



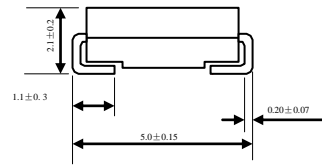
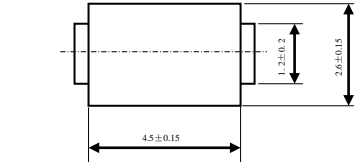
特性 FEATURES:

- ◆ 400W 峰值脉冲功率 400W peak pulse power capability
- ◆ 优良的箝制能力 Excellent clamping capability
- ◆ 较小的箝位因子 Low incremental surge resistance
- ◆ 快速响应时间：从 0 v 到 V_{BR} ，单向型小于 1.0ps，双向型小于 5.0ns
Fast response time: typically less than 1.0ps from 0v to V_{BR} for unidirectional and 5.0ns for bidirectional types.

机械性能 MECHANICAL DATA:

- ◆ 封装: 模塑封装 Case: Molded plastic
- ◆ 塑封材料: 用 UL94V-0 认可的阻燃环氧树脂
Epoxy: UL94V-0 rate flame retardant
- ◆ 引线: 电镀轴式引线可焊性符合 MIL-STD-202, 方法 208
Lead: Axial lead solderable per MIL-STD-202, method 208 guaranteed
- ◆ 极性: 色环表示阴极，双极性除外
Polarity: Color band denotes cathode except Bipolar
- ◆ 安装位置: 任意 Mounting position: Any
- ◆

SMA/DO-214AC



400W SURFACE MOUNT TVS

Dimensions in inch (mm)

**最大额定值及电气特性
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

测量环境温度为 25°C，除非另有规定。单相半波，50HZ，阻性或感性负载。对于容性负载，电流降额 20%
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%

参数名称 PARAMETERS	符号 SYMBOL	额定值 VALUE	单位 UNITS
最大峰值脉冲功率 Peak power dissipation	P_{ppm}	最小 Minimum 400	W
最大峰值反向脉冲电流(注释 1) Peak pulse reverse current (Note 1)	I_{ppm}	见表 See Table	A
稳态功率(注释 2) Steady state power dissipation (Note 2)	$P_m (AV)$	1.0	W
最大峰值正向浪涌电流(注释 3) Peak Forward surge Current (Note 2)	I_{FSM}	40	A
最大瞬态正向电压 @ 25A 仅对单向型 Maximum instantaneous forward voltage at 25A For unidirectional only	V_F	3.5	V
工作及储存温度 Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~ +175	°C

注释: NOTES

1. 脉冲电流时间 10 / 1000 μ s。
10 / 1000 μ s waveform non-repetitive current pulse
2. 在引线末端安装面积为 5.0mm²，厚 0.013mm 的散热铜片。
Mounted on copper pad area of (5×5×0.013mm)
3. 使用单相正弦半波，时间 10ms；或使用等效的方波，4 周波/分。
Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

双向型器件应用说明: DEVICES FOR BIDIRECTIONAL APPLICATIONS

1. 在型号名称后注有 C 或 CA，表示双向型。
For bidirectional use C or CA suffix for types P4KE6.8 thru types P4KE600 (e. g. P4KE6.8C, P4KE600CA)
2. 电气特性适用于两个方向。
Electrical characteristics apply in both directions.



电特性 (测量环境温度为 25℃, 除非另有规定)							
ELECTRICAL CHARACTERISTICS (at T _A =25 °C unless otherwise noted)							
Device Type	Breakdown Voltage		Test Current	Stand-off Voltage	Maximum Reverse leakage at V _{WM}	Maximum Peak Pulse Reverse Current	Maximum Clamping Voltage at I _{ppm}
	V _(BR) (Note1)		I _T	V _{WM}	I _D	I _{ppm}	V _C
	Volts		mA	Volts	μ A	Amps	Volts
	MIN	MAX					
SMAJ5.0	6.40	7.30	10.0	5.0	800	32.0	9.60
SMAJ5.0A	6.40	7.00	10.0	5.0	800	34.0	9.20
SMAJ6.0	6.67	8.15	10.0	6.0	800	27.6	11.4
SMAJ6.0A	6.67	7.37	10.0	6.0	800	30.5	10.3
SMAJ6.5	7.22	8.82	10.0	6.5	500	25.6	12.3
SMAJ6.5A	7.22	7.98	10.0	6.5	500	28.0	11.2
SMAJ7.0	7.78	9.51	10.0	7.0	200	23.6	13.3
SMAJ7.0A	7.78	8.60	10.0	7.0	200	26.0	12.0
SMAJ7.5	8.33	10.3	1.0	7.5	100	22.0	14.3
SMAJ7.5A	8.33	9.21	1.0	7.5	100	24.4	12.9
SMAJ8.0	8.89	10.9	1.0	8.0	50	21.0	15.0
SMAJ8.0A	8.89	9.83	1.0	8.0	50	23.0	13.6
SMAJ8.5	9.44	11.5	1.0	8.5	10	19.8	15.9
SMAJ8.5A	9.44	10.4	1.0	8.5	10	21.8	14.4
SMAJ9.0	10.0	12.2	1.0	9.0	5	18.6	16.9
SMAJ9.0A	10.0	11.1	1.0	9.0	5	20.4	15.4
SMAJ10	11.1	13.6	1.0	10.0	5	16.7	18.8
SMAJ10A	11.1	12.3	1.0	10.0	5	18.5	17.0
SMAJ11	12.2	14.9	1.0	11.0	5	15.6	20.1
SMAJ11A	12.2	13.5	1.0	11.0	5	17.3	18.2
SMAJ12	13.3	16.3	1.0	12.0	5	14.3	22.0
SMAJ12A	13.3	14.7	1.0	12.0	5	15.8	19.9
SMAJ13	14.4	17.6	1.0	13.0	5	13.0	23.8
SMAJ13A	14.4	15.9	1.0	13.0	5	14.6	21.5
SMAJ14	15.6	19.1	1.0	14.0	5	12.2	25.8
SMAJ14A	15.6	17.2	1.0	14.0	5	13.5	23.2
SMAJ15	16.7	20.4	1.0	15.0	5	11.7	26.9
SMAJ15A	16.7	18.5	1.0	15.0	5	12.9	24.4
SMAJ16	17.8	21.8	1.0	16.0	5	10.9	28.8
SMAJ16A	17.8	19.7	1.0	16.0	5	12.0	26.0
SMAJ17	18.9	23.1	1.0	17.0	5	10.3	30.5
SMAJ17A	18.9	20.9	1.0	17.0	5	11.4	27.6
SMAJ18	20.0	24.4	1.0	18.0	5	9.7	32.2
SMAJ18A	20.0	22.1	1.0	18.0	5	10.7	29.2
SMAJ20	22.2	27.1	1.0	20.0	5	8.7	35.8
SMAJ20A	22.2	24.5	1.0	20.0	5	9.7	32.4
SMAJ22	24.4	29.8	1.0	22.0	5	8.0	39.4
SMAJ22A	24.4	26.9	1.0	22.0	5	8.8	35.5
SMAJ24	26.7	32.6	1.0	24.0	5	7.3	43.0
SMAJ24A	26.7	29.5	1.0	24.0	5	8.0	38.9
SMAJ26	28.9	35.3	1.0	26.0	5	6.7	46.6
SMAJ26A	28.9	31.9	1.0	26.0	5	7.4	42.1
SMAJ28	31.1	38.0	1.0	28.0	5	6.3	50.0
SMAJ28A	31.1	34.4	1.0	28.0	5	6.9	45.4
SMAJ30	33.3	40.7	1.0	30.0	5	5.8	53.5
SMAJ30A	33.3	36.8	1.0	30.0	5	6.5	48.4



电特性 (测量环境温度为 25℃, 除非另有规定)
ELECTRICAL CHARACTERISTICS (at $T_A=25\text{ }^\circ\text{C}$ unless otherwise noted)

Device Type	Breakdown Voltage		Test Current	Stand-off Voltage	Maximum Reverse leakage at V_{WM}	Maximum Peak Pulse Reverse Current	Maximum Clamping Voltage at I_{ppm}
	$V_{(BR)}$ (Note1)		I_T	V_{WM}	I_D (Note2)	I_{ppm}	V_C
	Volts		mA	Volts	μA	Amps	Volts
	MIN	MAX					
SMAJ33	36.7	44.9	1.0	33.0	5	5.3	59.0
SMAJ33A	36.7	40.6	1.0	33.0	5	5.9	53.3
SMAJ36	40.0	48.9	1.0	36.0	5	4.8	64.3
SMAJ36A	40.0	44.2	1.0	36.0	5	5.4	58.1
SMAJ40	44.4	54.3	1.0	40.0	5	4.4	71.4
SMAJ40A	44.4	49.1	1.0	40.0	5	4.8	64.5
SMAJ43	47.8	58.4	1.0	43.0	5	4.0	76.7
SMAJ43A	47.8	52.8	1.0	43.0	5	4.5	69.4
SMAJ45	50.0	61.1	1.0	45.0	5	3.9	80.3
SMAJ45A	50.0	55.3	1.0	45.0	5	4.3	72.7
SMAJ48	53.3	65.1	1.0	48.0	5	3.6	85.5
SMAJ48A	53.3	58.9	1.0	48.0	5	4.0	77.4
SMAJ51	56.7	69.3	1.0	51.0	5	3.4	91.1
SMAJ51A	56.7	62.7	1.0	51.0	5	3.8	82.4
SMAJ54	60.0	73.3	1.0	54.0	5	3.2	96.3
SMAJ54A	60.0	66.3	1.0	54.0	5	3.6	87.1
SMAJ58	64.4	78.7	1.0	58.0	5	3.0	103
SMAJ58A	64.4	71.2	1.0	58.0	5	3.3	93.6
SMAJ60	66.7	81.5	1.0	60.0	5	2.9	107
SMAJ60A	66.7	73.7	1.0	60.0	5	3.2	96.8
SMAJ64	71.1	86.9	1.0	64.0	5	2.7	114
SMAJ64A	71.1	78.6	1.0	64.0	5	3.0	103
SMAJ70	77.8	95.1	1.0	70.0	5	2.5	125
SMAJ70A	77.8	86.0	1.0	70.0	5	2.7	113
SMAJ75	83.3	102	1.0	75.0	5	2.3	134
SMAJ75A	83.3	92.1	1.0	75.0	5	2.6	121
SMAJ78	86.7	106	1.0	78.0	5	2.2	139
SMAJ78A	86.7	95.8	1.0	78.0	5	2.5	126
SMAJ85	94.4	115	1.0	85.0	5	2.0	151
SMAJ85A	94.4	104	1.0	85.0	5	2.2	137
SMAJ90	100	122	1.0	90.0	5	1.9	160
SMAJ90A	100	111	1.0	90.0	5	2.1	146
SMAJ100	111	136	1.0	100	5	1.7	179
SMAJ100A	111	123	1.0	100	5	1.9	162
SMAJ110	122	149	1.0	110	5	1.6	196
SMAJ110A	122	135	1.0	110	5	1.7	177
SMAJ120	133	163	1.0	120	5	1.4	214
SMAJ120A	133	147	1.0	120	5	1.6	193
SMAJ130	144	176	1.0	130	5	1.3	231
SMAJ130A	144	159	1.0	130	5	1.5	209
SMAJ150	167	204	1.0	150	5	1.1	268
SMAJ150A	167	185	1.0	150	5	1.3	243
SMAJ160	178	218	1.0	160	5	1.0	287
SMAJ160A	178	197	1.0	160	5	1.2	259
SMAJ170	189	231	1.0	170	5	1.0	304
SMAJ170A	189	209	1.0	170	5	1.1	275

NOTES : 1. $V_{(BR)}$ measured after I_T applide for 300 μs , I_T = square pulse or equivalent
2. For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled



Fig 1: Peak power dissipation versus initial junction temperature.

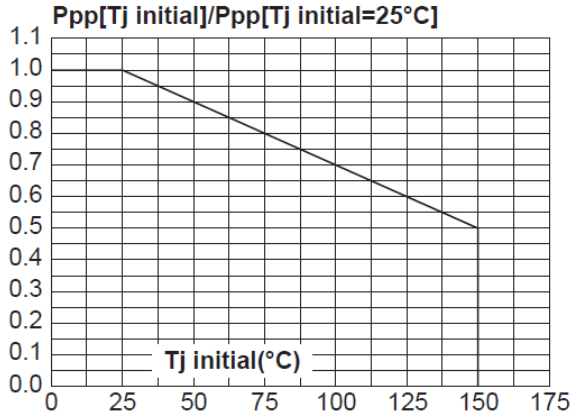


Fig 2: Peak pulse power versus exponential pulse duration (Tj initial=25°C).

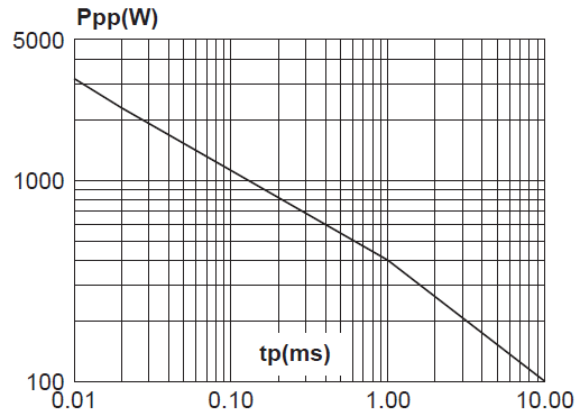


Fig 3: Clamping voltage versus peak pulse current (Tj initial=25°C)
Exponential waveform $t_p=20\mu s$ & $t_p=1ms$.

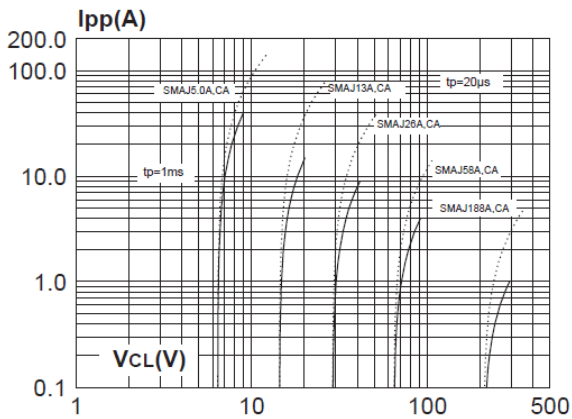


Fig 4-1: Capacitance versus reverse applied voltage (typical values) (SMAJxxA).

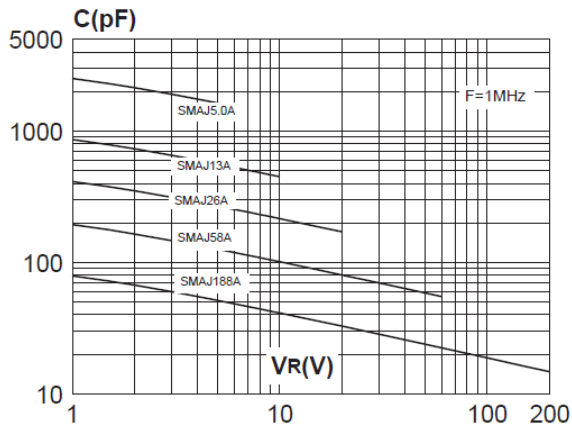
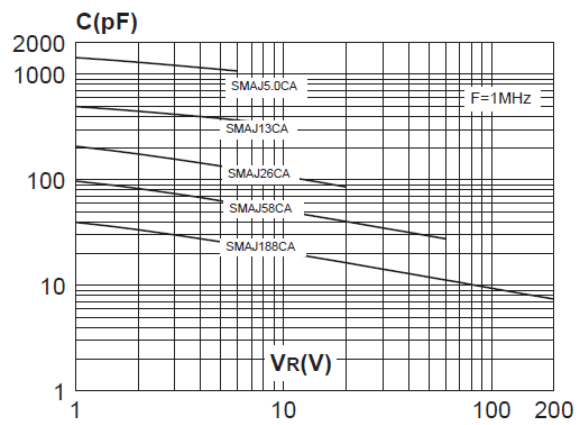


Fig 4-2: Capacitance versus reverse applied voltage (typical values) (SMAJxxCA).



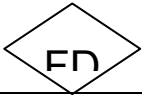


Fig 5: Peak forward voltage drop versus peak forward current (typical values).

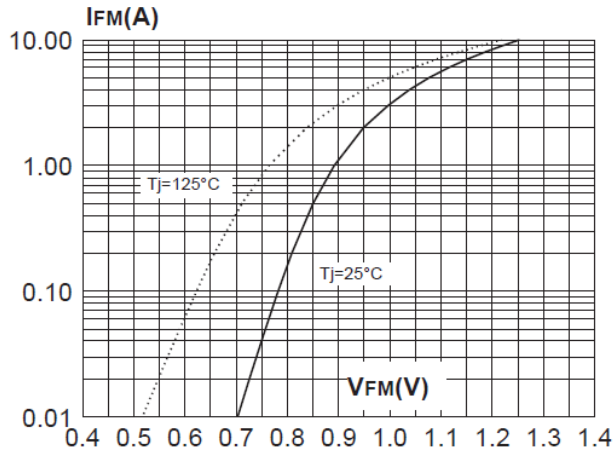


Fig 6: Relative variation of thermal impedance junction to ambient versus pulse duration.

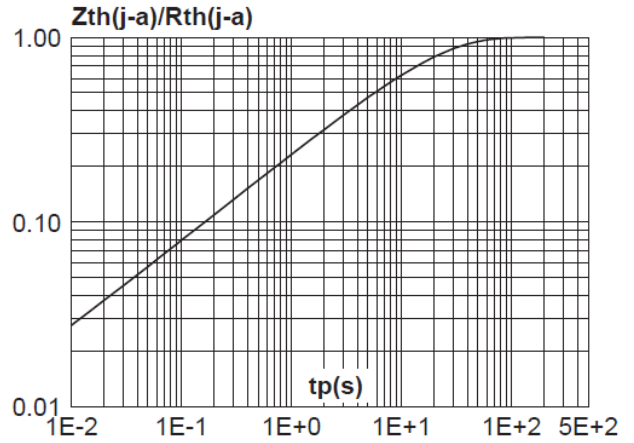


Fig 7: Thermal resistance junction to ambient versus copper surface under each lead (printed circuit board FR4 e(Cu)=35μm).

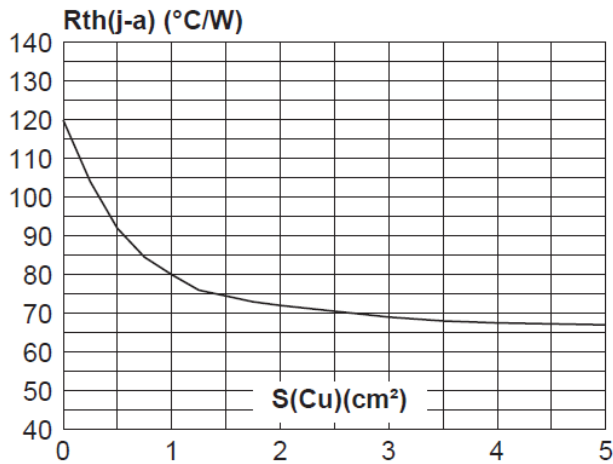


Fig 8: Relative variation of leakage current versus junction temperature.

