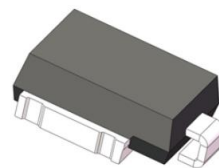


SM8KXXCA Series

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 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 $245\text{ }^{\circ}\text{C}$
- 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 10/1000 μs Waveform ^(note1)	P_{PK}	8000	Watts
Power dissipation on infinite heatsink at @ $T_L = 25\text{ }^{\circ}\text{C}$	$P_{M(AV)}$	8.0	Watts
Operating Temperature Range	T_J	-55 to +175	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^{\circ}\text{C}$

NOTES:

1. Non-repetitive current pulse derating above $T_A = 25\text{ }^{\circ}\text{C}$

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

DEVICE TYPE	BREAKDOWN VOLTAGE			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 Vc(V)	TYPICAL TEMP. COEFFICIE NT OF VBR ⁽¹⁾ αT (%/°C)
	MIN.	NOM.	MAX.							
SM8K10CA	11.1	11.7	12.3	5	10	10	150	470.6	17.0	0.069
SM8K11CA	12.2	12.9	13.5	5	11	10	150	439.6	18.2	0.072
SM8K12CA	13.3	14	14.7	5	12	10	150	402.0	19.9	0.074
SM8K13CA	14.4	15.2	15.9	5	13	10	150	372.1	21.5	0.076
SM8K14CA	15.6	16.4	17.2	5	14	10	150	344.8	23.2	0.078
SM8K15CA	16.7	17.6	18.5	5	15	10	150	327.9	24.4	0.080
SM8K16CA	17.8	18.8	19.7	5	16	10	150	307.7	26.0	0.081
SM8K17CA	18.9	19.9	20.9	5	17	10	150	289.9	27.6	0.082
SM8K18CA	20	21.1	22.1	5	18	10	150	274.0	29.2	0.083
SM8K20CA	22.2	23.4	24.5	5	20	10	150	246.9	32.4	0.085
SM8K22CA	24.4	25.7	26.9	5	22	10	150	225.4	35.5	0.086
SM8K24CA	26.7	28.1	29.5	5	24	10	150	205.7	38.9	0.087
SM8K26CA	28.9	30.4	31.9	5	26	10	150	190.0	42.1	0.088
SM8K28CA	31.1	32.8	34.4	5	28	10	150	176.2	45.4	0.089
SM8K30CA	33.3	35.1	36.8	5	30	10	150	165.3	48.4	0.090
SM8K33CA	36.7	38.7	40.6	5	33	10	150	150.1	53.3	0.091
SM8K36CA	40	42.1	44.2	5	36	10	150	137.7	58.1	0.091
SM8K40CA	44.4	46.8	49.1	5	40	10	150	124.0	64.5	0.092
SM8K43CA	47.8	50.3	52.8	5	43	10	150	115.3	69.4	0.093
SM8K45CA	50	52.7	55.3	5	45	10	150	110.0	72.7	0.094
SM8K48CA	53.3	56.1	58.9	5	48	10	150	103.4	77.4	0.095
SM8K51CA	56.7	59.7	62.7	5	51	10	150	97.1	82.4	0.096
SM8K54CA	60	63.1	66.3	5	54	10	150	91.8	87.1	0.097
SM8K58CA	64.4	67.8	71.2	5	58	10	150	85.5	93.6	0.098
SM8K60CA	66.7	70.2	73.7	5	60	10	150	82.6	96.8	0.099
SM8K64CA	71.1	74.9	78.6	5	64	10	150	77.7	103	0.1
SM8K70CA	77.8	81.9	86	5	70	10	150	70.8	113	0.101
SM8K75CA	83.3	87.7	92.1	5	75	10	150	66.1	121	0.102
SM8K78CA	86.7	91.3	95.8	5	78	10	150	63.5	126	0.103
SM8K85CA	94.4	99.2	104	5	85	10	150	58.4	137	0.104

Notes

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

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

Figure 1- Power Derating Curve

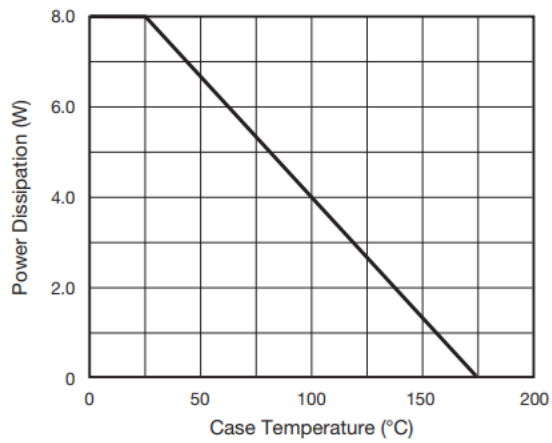


Figure 2- Reverse Power Capability

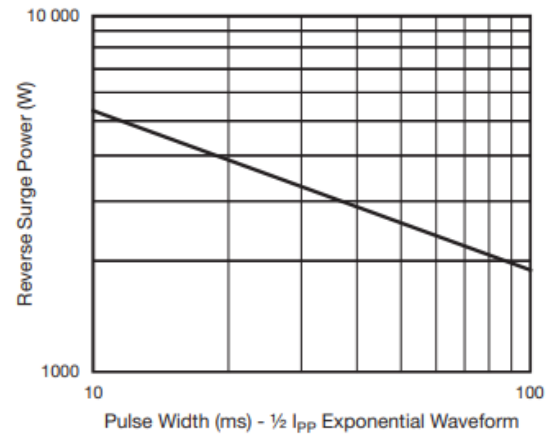
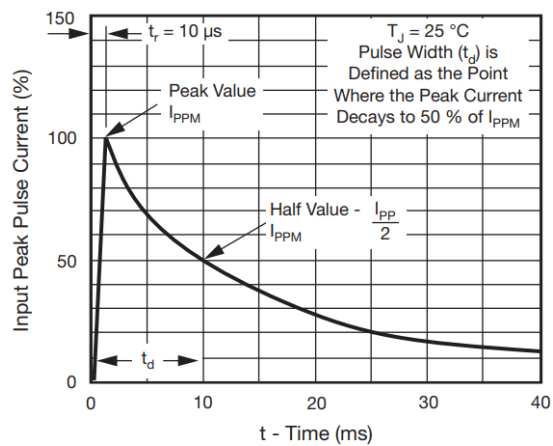
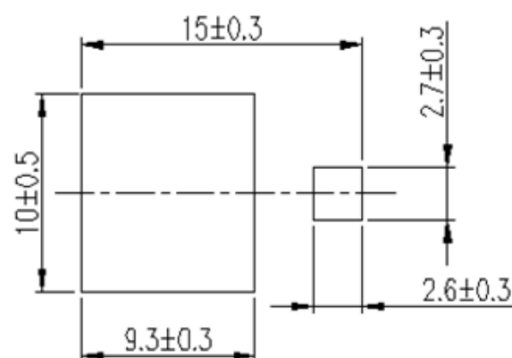
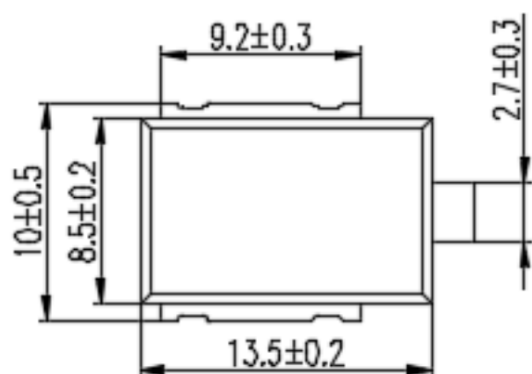


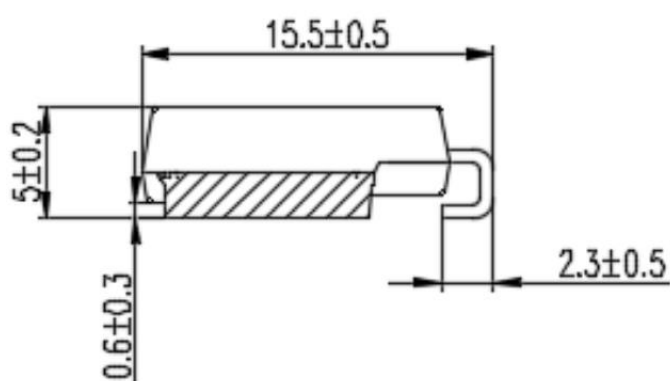
Figure 3- Pulse Waveform



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.