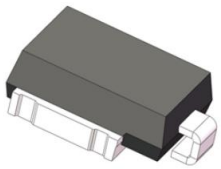
SM6KXXCA Series

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 Bi-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

Bi-directional

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}	6600	Watts
Power dissipation on infinite heatsink at @ T_L = 25 °C	$P_{M(AV)}$	6.0	Watts
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

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.							
SM6K10CA	11.1	11.7	12.3	5	10	10	150	388.2	17.0	0.069
SM6K11CA	12.2	12.9	13.5	5	11	10	150	362.6	18.2	0.072
SM6K12CA	13.3	14	14.7	5	12	10	150	331.7	19.9	0.074
SM6K13CA	14.4	15.2	15.9	5	13	10	150	307.0	21.5	0.076
SM6K14CA	15.6	16.4	17.2	5	14	10	150	284.5	23.2	0.078
SM6K15CA	16.7	17.6	18.5	5	15	10	150	270.5	24.4	0.080
SM6K16CA	17.8	18.8	19.7	5	16	10	150	253.8	26.0	0.081
SM6K17CA	18.9	19.9	20.9	5	17	10	150	239.1	27.6	0.082

SM6K18CA	20	21.1	22.1	5	18	10	150	226.0	29.2	0.083
SM6K20CA	22.2	23.4	24.5	5	20	10	150	203.7	32.4	0.085
SM6K22CA	24.4	25.7	26.9	5	22	10	150	185.9	35.5	0.086
SM6K24CA	26.7	28.1	29.5	5	24	10	150	169.7	38.9	0.087
SM6K26CA	28.9	30.4	31.9	5	26	10	150	156.8	42.1	0.088
SM6K28CA	31.1	32.8	34.4	5	28	10	150	145.4	45.4	0.089
SM6K30CA	33.3	35.1	36.8	5	30	10	150	136.4	48.4	0.090
SM6K33CA	36.7	38.7	40.6	5	33	10	150	123.8	53.3	0.091
SM6K36CA	40	42.1	44.2	5	36	10	150	113.6	58.1	0.091
SM6K40CA	44.4	46.8	49.1	5	40	10	150	102.3	64.5	0.092
SM6K43CA	47.8	50.3	52.8	5	43	10	150	95.1	69.4	0.093

Notes

(1) To calculate VBR vs. junction temperature, use the following formula: VBR at TJ = VBR at 25 °C x (1 + αT x (TJ - 25))

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

Figure 1- Power Derating Curve

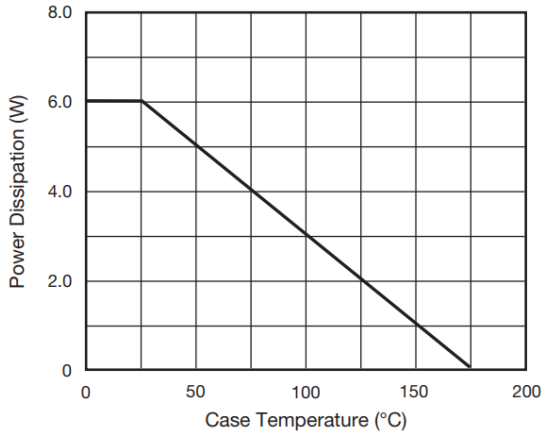


Figure 2- Pulse Waveform

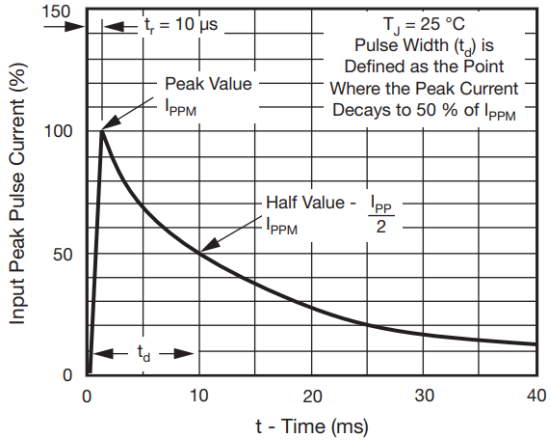
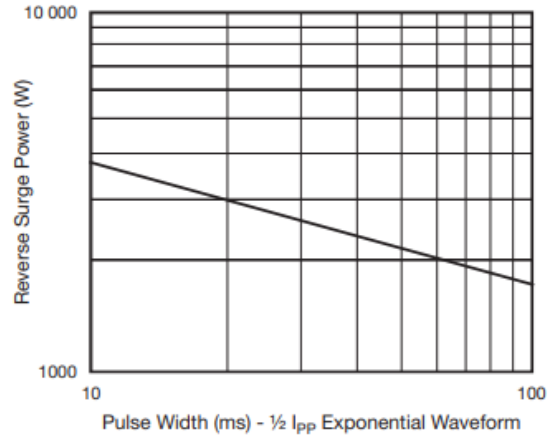
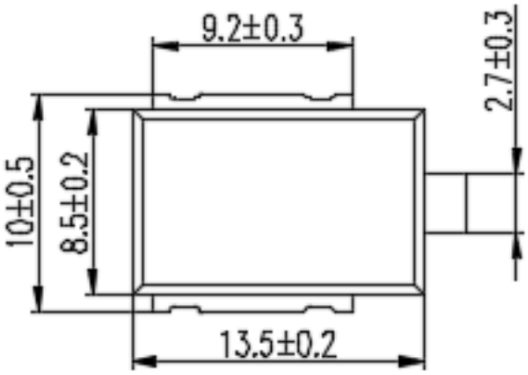
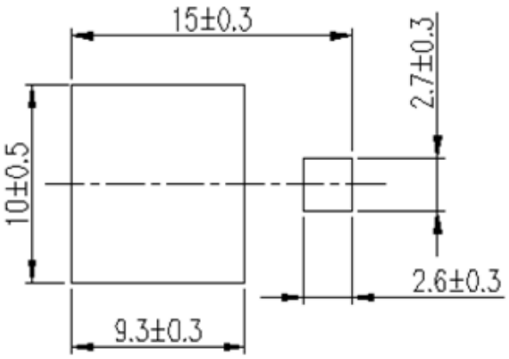


Figure 3- Reverse Power Capability

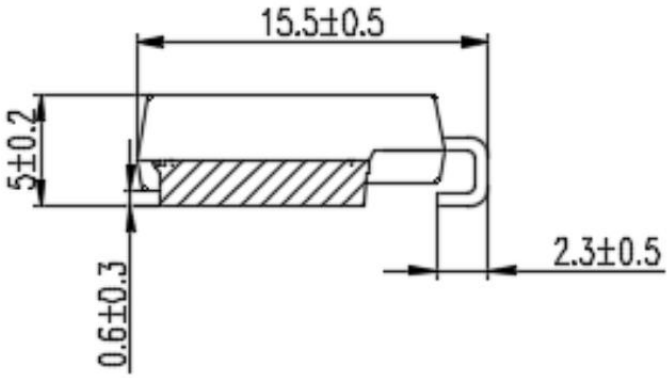


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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.