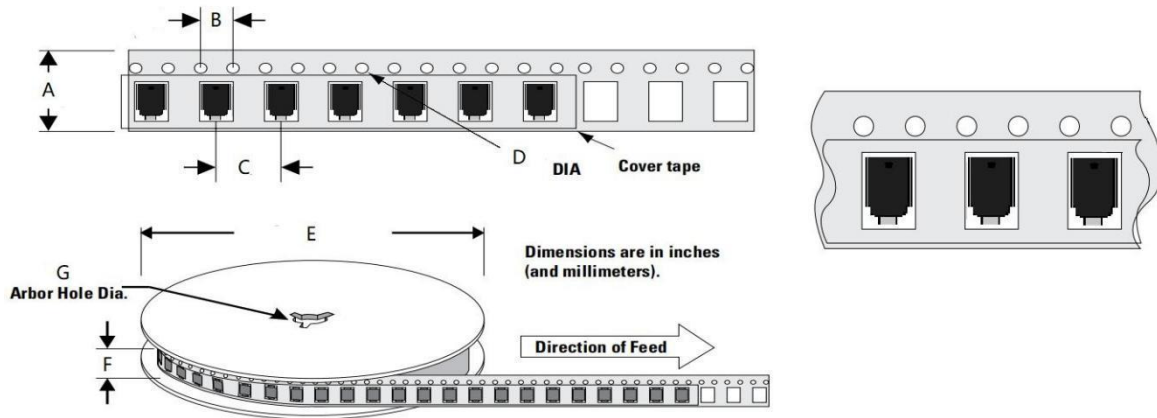
Product Type
Marking Code

Cathode band
(for uni-directional products only)

Packing

| Part number | Package name | Small packing quantity | Packing method |
|-------------|--------------|------------------------|----------------|
| SM8SXXXX | DO-218AB | 750PCS | Tape & Reel |

Tape and Reel Specification



| Symbol | Millimeter |
|--------|-------------|
| A | 24.00 ± 0.2 |
| B | 4.00 ± 0.2 |
| C | 16.00 ± 0.2 |
| D | 1.55 ± 0.2 |
| E | 330.0 ± 0.3 |
| F | 25.85 ± 0.2 |
| G | 13.30 ± 0.2 |

Revision history of Specification

| Version | Change Items | Effective Date |
|---------|-----------------|----------------|
| 1.0 | Initial Release | 13-July-2021 |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:

Click to view products by [SCME](#) manufacturer:

Other Similar products are found below :

[60KS200C](#) [D18V0L1B2LP-7B](#) [D5V0F4U5P5-7](#) [NTE4902](#) [P4KE27CA](#) [P6KE11CA](#) [P6KE8.2A](#) [SA60CA](#) [SA64CA](#) [SMBJ12CATR](#)
[SMBJ33CATR](#) [SMBJ6.5A](#) [SMBJ8.0A](#) [ESD101-B1-02ELS](#) [E6327](#) [ESD112-B1-02EL](#) [E6327](#) [ESD7451N2T5G](#) [19180-510](#) [CPDT-5V0USP-](#)
[HF](#) [3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [JANTX1N6126A](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [SCM1293A-04SO](#)
[ESD200-B1-CSP0201](#) [E6327](#) [SM12-7](#) [CEN955](#) [W/DATA](#) [VESD12A1A-HD1-GS08](#) [CPDQC5V0-HF](#) [D1213A-01LP4-7B](#) [ESD101-B1-02EL](#)
[E6327](#) [AOZ8808DI-03](#) [5KP15A](#) [5KP48A](#) [5KP90A](#) [ESD3V3D7-TP](#) [15KPA36A-LF](#) [P4KE56CA](#) [P4KE68A](#) [P4KE91CATR](#) [P6KE120A](#)
[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)