

## Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors 单向和双向表面贴装瞬态抑制二极管

**Reverse Voltage 5.0 - 440 Volts**  
反向电压 5.0 - 440V  
**Power Dissipation - 600 Watts**  
功率损耗 600W

### Features 特征

- For surface mounted applications in order to optimize board space 贴片封装是为了更加的优化空间
- Low profile space 体积小
- Glass passivated chip 玻璃钝化的芯片
- Typical  $I_R$  less than  $1\mu A$  above 10V 典型  $I_R$  值至少  $1\mu A$  在 10V 上测试
- Fast response time: typically less than 1.0ns for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min 响应的时间非常快

### Mechanical Data 外观信息

- Case: SMB molded plastic 封装: SMB 塑料
- Polarity: Color band denotes cathode 极性: 带色环的为阴极

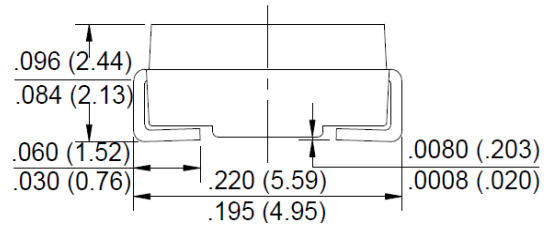
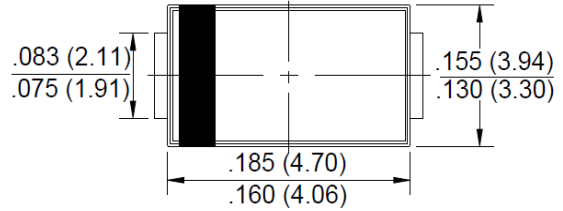
### Applications 应用

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET.  
在开关、照明等电子行业用于保护 ICs, MOSFET 管, 由于感性负载引起的电压瞬间变化。

### SMB



RoHS  
COMPLIANT



Package Outline Dimensions in Inches (Millimeters)

封装外观尺寸单位英寸 (毫米)

## Maximum Ratings and Electrical Characteristics 最大额定值及电气特性

Rating at 25°C ambient temperature unless otherwise specified. 环境温度 25°C, 除非特别说明。  
 Single phase, half wave, 60Hz, resistive or inductive load. 单相半波, 60Hz, 阻性或感性负载。  
 For capacitive load, derate current by 20%. 对于电容性负载, 降低 20% 的额定电流。

Characteristics 特性	Symbol 符号	Value 值	Unit 单位
Peak Power Dissipation at $T_A=25^\circ C$ $T_P=1ms$ (Note 1) 峰值功率损耗 (备注1)	$P_{PK}$	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Superimposed on Rated Load (JEDEC Method) 8.3ms 单一正弦半波叠加在额定负载上的浪涌能力 (JEDEC 方法)	$I_{FSM}$	100	A
Steady State Power Dissipation at $T_L=75^\circ C$ 稳态功耗	$P_{M(AV)}$	5.0	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Devices Only (Note 3) 仅对于单向在 50A 电流下的最大瞬态正向电压 (备注3)	$V_F$	3.5/5	V
Typical Junction Capacitance (Note 2) 典型结电容 (备注2)	$C_J$	2000	pF
Typical Thermal Resistance Junction to Lead 结到引线的典型热阻值	$R_{\theta JL}$	20	$^\circ C/W$
Typical Thermal Resistance Junction to Ambient 结到环境的典型热阻值	$R_{\theta JA}$	100	$^\circ C/W$
Operating Junction Temperature Range 结温工作范围	$T_J$	-55 to +150	$^\circ C$
Storage Temperature Range 储存温度范围	$T_{STG}$	-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. 不重复电流脉冲见图3, 25°C 的降额曲线见图1。

2. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC. 在 1.0MHz 下和反向电压为 4.0V DC 下测试。

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)

8.3ms 单一正弦半波的工作周期 = 每分钟最大 4 个脉冲 (仅针对单向部分)

5. The typical data above is for reference only. 典型值仅供参考。

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

图1. 脉冲降额曲线

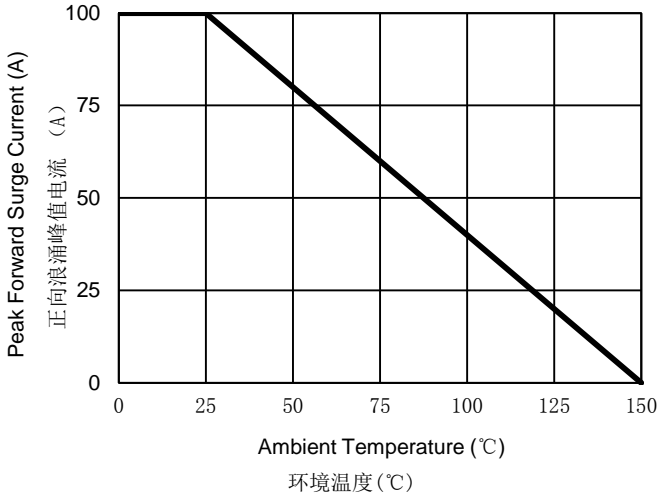


Fig. 2 - Maximum Non-Repetitive Surge Current

图2 最大不重复正向浪涌曲线

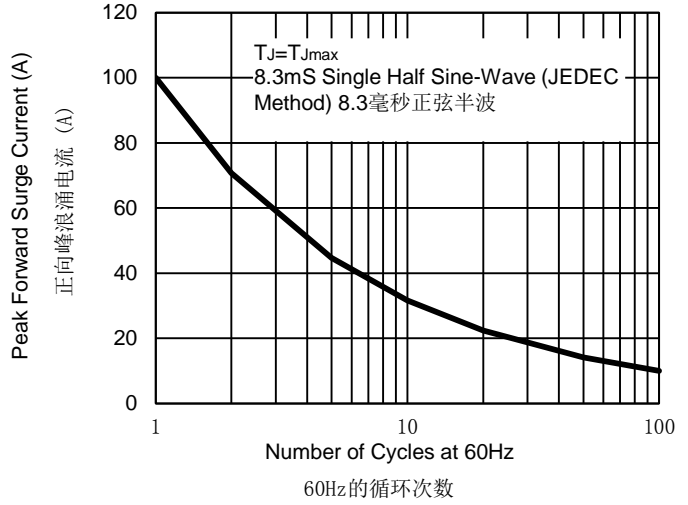


Fig. 3 - Pulse Waveform

图3 脉冲波形

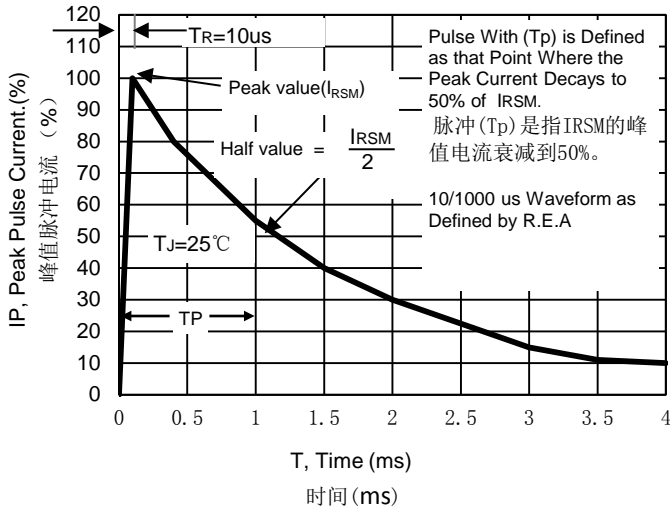


Fig. 5 - Pulse Rating Curve

图5 脉冲额定曲线

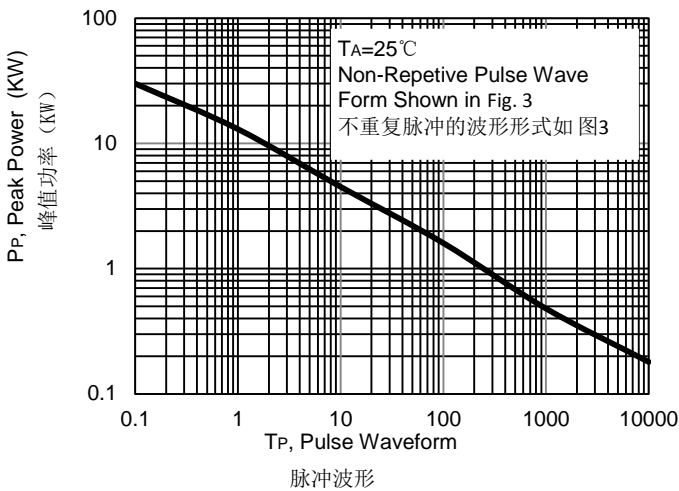


Fig. 4 - Typical Junction Capacitance

图4 典型的结电容

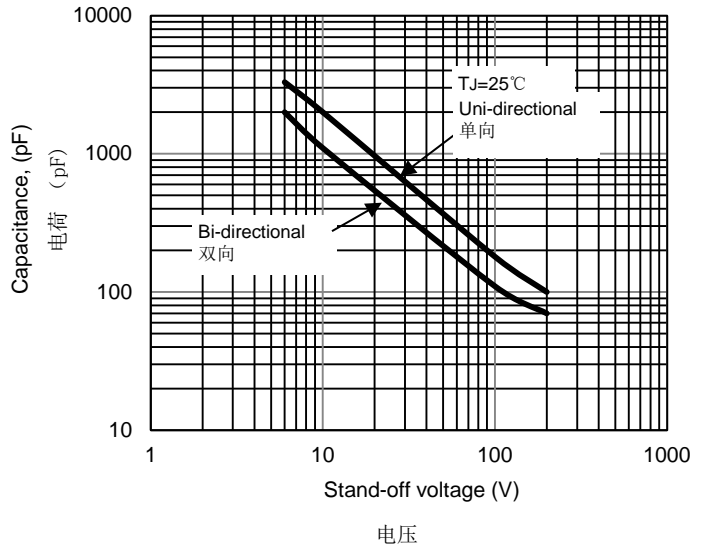
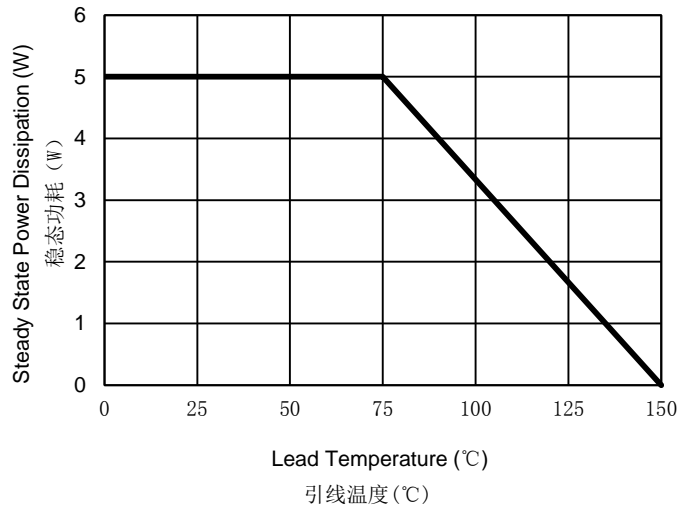


Fig. 6 - Steady State Power Derating Curve

图6. 稳态功率降额曲线





# SMBJ SERIES

Part number with C donoteo Bi-Directional (Note 5) 产品型号后面带C的是指双向（备注5）		Reverse Stand off Voltage 反向关断电压	Breakdown Voltage at $I_T^2$ $V_{(BR)}$ (V) 在 $I_T^2$ 条件下的击穿电压		Test Current 测试电流	Maximum Clamping Voltage at IPPM 在IPPM条件下最大的钳位电流	Maximum Peak Pulse Surge Current <sup>(3)</sup> 最大的峰值脉冲浪涌电流	Maximum Reverse Leakage at $V_R$ 在 $V_R$ 下最大的反向漏电
UNI	BI	$V_R$ (V)	Min(V)	Max(V)	@ $I_T$ (mA)	$V_C$ (V)	IPP (A)	IR ( $\mu$ 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
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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