

Transient Voltage Suppressor Diodes

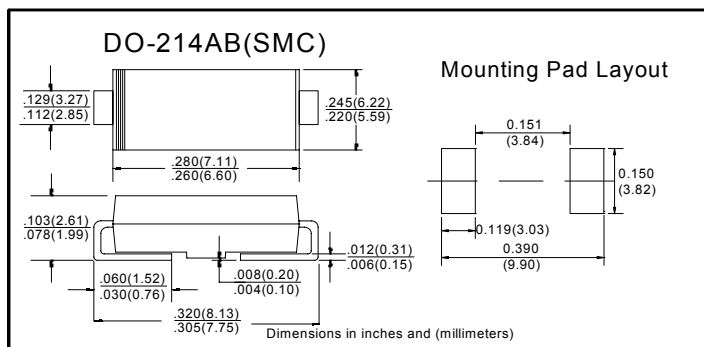
■特征 Features

- P_{PP} 1500W
- V_{BR} 5.0V-188V

■用途 Applications

- 箝位电压用 Clamping Voltage

■外形尺寸和印记 Outline Dimensions and Mark



■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	1500
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
功率损耗 Power dissipation	P_D	W	无限散热片@ $T_A=50^{\circ}\text{C}$ on infinite heat sink at $T_A=50^{\circ}\text{C}$	6.5
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	200
工作结温和存储温度范围 Operating junction and storage temperature range	T_J, T_{STG}	$^{\circ}\text{C}$		-55 to +150

■电特性 ($T_A=25^{\circ}\text{C}$ 除非另有规定)

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ 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100A下测试, 仅单向型 at 100A for unidirectional only	3.5
典型热阻 Thermal resistance	$R_{\theta JA}$	$^{\circ}\text{C}/\text{W}$	结到环境 junction to ambient	75
	$R_{\theta JL}$	$^{\circ}\text{C}/\text{W}$	结到引线 junction to lead	15

备注: Notes:

(1) 不重复脉冲电流, 如图3, 在 $T_A=25^{\circ}\text{C}$ 下功率降额曲线见如图2。

Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig.2.

(2) 每个端子安装在 0.31 x 0.31" (8.0 x 8.0 mm)铜焊盘上

Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

■ 电性参数 ($T_A=25^{\circ}\text{C}$ 除非另有规定)

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ 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 V_C @ I_{PP} (V)
		最小 Min(V)	最大 Max (V)	测试电流 $I_T^{(1)}$ (mA)				
SMCJ5.0	SMCJ5.0C	6.40	7.82	10.0	1000	5.0	156.3	9.6
SMCJ5.0A	SMCJ5.0CA ⁽⁴⁾	6.40	7.07	10.0	1000	5.0	163.0	9.2
SMCJ6.0	SMCJ6.0C	6.67	8.15	10.0	1000	6.0	131.6	11.4
SMCJ6.0A	SMCJ6.0CA	6.67	7.37	10.0	1000	6.0	145.6	10.3
SMCJ6.5	SMCJ6.5C	7.22	8.82	10.0	500	6.5	122.0	12.3
SMCJ6.5A	SMCJ6.5CA	7.22	7.98	10.0	500	6.5	133.9	11.2
SMCJ7.0	SMCJ7.0C	7.78	9.51	10.0	200	7.0	112.8	13.3
SMCJ7.0A	SMCJ7.0CA	7.78	8.60	10.0	200	7.0	125.0	12.0
SMCJ7.5	SMCJ7.5C	8.33	10.2	1.0	100	7.5	104.9	14.3
SMCJ7.5A	SMCJ7.5CA	8.33	9.21	1.0	100	7.5	116.3	12.9
SMCJ8.0	SMCJ8.0C	8.89	10.9	1.0	50	8.0	100.0	15.0
SMCJ8.0A	SMCJ8.0CA	8.89	9.83	1.0	50	8.0	110.3	13.6
SMCJ8.5	SMCJ8.5C	9.44	11.5	1.0	20	8.5	94.3	15.9
SMCJ8.5A	SMCJ8.5CA	9.44	10.4	1.0	20	8.5	104.2	14.4
SMCJ9.0	SMCJ9.0C	10.0	12.2	1.0	10	9.0	88.8	16.9
SMCJ9.0A	SMCJ9.0CA	10.0	11.1	1.0	10	9.0	97.4	15.4
SMCJ10	SMCJ10C	11.1	13.6	1.0	5.0	10	79.8	18.8
SMCJ10A	SMCJ10CA	11.1	12.3	1.0	5.0	10	88.2	17.0
SMCJ11	SMCJ11C	12.2	14.9	1.0	5.0	11	74.6	20.1
SMCJ11A	SMCJ11CA	12.2	13.5	1.0	5.0	11	82.4	18.2
SMCJ12	SMCJ12C	13.3	16.3	1.0	5.0	12	68.2	22.0
SMCJ12A	SMCJ12CA	13.3	14.7	1.0	5.0	12	75.4	19.9
SMCJ13	SMCJ13C	14.4	17.6	1.0	1.0	13	63.0	23.8
SMCJ13A	SMCJ13CA	14.4	15.9	1.0	1.0	13	69.8	21.5
SMCJ14	SMCJ14C	15.6	19.1	1.0	1.0	14	58.1	25.8
SMCJ14A	SMCJ14CA	15.6	17.2	1.0	1.0	14	64.7	23.2
SMCJ15	SMCJ15C	16.7	20.4	1.0	1.0	15	55.8	26.9
SMCJ15A	SMCJ15CA	16.7	18.5	1.0	1.0	15	61.5	24.4
SMCJ16	SMCJ16C	17.8	21.8	1.0	1.0	16	52.1	28.8
SMCJ16A	SMCJ16CA	17.8	19.7	1.0	1.0	16	57.7	26.0
SMCJ17	SMCJ17C	18.9	23.1	1.0	1.0	17	49.2	30.5
SMCJ17A	SMCJ17CA	18.9	20.9	1.0	1.0	17	54.3	27.6
SMCJ18	SMCJ18C	20.0	24.4	1.0	1.0	18	46.6	32.2
SMCJ18A	SMCJ18CA	20.0	22.1	1.0	1.0	18	51.4	29.2
SMCJ20	SMCJ20C	22.2	27.1	1.0	1.0	20	41.9	35.8
SMCJ20A	SMCJ20CA	22.2	24.5	1.0	1.0	20	46.3	32.4

■ 电性参数 ($T_A=25^{\circ}\text{C}$ 除非另有规定)

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ 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 @ IPP (V)
		最小 Min(V)	最大 Max (V)	测试电 流 $I_T^{(1)}$ (mA)				
SMCJ22	SMCJ22C	24.4	29.8	1.0	1.0	22	38.1	39.4
SMCJ22A	SMCJ22CA	24.4	26.9	1.0	1.0	22	42.3	35.5
SMCJ24	SMCJ24C	26.7	32.6	1.0	1.0	24	34.9	43.0
SMCJ24A	SMCJ24CA	26.7	29.5	1.0	1.0	24	38.6	38.9
SMCJ26	SMCJ26C	28.9	35.3	1.0	1.0	26	32.2	46.6
SMCJ26A	SMCJ26CA	28.9	31.9	1.0	1.0	26	35.6	42.1
SMCJ28	SMCJ28C	31.1	38.0	1.0	1.0	28	30.0	50.0
SMCJ28A	SMCJ28CA	31.1	34.4	1.0	1.0	28	33.0	45.4
SMCJ30	SMCJ30C	33.3	40.7	1.0	1.0	30	28.0	53.5
SMCJ30A	SMCJ30CA	33.3	36.8	1.0	1.0	30	31.0	48.4
SMCJ33	SMCJ33C	36.7	44.9	1.0	1.0	33	25.4	59.0
SMCJ33A	SMCJ33CA	36.7	40.6	1.0	1.0	33	28.1	53.3
SMCJ36	SMCJ36C	40.0	48.9	1.0	1.0	36	23.3	64.3
SMCJ36A	SMCJ36CA	40.0	44.2	1.0	1.0	36	25.8	58.1
SMCJ40	SMCJ40C	44.4	54.3	1.0	1.0	40	21.0	71.4
SMCJ40A	SMCJ40CA	44.4	49.1	1.0	1.0	40	23.3	64.5
SMCJ43	SMCJ43C	47.8	58.4	1.0	1.0	43	19.6	76.7
SMCJ43A	SMCJ43CA	47.8	52.8	1.0	1.0	43	21.6	69.4
SMCJ45	SMCJ45C	50.0	61.1	1.0	1.0	45	18.7	80.3
SMCJ45A	SMCJ45CA	50.0	55.3	1.0	1.0	45	20.6	72.7
SMCJ48	SMCJ48C	53.3	65.1	1.0	1.0	48	17.5	85.5
SMCJ48A	SMCJ48CA	53.3	58.9	1.0	1.0	48	19.4	77.4
SMCJ51	SMCJ51C	56.7	69.3	1.0	1.0	51	16.5	91.1
SMCJ51A	SMCJ51CA	56.7	62.7	1.0	1.0	51	18.2	82.4
SMCJ54	SMCJ54C	60.0	73.3	1.0	1.0	54	15.6	96.3
SMCJ54A	SMCJ54CA	60.0	66.3	1.0	1.0	54	17.2	87.1
SMCJ58	SMCJ58C	64.4	78.7	1.0	1.0	58	14.6	103
SMCJ58A	SMCJ58CA	64.4	71.2	1.0	1.0	58	16.0	93
SMCJ60	SMCJ60C	66.7	81.5	1.0	1.0	60	14.0	107
SMCJ60A	SMCJ60CA	66.7	73.7	1.0	1.0	60	15.5	96
SMCJ64	SMCJ64C	71.1	86.9	1.0	1.0	64	13.2	114
SMCJ64A	SMCJ64CA	71.1	78.6	1.0	1.0	64	14.6	103
SMCJ70	SMCJ70C	77.8	95.1	1.0	1.0	70	12.0	125
SMCJ70A	SMCJ70CA	77.8	86.0	1.0	1.0	70	13.3	113
SMCJ75	SMCJ75C	83.3	102	1.0	1.0	75	11.2	134
SMCJ75A	SMCJ75CA	83.3	92.1	1.0	1.0	75	12.4	121

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Electrical Characteristics ($T_A = 25^\circ\text{C}$ 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 V_C @ I_{PP} (V)
		最小 Min(V)	最大 Max (V)	测试电流 $I_T^{(1)}$ (mA)				
SMCJ78	SMCJ78C	86.7	106	1.0	1.0	78	10.8	139
SMCJ78A	SMCJ78CA	86.7	95.8	1.0	1.0	78	11.9	126
SMCJ85	SMCJ85C	94.4	115	1.0	1.0	85	9.9	151
SMCJ85A	SMCJ85CA	94.4	104	1.0	1.0	85	10.9	137
SMCJ90	SMCJ90C	100	122	1.0	1.0	90	9.4	160
SMCJ90A	SMCJ90CA	100	111	1.0	1.0	90	10.3	146
SMCJ100	SMCJ100C	111	136	1.0	1.0	100	8.4	179
SMCJ100A	SMCJ100CA	111	123	1.0	1.0	100	9.3	162
SMCJ110	SMCJ110C	122	149	1.0	1.0	110	7.7	196
SMCJ110A	SMCJ110CA	122	135	1.0	1.0	110	8.5	177
SMCJ120	SMCJ120C	133	163	1.0	1.0	120	7.0	214
SMCJ120A	SMCJ120CA	133	147	1.0	1.0	120	7.8	193
SMCJ130	SMCJ130C	144	176	1.0	1.0	130	6.5	231
SMCJ130A	SMCJ130CA	144	159	1.0	1.0	130	7.2	209
SMCJ150	SMCJ150C	167	204	1.0	1.0	150	5.6	268
SMCJ150A	SMCJ150CA	167	185	1.0	1.0	150	6.2	243
SMCJ160	SMCJ160C	178	218	1.0	1.0	160	5.2	287
SMCJ160A	SMCJ160CA	178	197	1.0	1.0	160	5.8	259
SMCJ170	SMCJ170C	189	231	1.0	1.0	170	4.9	304
SMCJ170A	SMCJ170CA	189	209	1.0	1.0	170	5.5	275
SMCJ188	SMCJ188C	209	255	1.0	1.0	188	4.4	344
SMCJ188A	SMCJ188CA	209	231	1.0	1.0	188	4.6	328

备注: Notes:

(1) 脉冲测试: $t_p \leq 50\text{ms}$ Pulse test: $t_p \leq 50\text{ms}$

(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 V_{WM} of 10 V and less, the I_R limit is doubled

(4) 对于双向SMCJ5.0CA, V_{BR} 最大值为7.25V

For the bi-directional SMCJ5.0CA, 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

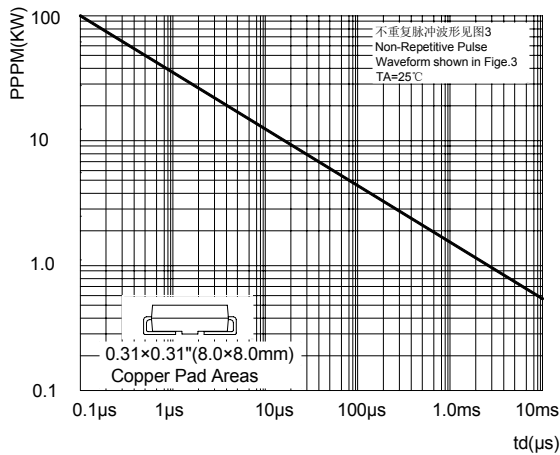


图3: 脉冲波形

FIG3: Pulse Waveform

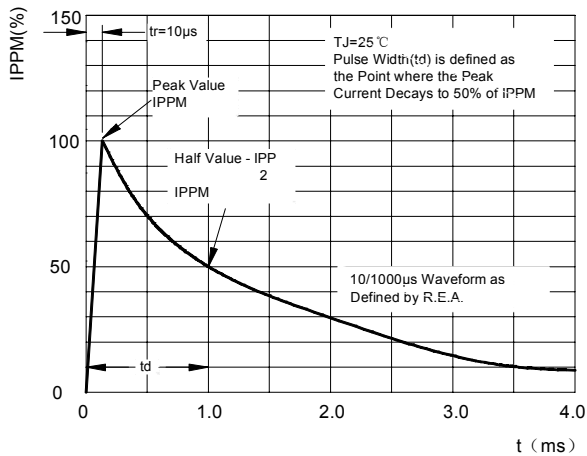


图5: 最大不重复浪涌电流

FIG5: Maximum Non-Repetitive Surge Current

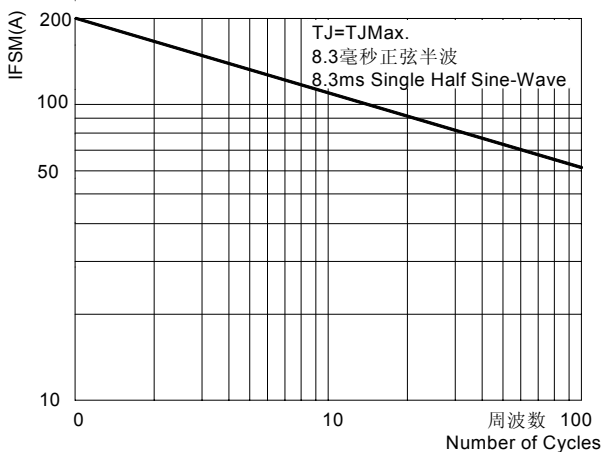


图2: 脉冲功率或电流与结温关系

FIG2: Pulse Power or Current vs. Initial Junction Temperature

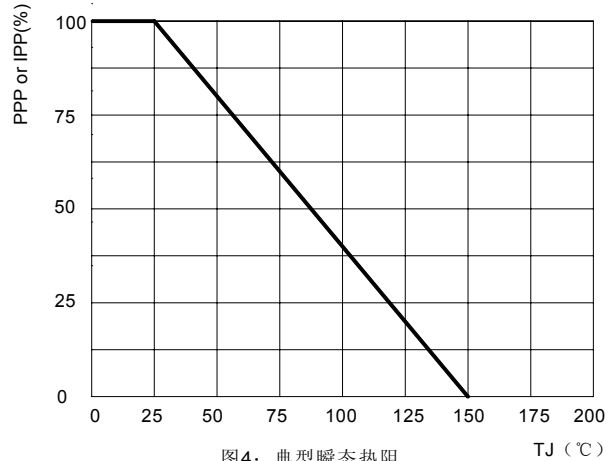


图4: 典型瞬态热阻

FIG4: Typical Transient Thermal Impedance

