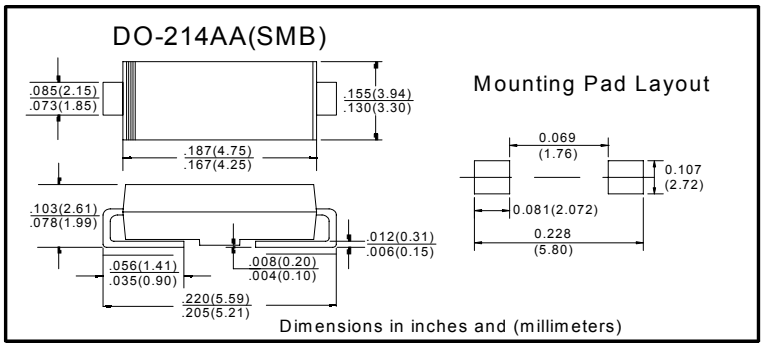
瞬变电压抑制二极管 Transient Voltage Suppressor Diodes

■特征 Features

- P_{PP} 600W
- V_{BR} 5.0V-188V

■外形尺寸和印记Outline Dimensions and Mark



■用途 Applications

- 箝位电压用 Clamping Voltage

■极限值（绝对最大额定值）
Limiting Values (Absolute Maximum Rating)

参数名称 Item	符号 Symbol	单位 Unit	条件 Conditions	最大值 Max
最大损耗功率(1)(2) Peak power dissipation	P_{PPM}	W	在10/1000us 波形下测试 with a 10/1000us waveform	600
最大脉冲电流(1) Peak pulse current	I_{PPM}	A	在10/1000us 波形下测试 with a 10/1000us waveform	见下面表格 See Next Table
最大正向浪涌电流(2) Peak forward surge current	I_{FSM}	A	8.3ms正弦半波，仅单向型 8.3 ms single half sine-wave unidirectional only	100
工作结温和存储温度范围 Operating junction and storage temperature range	T_J,T_{STG}	℃		-55 to +150

■电特性 （T_a=25℃ 除非另有规定）
Electrical Characteristics（T_a=25℃ Unless otherwise specified）

参数名称 Item	符号 Symbol	单位 Unit	条件 Conditions	最大值 Max
最大瞬间正向电压 Maximum instantaneous forward Voltage	V_F	V	在50A下测试，仅单向型 at 50A for unidirectional only	3.5
典型热阻 Thermal resistance	$R_{\theta JL}$	℃/W	结到引线 junction to lead	20
	$R_{\theta JA}$	℃/W	结到环境 junction to ambient	100

备注：Notes:

(1) 不重复脉冲电流，如图3，在T_A= 25℃下功率降额曲线见如图2。

Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃ per Fig.2.

(2) 每个端子安装在 0.2 x 0.2" (5.0 x 5.0 mm)铜焊盘上

Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

■电性参数 (T_A=25℃ 除非另有规定)

Electrical Characteristics (T_A =25℃ unless otherwise noted)

产品型号（单向）Part Number(Uni)	产品型号（双向）Part Number(Bi)	击穿电压 V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			最大反向漏电流 I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μA)	最大工作电压 V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A)	最大箝位电压 Maximum Clamping Voltage Vc @ I_{PP} (V)
		最小 Min(V)	最大 Max (V)	测试电流 IT(1)(mA)				
SMBJ5.0	SMBJ5.0C	6.40	7.82	10	800	5.0	62.5	9.6
SMBJ5.0A	SMBJ5.0CA(4)	6.40	7.07	10	800	5.0	65.2	9.2
SMBJ6.0	SMBJ6.0C	6.67	8.15	10	800	6.0	52.6	11.4
SMBJ6.0A	SMBJ6.0CA	6.67	7.37	10	800	6.0	58.3	10.3
SMBJ6.5	SMBJ6.5C	7.22	8.82	10	500	6.5	48.8	12.3
SMBJ6.5A	SMBJ6.5CA	7.22	7.98	10	500	6.5	53.6	11.2
SMBJ7.0	SMBJ7.0C	7.78	9.51	10	200	7.0	45.1	13.3
SMBJ7.0A	SMBJ7.0CA	7.78	8.60	10	200	7.0	50.0	12.0
SMBJ7.5	SMBJ7.5C	8.33	10.2	1.0	100	7.5	42.0	14.3
SMBJ7.5A	SMBJ7.5CA	8.33	9.21	1.0	100	7.5	46.5	12.9
SMBJ8.0	SMBJ8.0C	8.89	10.9	1.0	50	8.0	40.0	15.0
SMBJ8.0A	SMBJ8.0CA	8.89	9.83	1.0	50	8.0	44.1	13.6
SMBJ8.5	SMBJ8.5C	9.44	11.5	1.0	10	8.5	37.7	15.9
SMBJ8.5A	SMBJ8.5CA	9.44	10.4	1.0	10	8.5	41.7	14.4
SMBJ9.0	SMBJ9.0C	10.0	12.2	1.0	5.0	9.0	35.5	16.9
SMBJ9.0A	SMBJ9.0CA	10.0	11.1	1.0	5.0	9.0	39.0	15.4
SMBJ10	SMBJ10C	11.1	13.6	1.0	1.0	10	31.9	18.8
SMBJ10A	SMBJ10CA	11.1	12.3	1.0	1.0	10	35.3	17.0
SMBJ11	SMBJ11C	12.2	14.9	1.0	1.0	11	29.9	20.1
SMBJ11A	SMBJ11CA	12.2	13.5	1.0	1.0	11	33.0	18.2
SMBJ12	SMBJ12C	13.3	16.3	1.0	1.0	12	27.3	22.0
SMBJ12A	SMBJ12CA	13.3	14.7	1.0	1.0	12	30.2	19.9
SMBJ13	SMBJ13C	14.4	17.6	1.0	1.0	13	25.2	23.8
SMBJ13A	SMBJ13CA	14.4	15.9	1.0	1.0	13	27.9	21.5
SMBJ14	SMBJ14C	15.6	19.1	1.0	1.0	14	23.3	25.8
SMBJ14A	SMBJ14CA	15.6	17.2	1.0	1.0	14	25.9	23.2
SMBJ15	SMBJ15C	16.7	20.4	1.0	1.0	15	22.3	26.9
SMBJ15A	SMBJ15CA	16.7	18.5	1.0	1.0	15	24.6	24.4
SMBJ16	SMBJ16C	17.8	21.8	1.0	1.0	16	20.8	28.8
SMBJ16A	SMBJ16CA	17.8	19.7	1.0	1.0	16	23.1	26.0
SMBJ17	SMBJ17C	18.9	23.1	1.0	1.0	17	19.7	30.5
SMBJ17A	SMBJ17CA	18.9	20.9	1.0	1.0	17	21.7	27.6
SMBJ18	SMBJ18C	20.0	24.4	1.0	1.0	18	18.6	32.2
SMBJ18A	SMBJ18CA	20.0	22.1	1.0	1.0	18	20.5	29.2
SMBJ20	SMBJ20C	22.2	27.1	1.0	1.0	20	16.8	35.8
SMBJ20A	SMBJ20CA	22.2	24.5	1.0	1.0	20	18.5	32.4

■电性参数 (T_A =25℃ 除非另有规定)

Electrical Characteristics (T_A =25℃ unless otherwise noted)

产品型号（单向）Part Number(Uni)	产品型号（双向）Part Number(Bi)	击穿电压 V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			最大反向漏电流 I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μA)	最大工作电压 V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A)	最大箝位电压 Maximum Clamping Voltage Vc @ I_{PP} (V)
		最小 Min(V)	最大 Max (V)	测试电流 IT(1)(mA)				
SMBJ22	SMBJ22C	24.4	29.8	1.0	1.0	22	15.2	39.4
SMBJ22A	SMBJ22CA	24.4	26.9	1.0	1.0	22	16.9	35.5
SMBJ24	SMBJ24C	26.7	32.6	1.0	1.0	24	14.0	43.0
SMBJ24A	SMBJ24CA	26.7	29.5	1.0	1.0	24	15.4	38.9
SMBJ26	SMBJ26C	28.9	35.3	1.0	1.0	26	12.9	46.6
SMBJ26A	SMBJ26CA	28.9	31.9	1.0	1.0	26	14.3	42.1
SMBJ28	SMBJ28C	31.1	38.0	1.0	1.0	28	12.0	50.0
SMBJ28A	SMBJ28CA	31.1	34.4	1.0	1.0	28	13.2	45.4
SMBJ30	SMBJ30C	33.3	40.7	1.0	1.0	30	11.2	53.5
SMBJ30A	SMBJ30CA	33.3	36.8	1.0	1.0	30	12.4	48.4
SMBJ33	SMBJ33C	36.7	44.9	1.0	1.0	33	10.2	59.0
SMBJ33A	SMBJ33CA	36.7	40.6	1.0	1.0	33	11.3	53.3
SMBJ36	SMBJ36C	40.0	48.9	1.0	1.0	36	9.3	64.3
SMBJ36A	SMBJ36CA	40.0	44.2	1.0	1.0	36	10.3	58.1
SMBJ40	SMBJ40C	44.4	54.3	1.0	1.0	40	8.4	71.4
SMBJ40A	SMBJ40CA	44.4	49.1	1.0	1.0	40	9.3	64.5
SMBJ43	SMBJ43C	47.8	58.4	1.0	1.0	43	7.8	76.7
SMBJ43A	SMBJ43CA	47.8	52.8	1.0	1.0	43	8.6	69.4
SMBJ45	SMBJ45C	50.0	61.1	1.0	1.0	45	7.5	80.3
SMBJ45A	SMBJ45CA	50.0	55.3	1.0	1.0	45	8.3	72.7
SMBJ48	SMBJ48C	53.3	65.1	1.0	1.0	48	7.0	85.5
SMBJ48A	SMBJ48CA	53.3	58.9	1.0	1.0	48	7.8	77.4
SMBJ51	SMBJ51C	56.7	69.3	1.0	1.0	51	6.6	91.1
SMBJ51A	SMBJ51CA	56.7	62.7	1.0	1.0	51	7.3	82.4
SMBJ54	SMBJ54C	60.0	73.3	1.0	1.0	54	6.2	96.3
SMBJ54A	SMBJ54CA	60.0	66.3	1.0	1.0	54	6.9	87.1
SMBJ58	SMBJ58C	64.4	78.7	1.0	1.0	58	5.8	103
SMBJ58A	SMBJ58CA	64.4	71.2	1.0	1.0	58	6.4	93.6
SMBJ60	SMBJ60C	66.7	81.5	1.0	1.0	60	5.6	107
SMBJ60A	SMBJ60CA	66.7	73.7	1.0	1.0	60	6.2	96.8
SMBJ64	SMBJ64C	71.1	86.9	1.0	1.0	64	5.3	114
SMBJ64A	SMBJ64CA	71.1	78.6	1.0	1.0	64	5.8	103
SMBJ70	SMBJ70C	77.8	95.1	1.0	1.0	70	4.8	125
SMBJ70A	SMBJ70CA	77.8	86.0	1.0	1.0	70	5.3	113
SMBJ75	SMBJ75C	83.3	102	1.0	1.0	75	4.5	134
SMBJ75A	SMBJ75CA	83.3	92.1	1.0	1.0	75	5.0	121

■电性参数 (T_A =25℃ 除非另有规定)

Electrical Characteristics (T_A =25℃ unless otherwise noted)

产品型号（单向） Part Number(Uni)	产品型号（双向） Part Number(Bi)	击穿电压 V_{BR}@I_T Breakdown Voltage V_{BR}@I_T			最大反向漏电流 I_R @V_{WM} Maximum Reverse Leakage I_R (3) (μA)	最大工作电压 V_{RWM} Working Peak Reverse Voltage V_{RWM} (V)	最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A)	最大箝位电压 Maximum Clamping Voltage Vc @ I_{PP} (V)
		最小 Min(V)	最大 Max (V)	测试电流 IT(1)(mA)				
SMBJ78	SMBJ78C	86.7	106	1.0	1.0	78	4.3	139
SMBJ78A	SMBJ78CA	86.7	95.8	1.0	1.0	78	4.8	126
SMBJ85	SMBJ85C	94.4	115	1.0	1.0	85	4.0	151
SMBJ85A	SMBJ85CA	94.4	104	1.0	1.0	85	4.4	137
SMBJ90	SMBJ90C	100	122	1.0	1.0	90	3.8	160
SMBJ90A	SMBJ90CA	100	111	1.0	1.0	90	4.1	146
SMBJ100	SMBJ100C	111	136	1.0	1.0	100	3.4	179
SMBJ100A	SMBJ100CA	111	123	1.0	1.0	100	3.7	162
SMBJ110	SMBJ110C	122	149	1.0	1.0	110	3.1	196
SMBJ110A	SMBJ110CA	122	135	1.0	1.0	110	3.4	177
SMBJ120	SMBJ120C	133	163	1.0	1.0	120	2.8	214
SMBJ120A	SMBJ120CA	133	147	1.0	1.0	120	3.1	193
SMBJ130	SMBJ130C	144	176	1.0	1.0	130	2.6	231
SMBJ130A	SMBJ130CA	144	159	1.0	1.0	130	2.9	209
SMBJ150	SMBJ150C	167	204	1.0	1.0	150	2.2	268
SMBJ150A	SMBJ150CA	167	185	1.0	1.0	150	2.5	243
SMBJ160	SMBJ160C	178	218	1.0	1.0	160	2.1	287
SMBJ160A	SMBJ160CA	178	197	1.0	1.0	160	2.3	259
SMBJ170	SMBJ170C	189	231	1.0	1.0	170	2.0	304
SMBJ170A	SMBJ170CA	189	209	1.0	1.0	170	2.2	275
SMBJ188	SMBJ188C	209	255	1.0	1.0	188	1.7	344
SMBJ188A	SMBJ188CA	209	231	1.0	1.0	188	2.0	328

备注：Notes:

(1) 脉冲测试：t_p≤50ms Pulse test: t_p≤50ms

(2) 浪涌电流波形，如图3，功率降额曲线如图2。

Surge current waveform per Fig. 3 and derated per Fig.2.

(3) 对于双向型，V_{WM}在10V及10V以下，I_R值加倍

For bi-directional types having VWM of 10 V and less, the I_R limit is doubled

(4) 对于双向SMBJ5.0CA，V_{BR}最大值为7.25V

For the bi-directional SMBJ5.0CA, the maximum V_{BR} is 7.25 V

■特性曲线（典型） Characteristics(Typical)

图1：最大脉冲功率曲线
FIG1:Peak Pulse Power Rating Curve

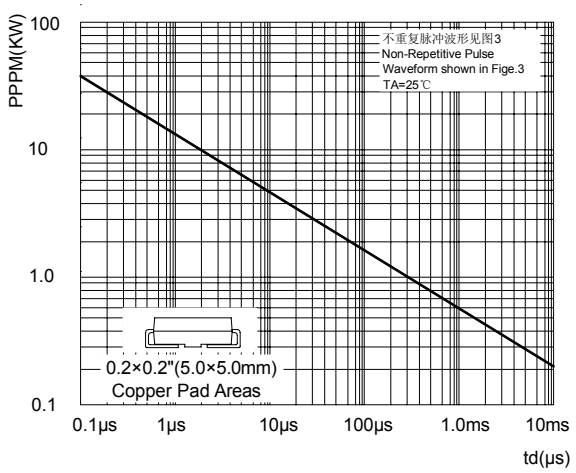


图2：脉冲功率或电流与结温关系
FIG2: Pulse Power or Current vs. Initial Junction Temperature

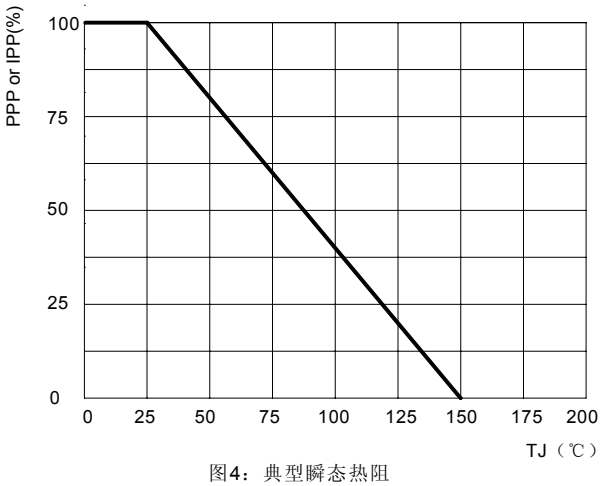


图3：脉冲波形
FIG3: Pulse Waveform

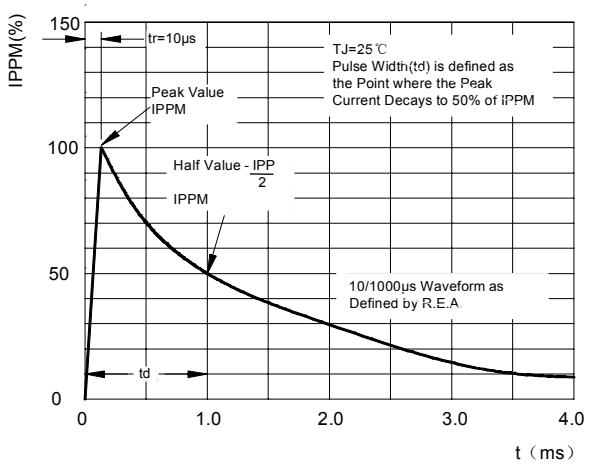


图4：典型瞬态热阻
FIG4:Typical Transient Thermal Impedance

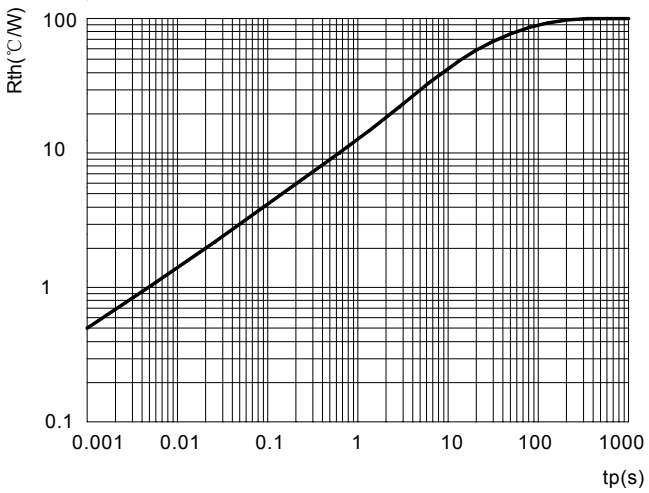


图5：最大不重复浪涌电流
FIG5: Maximum Non-Repetitive Surge Current