

Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Reverse Voltage 5.0 - 170 Volts
Power Dissipation - 400 Watts

Features

- For surface mounted applications in order to optimize board space
- Low profile space
- Glass passivated chip
- Typical I_R less than $1\mu A$ above 10V
- Fast response time: typically less than 1.0ns for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min

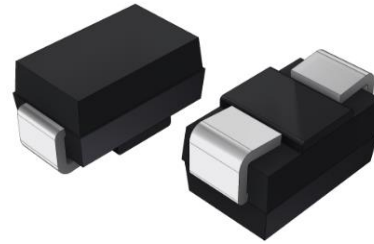
Mechanical Data

- Case: SMA molded plastic
- Polarity: Color band denotes cathode

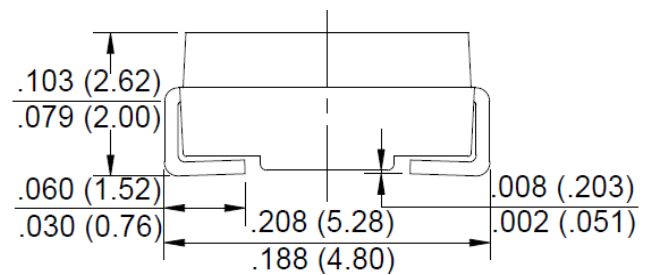
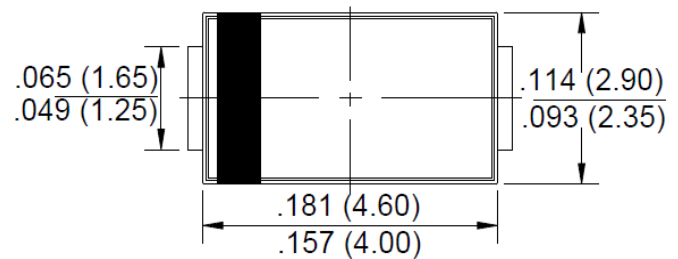
Applications

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET.

SMA



RoHS
COMPLIANT



Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristics	Symbol	Value	Unit
Peak Power Dissipation at $T_A=25^\circ C$ $T_P=1ms$ (Note 1)	P_{PK}	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Superimposed on Rated Load (JEDEC Method)	I_{FSM}	40	A
Steady State Power Dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	1.0	W
Maximum Instantaneous Forward Voltage at 35A for Unidirectional Devices Only (Note 2)	V_F	3.5	V
Operating Junction Temperature Range	T_J	-55 to + 150	°C
Storage Temperature Range	T_{STG}	-55 to + 150	°C

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ C$ per Fig. 1.

2. 8.3ms single half sine-wave duty cycle= 4 pulses per minutes maximum (uni-directional units only)

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Fig. 1 - Maximum Non-Repetitive Peak Forward Surge Current

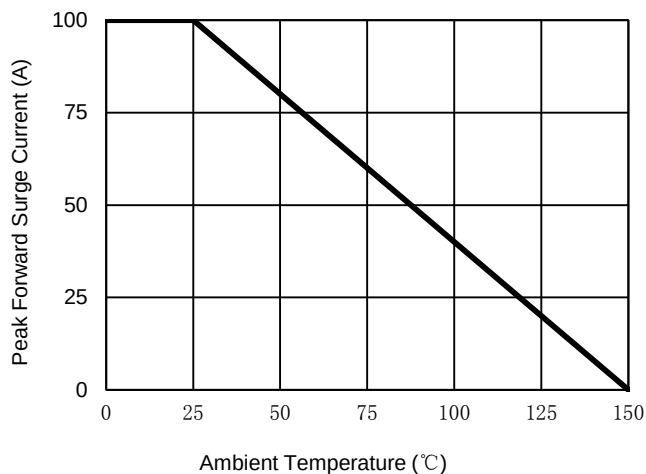


Fig. 2 - Maximum Non-Repetitive Surge Current

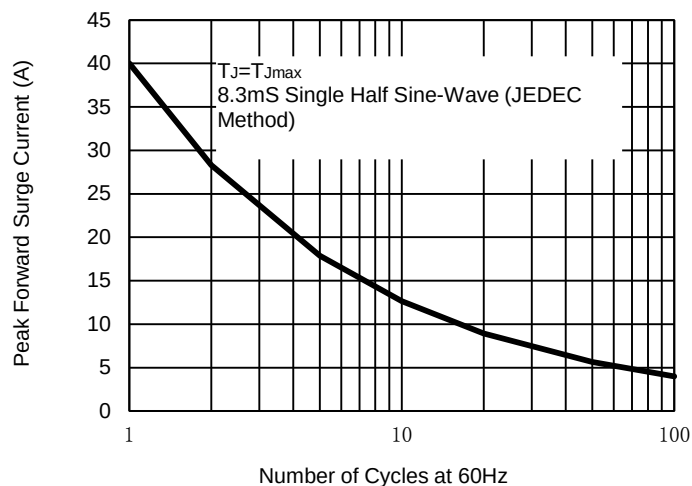


Fig. 3 - Pulse Waveform

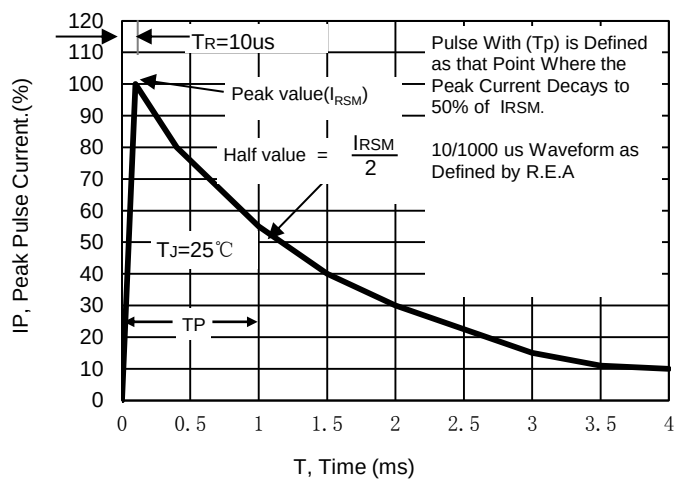


Fig.4- Typical Junction Capacitance

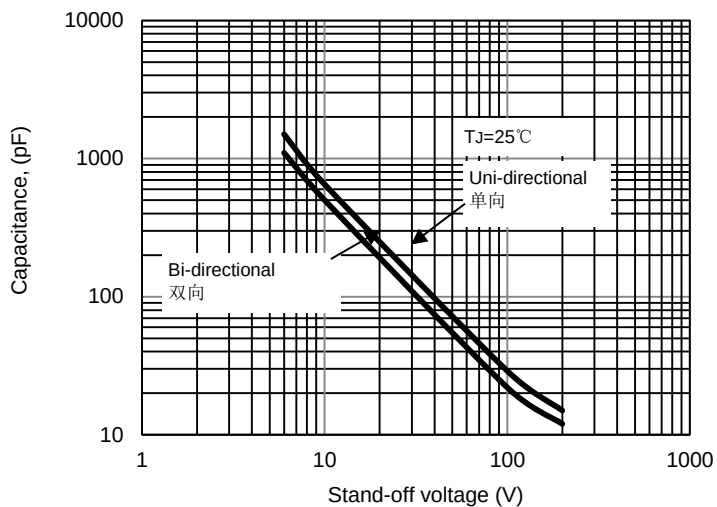


Fig. 5 - Pulse Rating Curve

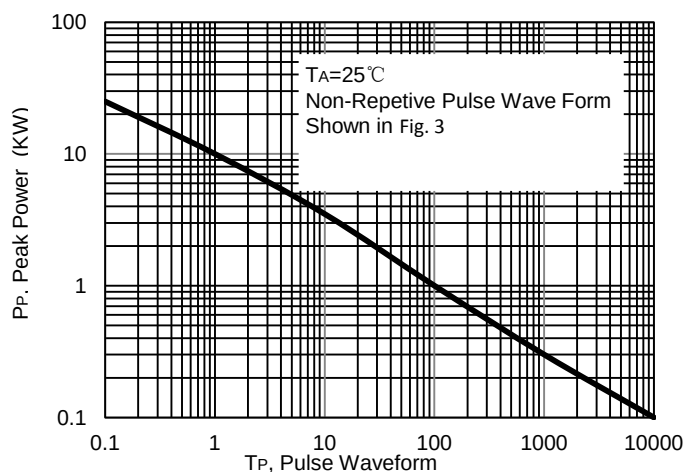
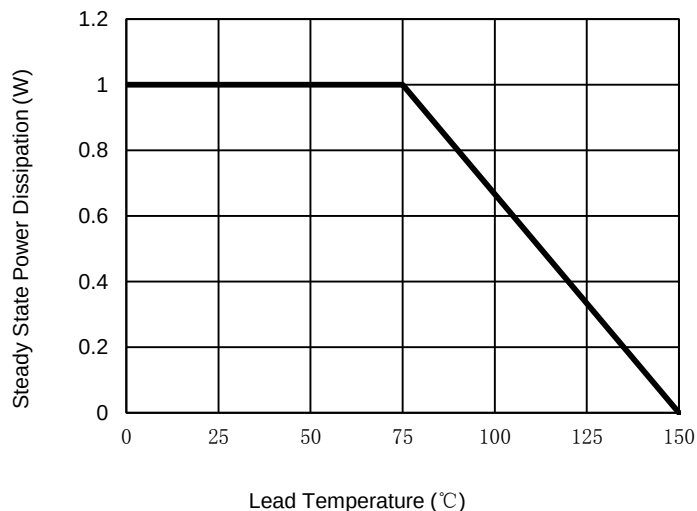


Fig. 6 - Steady State Power Derating Curve



The curve above is for reference only.



SMAJ SERIES

Device Uni-directional	Device Bi-directional	Working Peak Reverse Voltage	Breakdown Voltage VBR Volts			Maximum Reverse Voltage at I _{RSM} (Clamping Voltage))	Maximum Reverse Surge Current	Maximum Reverse Leakage at V _{RWM}
		V _{RWM} (volts)	Min(V)	Max(V)	@ I _T (mA)	V _{RSM} (volts)	I _{RSM} (Amps)	IR (µA)
SMAJ5.0A	SMAJ5.0CA	5.0	6.40	7.00	10	9.2	43.5	800/1600
SMAJ6.0A	SMAJ6.0CA	6.0	6.67	7.37	10	10.3	38.8	800/1600
SMAJ6.5A	SMAJ6.5CA	6.5	7.22	7.98	10	11.2	35.7	500/1000
SMAJ7.0A	SMAJ7.0CA	7.0	7.78	8.60	10	12.0	33.3	200/400
SMAJ7.5A	SMAJ7.5CA	7.5	8.33	9.21	1.0	12.9	31.0	100/200
SMAJ8.0A	SMAJ8.0CA	8.0	8.89	9.83	1.0	13.6	29.4	50/100
SMAJ8.5A	SMAJ8.5CA	8.5	9.44	10.40	1.0	14.4	27.7	10/20
SMAJ9.0A	SMAJ9.0CA	9.0	10.00	11.10	1.0	15.4	26.0	5/10
SMAJ10A	SMAJ10CA	10.0	11.10	12.30	1.0	17.0	23.5	5/10
SMAJ11A	SMAJ11CA	11.0	12.20	13.50	1.0	18.2	22.0	5.0
SMAJ12A	SMAJ12CA	12.0	13.30	14.70	1.0	19.9	20.1	5.0
SMAJ13A	SMAJ13CA	13.0	14.40	15.90	1.0	21.5	18.6	5.0
SMAJ14A	SMAJ14CA	14.0	15.60	17.20	1.0	23.2	17.2	5.0
SMAJ15A	SMAJ15CA	15.0	16.70	18.50	1.0	24.4	16.4	5.0
SMAJ16A	SMAJ16CA	16.0	17.80	19.70	1.0	26.0	15.3	5.0
SMAJ17A	SMAJ17CA	17.0	18.90	20.90	1.0	27.6	14.5	5.0
SMAJ18A	SMAJ18CA	18.0	20.00	22.10	1.0	29.2	13.7	5.0
SMAJ20A	SMAJ20CA	20.0	22.20	24.50	1.0	32.4	12.3	5.0
SMAJ22A	SMAJ22CA	22.0	24.40	26.90	1.0	35.5	11.2	5.0
SMAJ24A	SMAJ24CA	24.0	26.70	29.50	1.0	38.9	10.3	5.0
SMAJ26A	SMAJ26CA	26.0	28.90	31.90	1.0	42.1	9.5	5.0
SMAJ28A	SMAJ28CA	28.0	31.10	34.40	1.0	45.4	8.8	5.0
SMAJ30A	SMAJ30CA	30.0	33.30	36.80	1.0	48.4	8.3	5.0
SMAJ33A	SMAJ33CA	33.0	36.70	40.60	1.0	53.3	7.5	5.0
SMAJ36A	SMAJ36CA	36.0	40.0	44.2	1.0	58.1	6.9	5.0
SMAJ40A	SMAJ40CA	40.0	44.4	49.1	1.0	64.5	6.2	5.0
SMAJ43A	SMAJ43CA	43.0	47.8	52.8	1.0	69.4	5.7	5.0
SMAJ45A	SMAJ45CA	45.0	50.0	55.3	1.0	72.7	5.5	5.0
SMAJ48A	SMAJ48CA	48.0	53.3	58.9	1.0	77.4	5.2	5.0
SMAJ51A	SMAJ51CA	51.0	56.7	62.7	1.0	82.4	4.9	5.0
SMAJ54A	SMAJ54CA	54.0	60.0	66.3	1.0	87.1	4.6	5.0
SMAJ58A	SMAJ58CA	58.0	64.4	71.2	1.0	93.6	4.3	5.0
SMAJ60A	SMAJ60CA	60.0	66.7	73.7	1.0	96.8	4.1	5.0
SMAJ64A	SMAJ64CA	64.0	71.1	78.6	1.0	103.0	3.9	5.0
SMAJ70A	SMAJ70CA	70.0	77.8	86.0	1.0	113.0	3.5	5.0
SMAJ75A	SMAJ75CA	75.0	83.3	92.1	1.0	121.0	3.3	5.0
SMAJ78A	SMAJ78CA	78.0	86.7	95.8	1.0	126.0	3.2	5.0
SMAJ85A	SMAJ85CA	85.0	94.4	104.0	1.0	137.0	2.9	5.0
SMAJ90A	SMAJ90CA	90.0	100.0	111.0	1.0	146.0	2.7	5.0
SMAJ100A	SMAJ100CA	100.0	111.0	123.0	1.0	162.0	2.5	5.0
SMAJ110A	SMAJ110CA	110.0	122.0	135.0	1.0	177.0	2.3	5.0
SMAJ120A	SMAJ120CA	120.0	133.0	147.0	1.0	193.0	2.0	5.0
SMAJ130A	SMAJ130CA	130.0	144.0	159.0	1.0	209.0	1.9	5.0
SMAJ150A	SMAJ150CA	150.0	167.0	185.0	1.0	243.0	1.6	5.0
SMAJ160A	SMAJ160CA	160.0	178.0	197.0	1.0	259.0	1.5	5.0
SMAJ170A	SMAJ170CA	170.0	189.0	209.0	1.0	275.0	1.4	5.0

Notes: 1. For bidirectional use CA suffix for types SMAJ5.0CA thru types SMAJ170CA

2. Electrical characteristics apply in both directions.

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