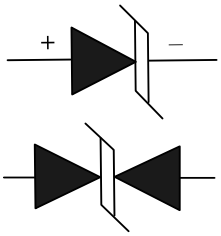
WAYON

SM8Sxx(C)A

Automotive Load Dump Protection TVS

Features



- 6600 watts Peak Pulse Power (10/1000μs)
- Unidirectional and Bidirectional Protection
- Junction passivation optimized design passivated anisotropic rectifier technology
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge specification (varied by test condition)
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- MSL: Level 1
- AEC-Q101 compliant

Mechanical Characteristics

- JEDEC DO-218AB package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Heatsink is anode
- RoHS & HF Compliant

Applications

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1,2&3)	P_{PPM}	6600	Watts
Peak pulse current (10/1000μs) (see Note2&3)	I_{PPM}	See Electrical Characteristics	A
Peak forward surge current (see Note4&5)	I_{FSM}	700	A
Power dissipation on infinite heat sink T_L = 25 °C (Fig4)	P_D	8	W
Operating junction temperature range	T_J	-55 to + 175	℃
Storage temperature range	T_{STG}	-55 to + 175	℃

Note1: Peak Pulse Power Rating as Pulse Width ,per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig5.

Note3: Mounted on 5.0x5.0mm^2 copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current per Fig5.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_c@I_{PP} (Volts)	Maximum Peak Pulse Current I_{pp} (Amps)	Maximum Reverse Leakage IR@VRWM (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
SM8S10A	SM8S10CA	10	11.1	12.3	5	17.0	388	15
SM8S11A	SM8S11CA	11	12.2	13.5	5	18.2	363	10
SM8S12A	SM8S12CA	12	13.3	14.7	5	19.9	332	10
SM8S13A	SM8S13CA	13	14.4	15.9	5	21.5	307	10
SM8S14A	SM8S14CA	14	15.6	17.2	5	23.2	284	10
SM8S15A	SM8S15CA	15	16.7	18.5	5	24.4	270	10
SM8S16A	SM8S16CA	16	17.8	19.7	5	26.0	254	10
SM8S17A	SM8S17CA	17	18.9	20.9	5	27.6	239	10
SM8S18A	SM8S18CA	18	20.0	22.1	5	29.2	226	10
SM8S20A	SM8S20CA	20	22.2	24.5	5	32.4	204	10
SM8S22A	SM8S22CA	22	24.4	26.9	5	35.5	186	10
SM8S24A	SM8S24CA	24	26.7	29.5	5	38.9	170	10
SM8S26A	SM8S26CA	26	28.9	31.9	5	42.1	157	10
SM8S28A	SM8S28CA	28	31.1	34.4	5	45.4	145	10
SM8S30A	SM8S30CA	30	33.3	36.8	5	48.4	136	10
SM8S33A	SM8S33CA	33	36.7	40.6	5	53.3	124	10
SM8S36A	SM8S36CA	36	40.0	44.2	5	58.1	114	10
SM8S40A	SM8S40CA	40	44.4	49.1	5	64.5	102	10
SM8S43A	SM8S43CA	43	47.8	52.8	5	69.4	95.1	10
SM8S60A	SM8S60CA	60	66.7	73.3	5	96.8	68.2	10
SM8S64A	SM8S64CA	64	71.1	78.6	5	103	64.1	10

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

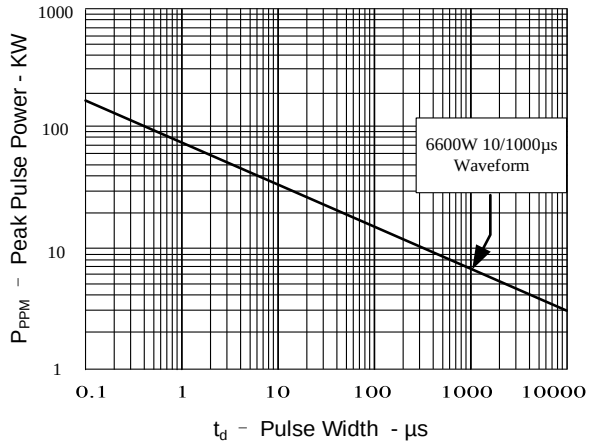


Figure 2: Pulse Derating Curve

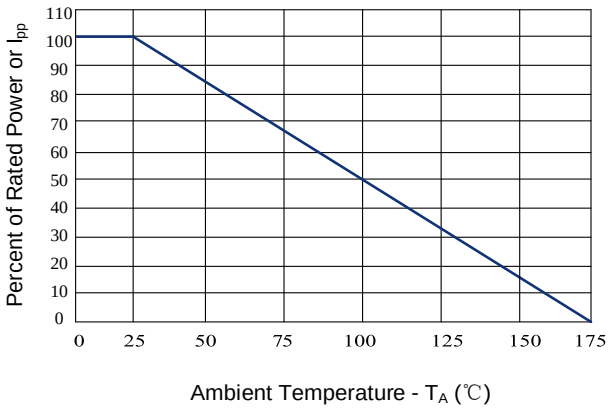


Figure 3: Pulse Waveform

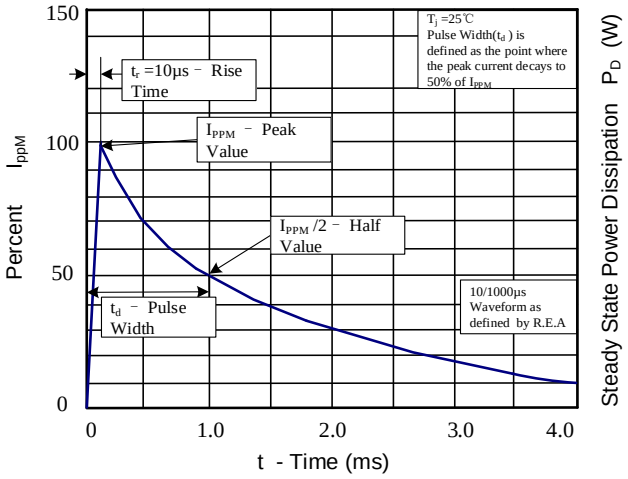


Figure 4: Steady State Power Dissipation Derating Curve

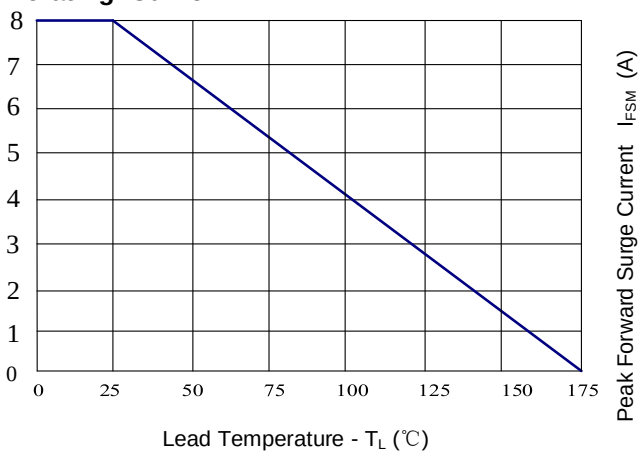
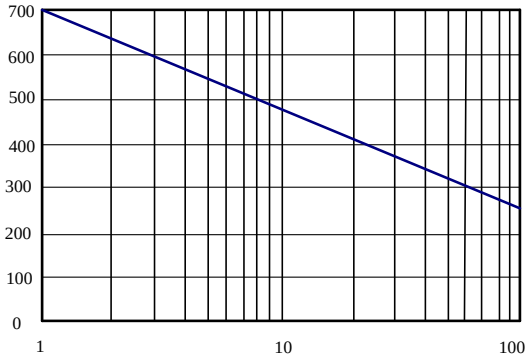


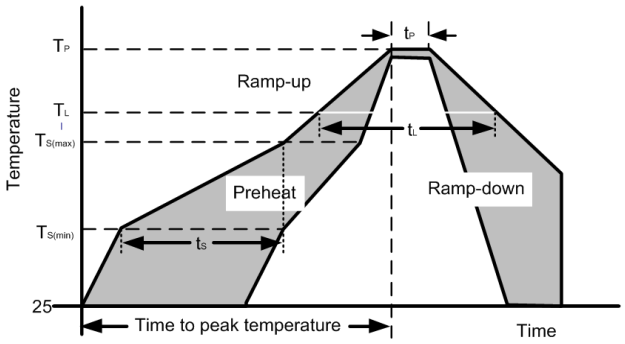
Figure 5: Maximum Non-Repetitive



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

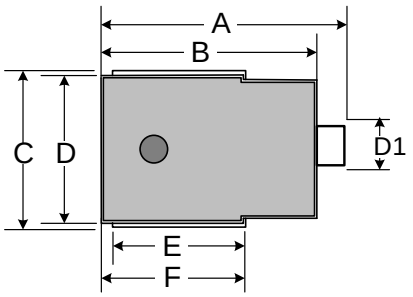
Soldering Parameters

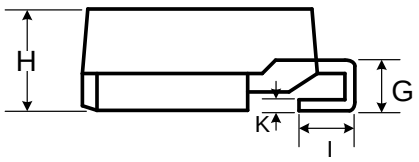
Reflow Condition		
Pre Heat	Temp. min ($T_{s(min)}$)	150°C
	Temp. max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp.) (T_L) to peak		3°C/s max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C



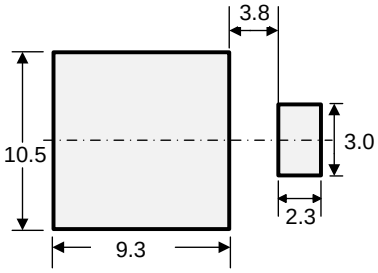
Outline Drawing – DO-218AB

Ref.（mm）	Millimeters	
	Min.	Max.
A	15.0	16.0
B	13.3	13.7
C	9.5	10.5
D	8.3	8.7
D1	2.4	3.0
E	8.7	9.3
F	9.7	10.3
G	2.5	3.5
H	4.7	5.0
I	1.5	2.5
K	0.5	0.7



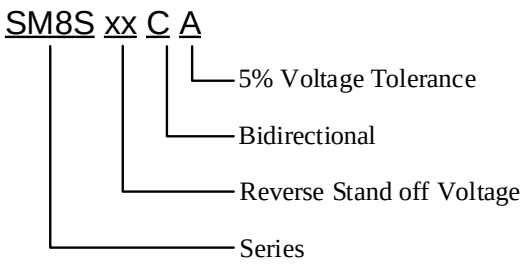


Recommended Solder Pad Layout

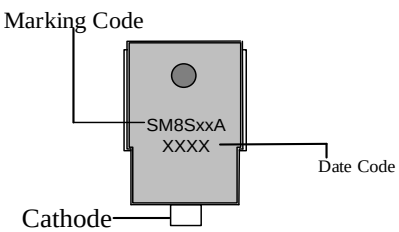


Dimensions in mm

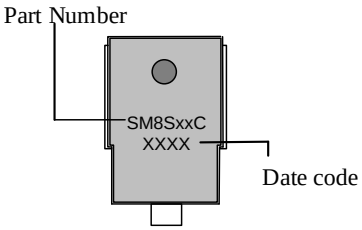
Part Numbering System



Part Marking System



Unidirectional



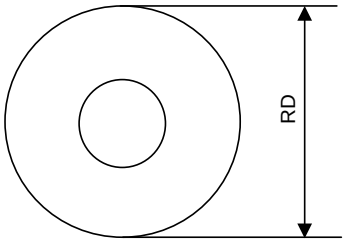
Bidirectional

Package Information

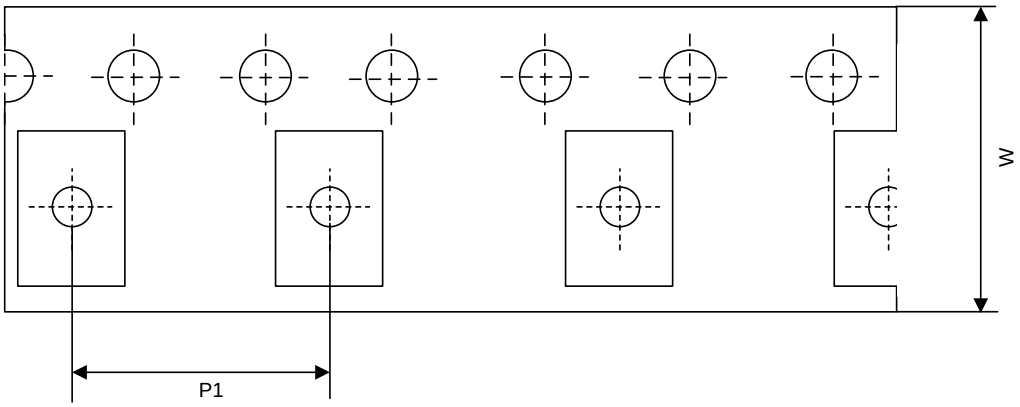
Package Type	Description	Quantity（pcs）	Standard
DO-218AB	Tape & Reel -24mm/13″ tape	750	EIA-481-2-A

Tape and Reel Information

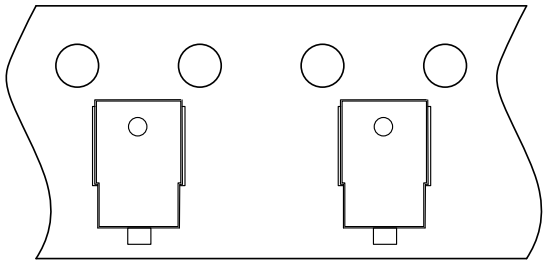
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



User Direction of Feed

Top View

RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	24 mm
P1	Pitch between successive cavity centers	16 mm

Contact Information

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Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

WAYON strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, WAYON cannot guarantee that the information provided in the product specification is entirely accurate and error-free. WAYON shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications. WAYON reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with WAYON to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult WAYON in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

Users should also comply with relevant laws, regulations, policies, and standards when using the product specification. Users are responsible for the risks and liabilities arising from the use of the product specification and must ensure that it is not used for illegal purposes. Additionally, users should respect the intellectual property rights related to the product specification and refrain from infringing upon any third-party legal rights. WAYON shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.