

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

SM8SXXA-MS

Product specification

FEATURES

- Chip produced by chemical method
- Junction passivated by high temperature resistant insulating adhesive
- $T_J = 175\text{ }^\circ\text{C}$ capability suitable for high reliability and automotive requirement
- Available in uni-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO16750-2 surge specification (varied by test condition)
- Meets MSL level 1, LF maximum peak of $245\text{ }^\circ\text{C}$
- AEC-Q101 qualified

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-218AB

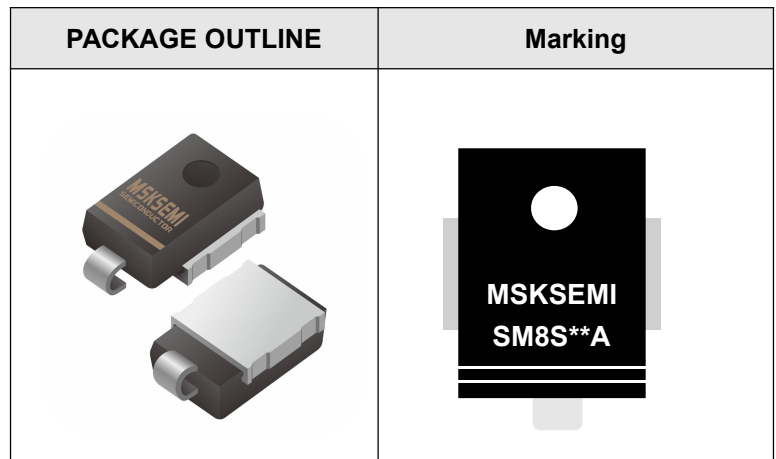
Molding compound meets UL 94 V-0 flammability rating
 Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified
 ("X" denotes revision code e.g. A, B, ...)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

Polarity: heatsink is anode

PRIMARY CHARACTERISTICS

VBR	11.1 V to 52.8 V
VWM	10 V to 43 V
PPPM (10 x 1000 μs)	6600 W
PPPM (10 x 10 000 μs)	5200 W
PD	8 W
IFSM	700 A
T_J max.	$175\text{ }^\circ\text{C}$
Polarity	Uni-directional
Package	DO-218AB



Note

- **Representative voltage STAND-OFF VOLTAGE

MAXIMUM RATINGS (TC = $25\text{ }^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation	PPPM	6600	W
		5200	
Power dissipation on infinite heatsink at $T_C = 25\text{ }^\circ\text{C}$ (fig. 1)	PD	8.0	W
Peak pulse current with 10/1000 μs waveform	IPPM (1)	See next table	A
Peak forward surge current 8.3 ms single half sine-wave	IFSM	700	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

Note

(1) Non-repetitive current pulse derated above $T_A = 25\text{ }^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (TC = 25 °C unless otherwise noted)

DEVICE TYPE	BREAKDOWN VOLTAGE V _{BR} (V)			TEST CURRENT I _T (mA)	STAND-OFF VOLTAGE V _{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V _{WM} I _D (μA)	MAXIMUM REVERSE LEAKAGE AT V _{WM} T _J = 175 °C I _D (μA)	MAX. PEAK PULSE CURRENT AT 10/1000 μs WAVEFORM (A)	MAXIMUM CLAMPING VOLTAGE AT I _{PPM} V _C (V)	TYPICAL TEMP. COEFFICIENT OF V _{BR} ⁽¹⁾ aT (%/°C)
	MIN.	NOM.	MAX.							
SM8S10A-MS	11.1	11.7	12.3	5.0	10.0	10	150	388	17.0	0.069
SM8S11A-MS	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM8S12A-MS	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM8S13A-MS	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM8S14A-MS	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM8S15A-MS	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM8S16A-MS	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM8S17A-MS	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM8S18A-MS	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM8S20A-MS	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM8S22A-MS	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM8S24A-MS	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM8S26A-MS	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM8S28A-MS	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM8S30A-MS	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM8S33A-MS	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM8S36A-MS	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM8S40A-MS	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM8S43A-MS	47.8	50.3	52.8	5.0	43.0	10	150	95.1	69.4	0.093

Notes

• For all types maximum V_F = 1.8 V at I_F = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(1) To calculate V_{BR} vs. junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C x (1 + T x (T_J - 25))

THERMAL CHARACTERISTICS (TC = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to case	R _{θJC}	0.90	°C/W

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

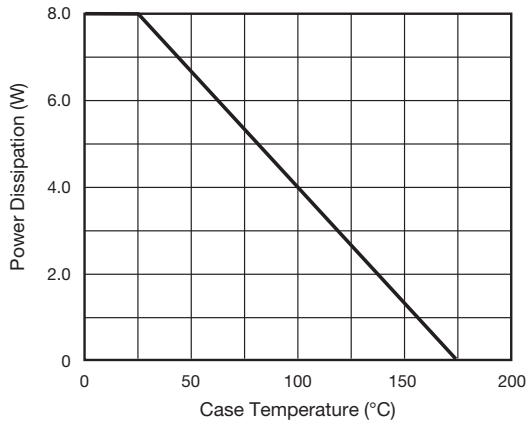


Fig. 1 - Power Derating Curve

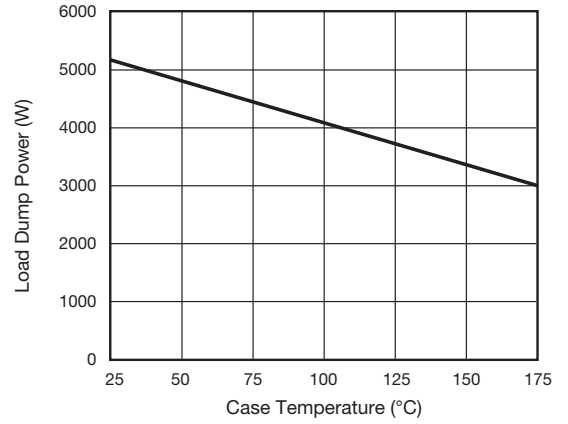


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

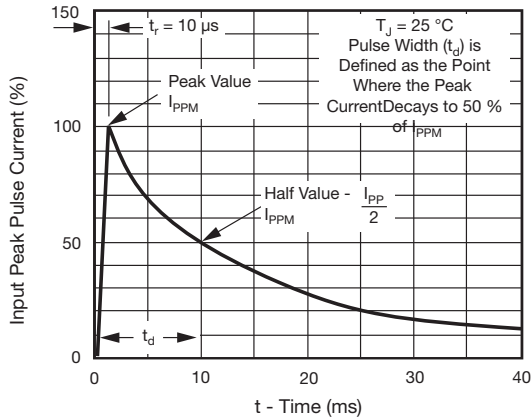


Fig. 3 - Pulse Waveform

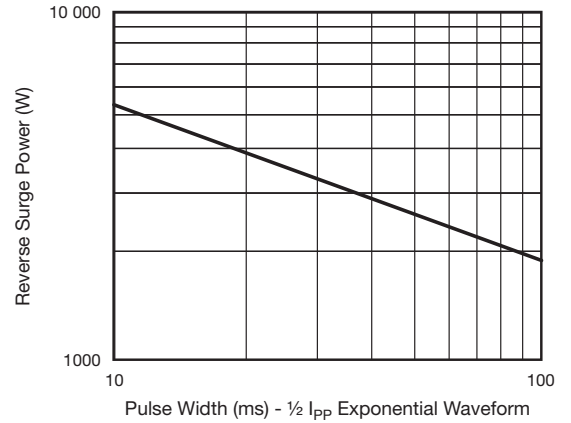


Fig. 4 - Reverse Power Capability

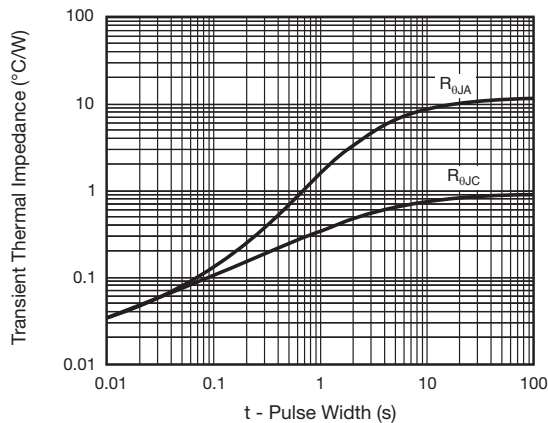


Fig. 5 - Typical Transient Thermal Impedance

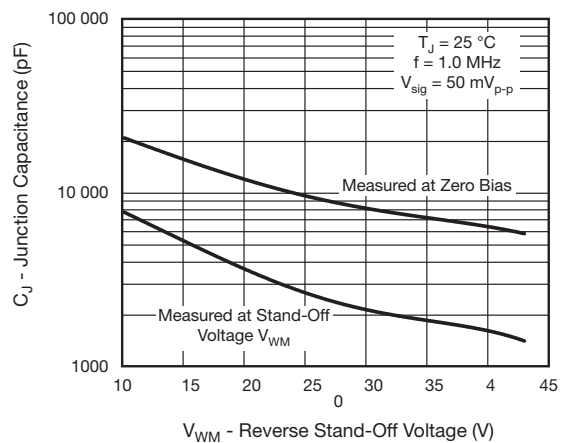
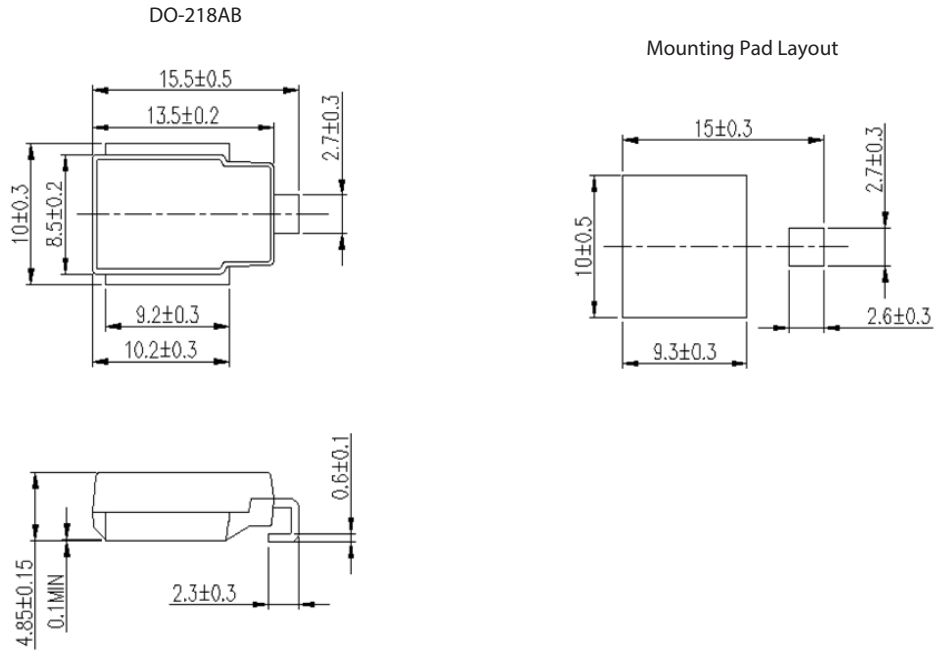


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS (millimeters)



REEL SPECIFICATION

P/N	PKG	QTY
SM8SXXA-MS	DO-218AB	750

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