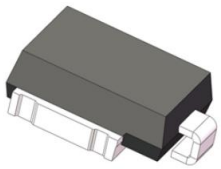
SM8KXXA Series

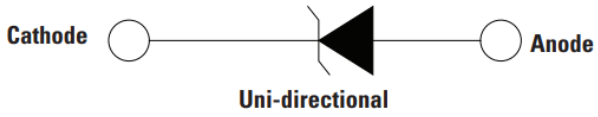
Features

- Chip produced by chemical method
- Junction passivated by high temperature resistant insulating adhesive
- TJ = 175 °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)
- LF maximum peak of 245 °C
- AEC-Q101 qualified
- Case: DO-218AB
- Polarity: heatsink is anode



DO-218AB

Functional Diagram



Applications

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

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10/1000μs Waveform (note1)	P_{PK}	8000	Watts
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	700	Amps
Power dissipation on infinite heatsink at @ T_L = 25 °C	$P_{M(AV)}$	8.0	Watts
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.90	°C /W

NOTES:

1. Non-repetitive current pulse derating above T_A = 25 °C

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

DEVICE TYPE	BREAKDOWN VOLTAGE VBR (V)			TEST CURRENT IT (mA)	STAND-OFF VOLTAGE VWM	MAXIMUM REVERSE LEAKAGE AT VWM ID (μA)	MAXIMUM REVERSE LEAKAGE AT VWM TJ = 175 °C ID (μA)	MAX. PEAK PULSE CURRENT AT 10/1000 μs WAVEFORM (A)	MAXIMUM CLAMPING VOLTAGE AT IPPM V_C(V)	TYPICAL TEMP. COEFFICIENT OF VBR (1) αT (%/°C)
	MIN.	NOM.	MAX.							
SM8K10A	11.1	11.7	12.3	5	10	10	150	470.6	17.0	0.069
SM8K11A	12.2	12.9	13.5	5	11	10	150	439.6	18.2	0.072
SM8K12A	13.3	14	14.7	5	12	10	150	402.0	19.9	0.074
SM8K13A	14.4	15.2	15.9	5	13	10	150	372.1	21.5	0.076
SM8K14A	15.6	16.4	17.2	5	14	10	150	344.8	23.2	0.078
SM8K15A	16.7	17.6	18.5	5	15	10	150	327.9	24.4	0.080
SM8K16A	17.8	18.8	19.7	5	16	10	150	307.7	26.0	0.081
SM8K17A	18.9	19.9	20.9	5	17	10	150	289.9	27.6	0.082
SM8K18A	20	21.1	22.1	5	18	10	150	274.0	29.2	0.083
SM8K20A	22.2	23.4	24.5	5	20	10	150	246.9	32.4	0.085
SM8K22A	24.4	25.7	26.9	5	22	10	150	225.4	35.5	0.086
SM8K24A	26.7	28.1	29.5	5	24	10	150	205.7	38.9	0.087
SM8K26A	28.9	30.4	31.9	5	26	10	150	190.0	42.1	0.088
SM8K28A	31.1	32.8	34.4	5	28	10	150	176.2	45.4	0.089
SM8K30A	33.3	35.1	36.8	5	30	10	150	165.3	48.4	0.090
SM8K33A	36.7	38.7	40.6	5	33	10	150	150.1	53.3	0.091
SM8K36A	40	42.1	44.2	5	36	10	150	137.7	58.1	0.091
SM8K40A	44.4	46.8	49.1	5	40	10	150	124.0	64.5	0.092
SM8K43A	47.8	50.3	52.8	5	43	10	150	115.3	69.4	0.093

Notes

• For all types maximum VF = 1.8 V at IF = 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 VBR vs. junction temperature, use the following formula: V_{BR} at TJ = VBR at 25 °C x (1 + αT x (T_J - 25))

Rating & Characteristic Curves (TA = 25 °C unless otherwise noted)

Figure 1- Power Derating Curve

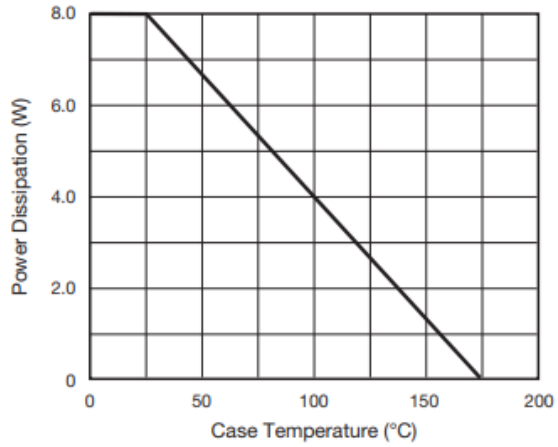


Figure 2- Reverse Power Capability

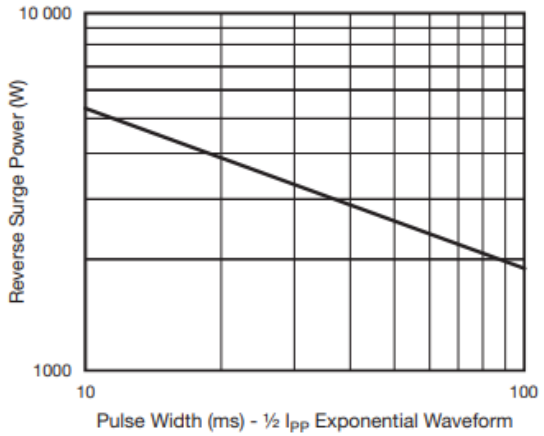


Figure 3- Pulse Waveform

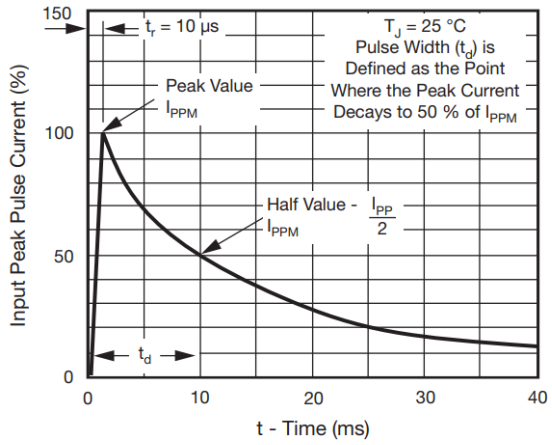


Figure 4- Typical Transient Thermal Impedance

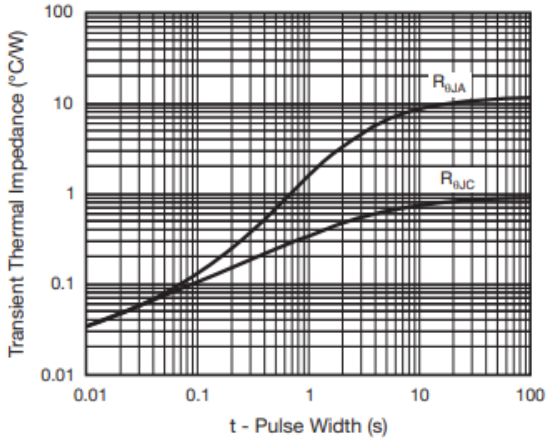
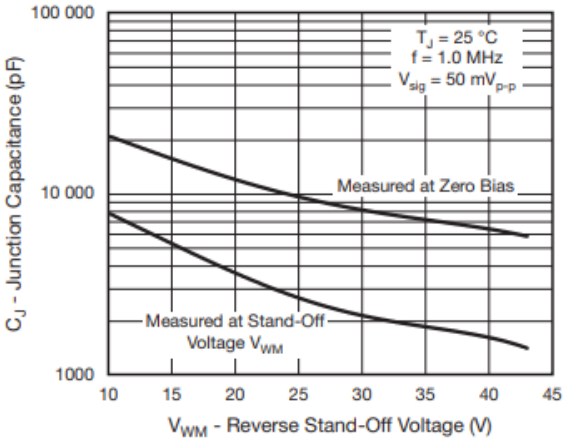
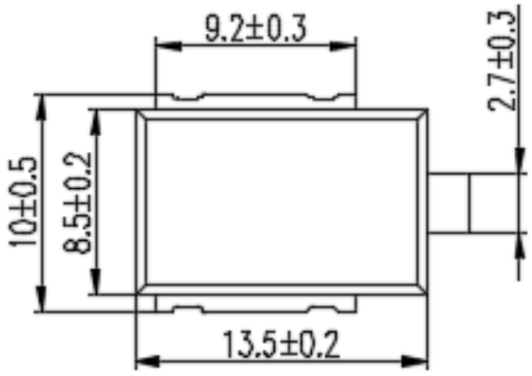
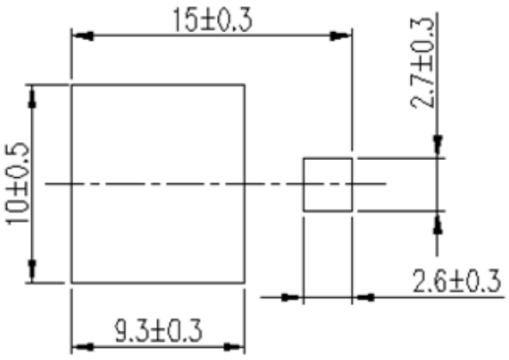


Figure5- Typical Junction Capacitance

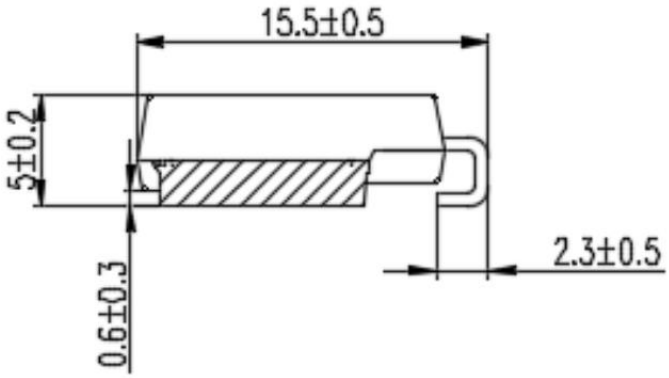


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





Mounting Pad Layout



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.