

Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Reverse Voltage 5.0 - 440 Volts
 Power Dissipation - 600 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: SMB molded plastic
- Polarity: Color band denotes cathode

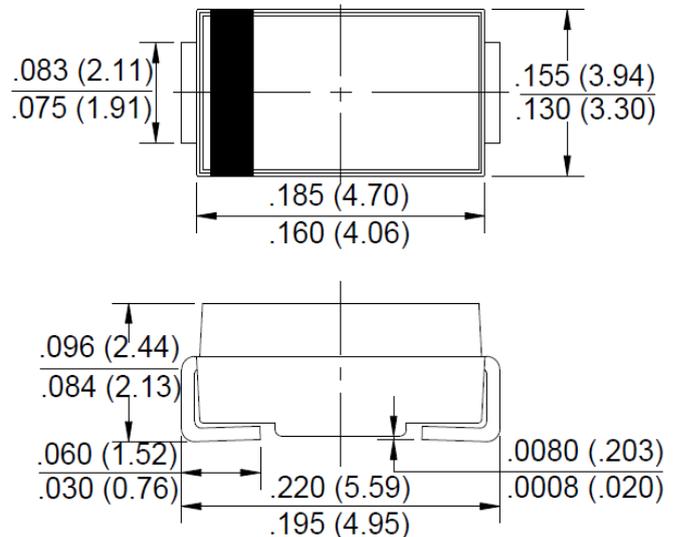
Applications

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

SMB



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}	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Superimposed on Rated Load (JEDEC Method)	I_{FSM}	100	A
Steady State Power Dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	5.0	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Devices Only (Note 3)	V_F	3.5/5	V
Typical Junction Capacitance (Note 2)	C_J	2000	pF
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	$^\circ C/W$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	$^\circ C/W$
Operating Junction Temperature Range	T_J	-55 to + 150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to + 150	$^\circ C$

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

2. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

3. $V_F < 3.5V$ for $V_{BR} \leq 200V$ and $V_F < 6.5V$ for $V_{BR} \geq 201V$

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

5. The typical data above is for reference only.

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

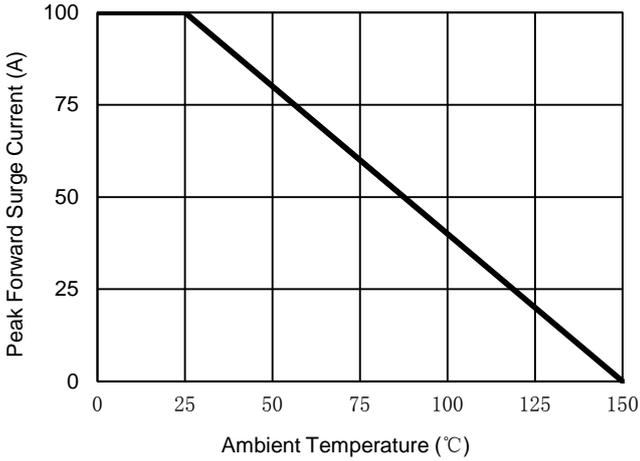


Fig. 2 - Maximum Non-Repetitive Surge Current

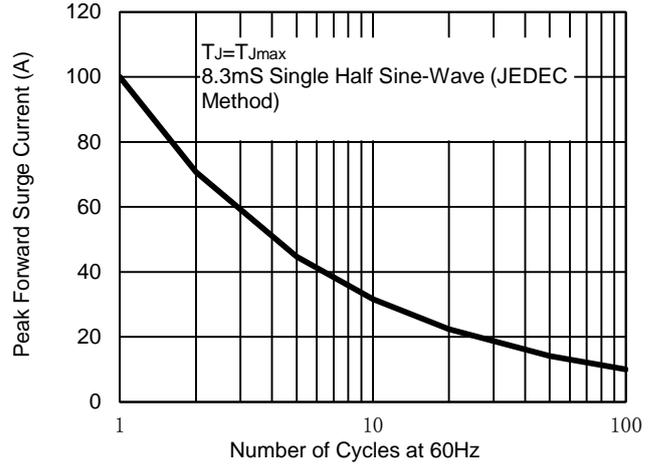


Fig. 3 - Pulse Waveform

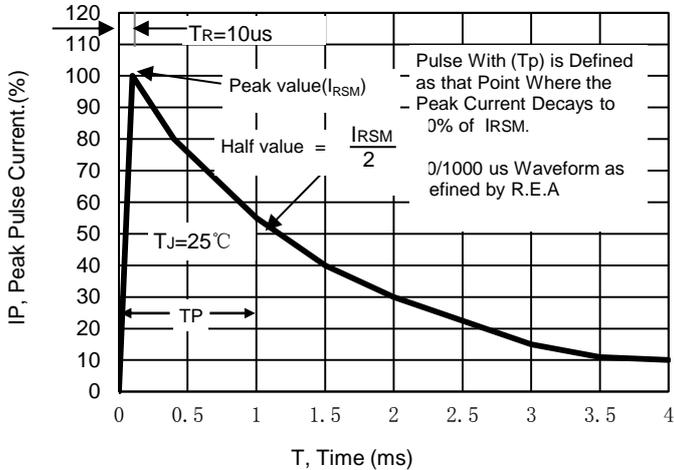


Fig. 4- Typical Junction Capacitance

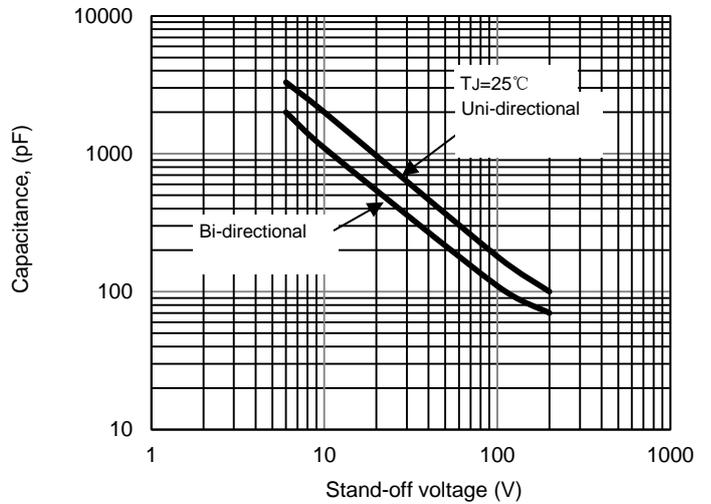


Fig. 5 - Pulse Rating Curve

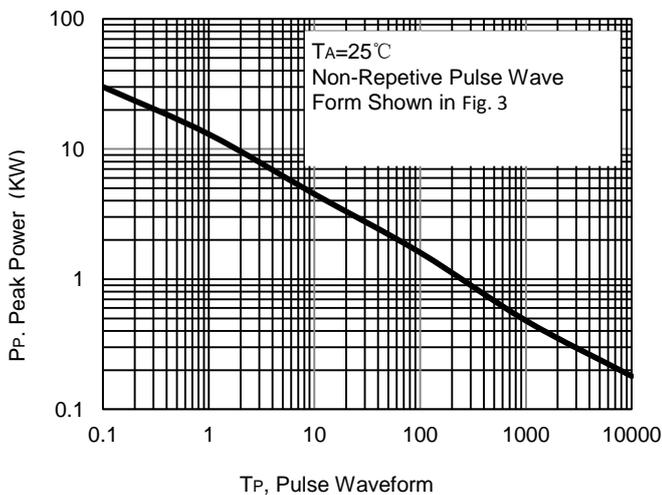
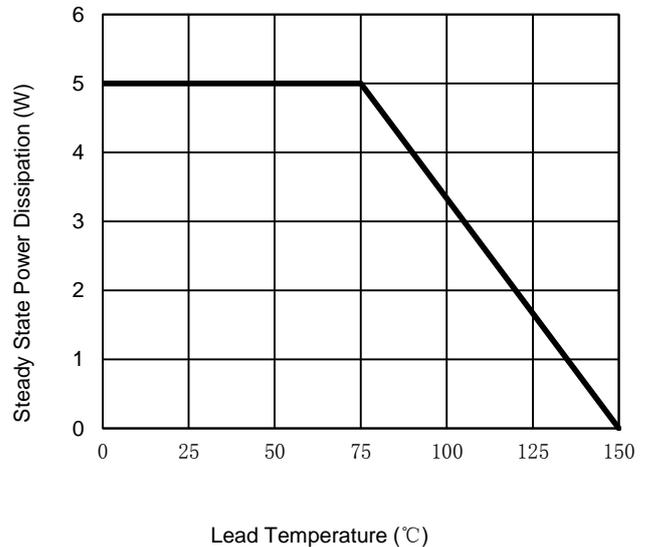


Fig. 6 - Steady State Power Derating Curve



The curve above is for reference only.



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Part number with C donoteo Bi-Directional		Reverse Stand off Voltage	Breakdown Voltage at I_T^2 $V_{(BR)}$ (V)		Test Current	Maximum Clamping Voltage at I_{PPM}	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Reverse Leakage at V_R
UNI	BI	V_R (V)	Min(V)	Max(V)	@ I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μ A)
SMBJ5.0A	SMBJ5.0CA	5.0	6.40	7.00	10	9.2	65.3	800
SMBJ6.0A	SMBJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ6.8A	SMBJ6.8CA	6.8	7.56	8.35	10	11.7	51.3	400
SMBJ7.0A	SMBJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1.0	12.9	46.6	100
SMBJ8.0A	SMBJ8.0CA	8.0	8.89	9.83	1.0	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.40	1.0	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9.0	10.00	11.10	1.0	15.4	39.0	10
SMBJ10A	SMBJ10CA	10.0	11.10	12.30	1.0	17.0	35.3	5.0
SMBJ11A	SMBJ11CA	11.0	12.20	13.50	1.0	18.2	33.0	1.0
SMBJ12A	SMBJ12CA	12.0	13.30	14.70	1.0	19.9	30.2	1.0
SMBJ13A	SMBJ13CA	13.0	14.40	15.90	1.0	21.5	28.0	1.0
SMBJ14A	SMBJ14CA	14.0	15.60	17.20	1.0	23.2	25.9	1.0
SMBJ15A	SMBJ15CA	15.0	16.70	18.50	1.0	24.4	24.6	1.0
SMBJ16A	SMBJ16CA	16.0	17.80	19.70	1.0	26.0	23.1	1.0
SMBJ17A	SMBJ17CA	17.0	18.90	20.90	1.0	27.6	21.8	1.0
SMBJ18A	SMBJ18CA	18.0	20.00	22.10	1.0	29.2	20.6	1.0
SMBJ20A	SMBJ20CA	20.0	22.20	24.50	1.0	32.4	18.6	1.0
SMBJ22A	SMBJ22CA	22.0	24.40	26.90	1.0	35.5	16.9	1.0
SMBJ24A	SMBJ24CA	24.0	26.70	29.50	1.0	38.9	15.5	1.0
SMBJ26A	SMBJ26CA	26.0	28.90	31.90	1.0	42.1	14.3	1.0
SMBJ28A	SMBJ28CA	28.0	31.10	34.40	1.0	45.4	13.3	1.0
SMBJ30A	SMBJ30CA	30.0	33.30	36.80	1.0	48.4	12.4	1.0
SMBJ33A	SMBJ33CA	33.0	36.70	40.60	1.0	53.3	11.3	1.0
SMBJ36A	SMBJ36CA	36.0	40.00	44.20	1.0	58.1	10.4	1.0
SMBJ40A	SMBJ40CA	40.0	44.40	49.10	1.0	64.5	9.3	1.0
SMBJ43A	SMBJ43CA	43.0	47.80	52.80	1.0	69.4	8.7	1.0
SMBJ45A	SMBJ45CA	45.0	50.00	55.30	1.0	72.7	8.3	1.0
SMBJ48A	SMBJ48CA	48.0	53.30	58.90	1.0	77.4	7.8	1.0
SMBJ51A	SMBJ51CA	51.0	56.70	62.70	1.0	82.4	7.3	1.0
SMBJ54A	SMBJ54CA	54.0	60.00	66.30	1.0	87.1	6.9	1.0
SMBJ58A	SMBJ58CA	58.0	64.40	71.20	1.0	93.6	6.5	1.0
SMBJ60A	SMBJ60CA	60.0	66.70	73.70	1.0	96.8	6.2	1.0
SMBJ64A	SMBJ64CA	64.0	71.10	78.60	1.0	103.0	5.9	1.0
SMBJ70A	SMBJ70CA	70.0	77.80	86.00	1.0	113.0	5.3	1.0
SMBJ75A	SMBJ75CA	75.0	83.30	92.10	1.0	121.0	5.0	1.0
SMBJ78A	SMBJ78CA	78.0	86.70	95.80	1.0	126.0	4.8	1.0
SMBJ85A	SMBJ85CA	85.0	94.40	104.00	1.0	137.0	4.4	1.0
SMBJ90A	SMBJ90CA	90.0	100.00	111.00	1.0	146.0	4.1	1.0
SMBJ100A	SMBJ100CA	100.0	111.00	123.00	1.0	162.0	3.7	1.0
SMBJ110A	SMBJ110CA	110.0	122.00	135.00	1.0	177.0	3.4	1.0
SMBJ120A	SMBJ120CA	120.0	133.00	147.00	1.0	193.0	3.1	1.0
SMBJ130A	SMBJ130CA	130.0	144.00	159.00	1.0	209.0	2.9	1.0
SMBJ150A	SMBJ150CA	150.0	167.00	185.00	1.0	243.0	2.5	1.0
SMBJ160A	SMBJ160CA	160.0	178.00	197.00	1.0	259.0	2.3	1.0
SMBJ170A	SMBJ170CA	170.0	189.00	209.00	1.0	275.0	2.2	1.0
SMBJ180A	SMBJ180CA	180.0	201.00	222.00	1.0	292.0	2.1	1.0
SMBJ200A	SMBJ200CA	200.0	224.00	247.00	1.0	324.0	1.9	1.0
SMBJ220A	SMBJ220CA	220.0	246.00	272.00	1.0	356.0	1.7	1.0
SMBJ250A	SMBJ250CA	250.0	279.00	309.00	1.0	405.0	1.5	1.0
SMBJ300A	SMBJ300CA	300.0	335.00	371.00	1.0	486.0	1.3	1.0
SMBJ350A	SMBJ350CA	350.0	391.00	432.00	1.0	567.0	1.1	1.0
SMBJ400A	SMBJ400CA	400.0	447.00	494.00	1.0	648.0	0.9	1.0
SMBJ440A	SMBJ440CA	440.0	492.00	543.00	1.0	713.0	0.9	1.0

Note: For bidirectional type having V_{RWM} of 10 volts and less, the IR limit is double.

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