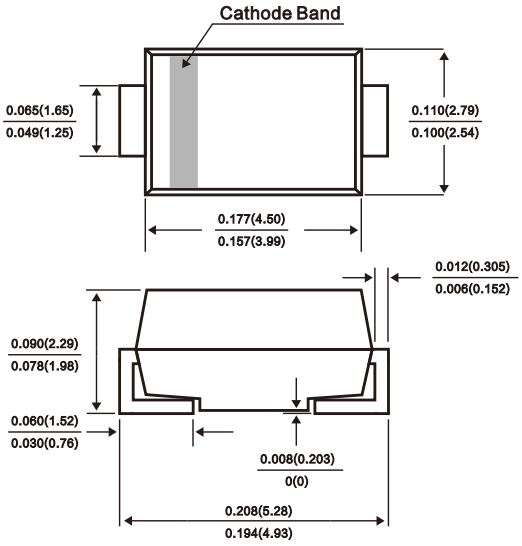
FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 400 W peak pulse power capability with a 10/1000 µs waveform, repetitive rate (duty cycle): 0.01 % (300 W above 78 V)
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified

SMA(DO−214AC)



Dimensions in inches and (millimeters)

MECHANICAL DATA

Case: DO-214AC (SMA)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 1A whisker test

Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse power dissipation with a 10/1000 µs waveform (1)(2) (fig. 1)	P_{PPM}	400	W
Peak pulse current with a waveform (1)	I_{PPM}	See next table	A
Peak forward surge current 8.3 ms single half sine-wave uni-directional only (2)	I_{FSM}	40	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150	°C

Notes

(1) Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 °C per fig. 2. Rating is 300 W above 78 V

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

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

DEVICE TYPE	DEVICE MARKING CODE		BREAKDOWN VOLTAGE V_{BR} AT I_T (1) (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA) (3)	MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (A) (2)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
	UNI	BI	MIN.	MAX.					
SMAJ5.0A(CA)	AE	WE	6.40	7.07	10	5.0	800	43.5	9.2
SMAJ6.0A(CA)	AG	WG	6.67	7.37	10	6.0	800	38.8	10.3
SMAJ6.5A(CA)	AK	WK	7.22	7.98	10	6.5	500	35.7	11.2
SMAJ6.8A(CA)	8A	8C	6.45	7.14	10	5.80	1000	38.1	10.5
SMAJ7.0A(CA)	AM	WM	7.78	8.60	10	7.0	200	33.3	12.0
SMAJ7.5A(CA)	AP	WP	8.33	9.21	1.0	7.5	100	31.0	12.9
SMAJ8.0A(CA)	AR	WR	8.89	9.83	1.0	8.0	50	29.4	13.6
SMAJ8.5A(CA)	AT	WT	9.44	10.4	1.0	8.5	10	27.8	14.4
SMAJ9.0A(CA)	AV	WV	10.0	11.1	1.0	9.0	5.0	26.0	15.4
SMAJ10A(CA)	AX	WX	11.1	12.3	1.0	10	1.0	23.5	17.0
SMAJ11A(CA)	AZ	WZ	12.2	13.5	1.0	11	1.0	22.0	18.2
SMAJ12A(CA)	BE	XE	13.3	14.7	1.0	12	1.0	20.1	19.9
SMAJ13A(CA)	BG	XG	14.4	15.9	1.0	13	1.0	18.6	21.5
SMAJ14A(CA)	BK	XK	15.6	17.2	1.0	14	1.0	17.2	23.2
SMAJ15A(CA)	BM	XM	16.7	18.5	1.0	15	1.0	16.4	24.4
SMAJ16A(CA)	BP	XP	17.8	19.7	1.0	16	1.0	15.4	26.0
SMAJ17A(CA)	BR	XR	18.9	20.9	1.0	17	1.0	14.5	27.6
SMAJ18A(CA)	BT	XT	20.0	22.1	1.0	18	1.0	13.7	29.2
SMAJ20A(CA)	BV	XV	22.2	24.5	1.0	20	1.0	12.3	32.4
SMAJ22A(CA)	BX	XX	24.4	26.9	1.0	22	1.0	11.3	35.5
SMAJ24A(CA)	BZ	XZ	26.7	29.5	1.0	24	1.0	10.3	38.9
SMAJ26A(CA)	CE	YE	28.9	31.9	1.0	26	1.0	9.5	42.1
SMAJ28A(CA)	CG	YG	31.1	34.4	1.0	28	1.0	8.8	45.4
SMAJ30A(CA)	CK	YK	33.3	36.8	1.0	30	1.0	8.3	48.4
SMAJ33A(CA)	CM	YM	36.7	40.6	1.0	33	1.0	7.5	53.3
SMAJ36A(CA)	CP	YP	40.0	44.2	1.0	36	1.0	6.9	58.1
SMAJ40A(CA)	CR	YR	44.4	49.1	1.0	40	1.0	6.2	64.5
SMAJ43A(CA)	CT	YT	47.8	52.8	1.0	43	1.0	5.8	69.4
SMAJ45A(CA)	CV	YV	50.0	55.3	1.0	45	1.0	5.5	72.7
SMAJ48A(CA)	CX	YX	53.3	58.9	1.0	48	1.0	5.2	77.4
SMAJ51A(CA)	CZ	YZ	56.7	62.7	1.0	51	1.0	4.9	82.4
SMAJ54A(CA)	RE	ZE	60.0	66.3	1.0	54	1.0	4.6	87.1
SMAJ58A(CA)	RG	ZG	64.4	71.2	1.0	58	1.0	4.3	93.6
SMAJ60A(CA)	RK	ZK	66.7	73.7	1.0	60	1.0	4.1	96.8
SMAJ64A(CA)	RM	ZM	71.1	78.6	1.0	64	1.0	3.9	103
SMAJ70A(CA)	RP	ZP	77.8	86.0	1.0	70	1.0	3.5	113
SMAJ75A(CA)	RR	ZR	83.3	92.1	1.0	75	1.0	3.3	121
SMAJ78A(CA)	RT	ZT	86.7	95.8	1.0	78	1.0	3.2	126
SMAJ85A(CA)	RV	ZV	94.4	104	1.0	85	1.0	2.2	137
SMAJ90A(CA)	RX	ZX	100	111	1.0	90	1.0	2.1	146
SMAJ100A(CA)	RZ	ZZ	111	123	1.0	100	1.0	1.9	162
SMAJ110A(CA)	SE	VE	122	135	1.0	110	1.0	1.7	177
SMAJ120A(CA)	VG	VG	133	147	1.0	120	1.0	1.6	193
SMAJ130A(CA)	VK	VK	144	159	1.0	130	1.0	1.4	209
SMAJ150A(CA)	VM	VM	167	185	1.0	150	1.0	1.2	243
SMAJ160A(CA)	SP	VP	178	197	1.0	160	1.0	1.2	259
SMAJ170A(CA)	SR	VR	189	209	1.0	170	1.0	1.09	275
SMAJ188A(CA)	SS	VS	209	231	1.0	188	1.0	0.91	328

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

(3) For bi-directional types having V_{WM} of 10 V and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

(5) For the bi-directional SMAJ5.0CA, the maximum V_{BR} is 7.25 V

(6) V_F = 3.5 V at I_F = 25 A (uni-directional only)

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

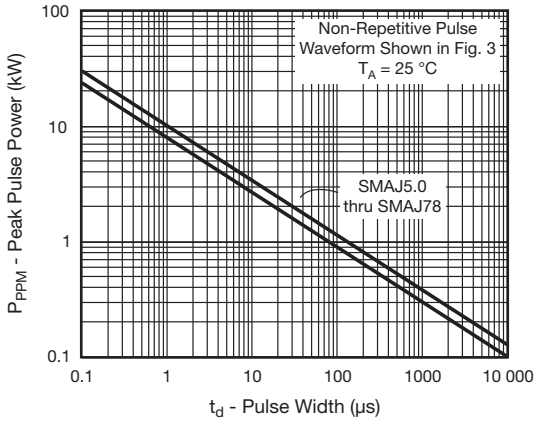


Fig. 1 - Peak Pulse Power Rating Curve

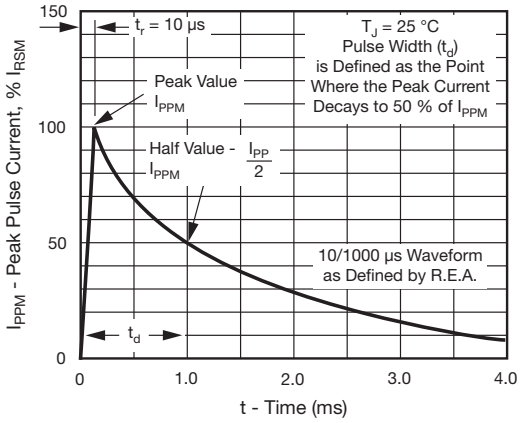


Fig. 3 - Pulse Waveform

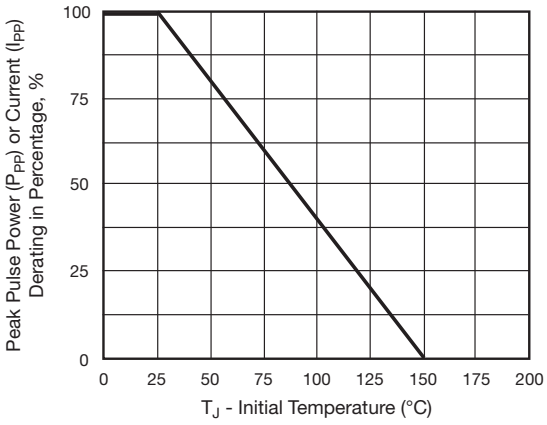


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

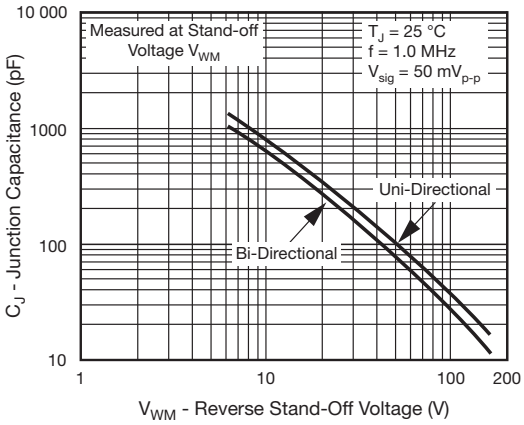


Fig. 4 - Typical Junction Capacitance

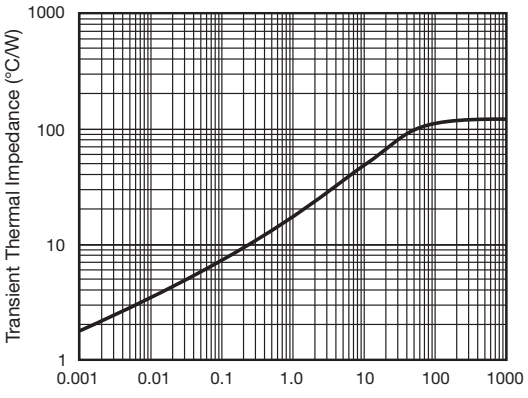


Fig. 5 - Typical Transient Thermal Impedance

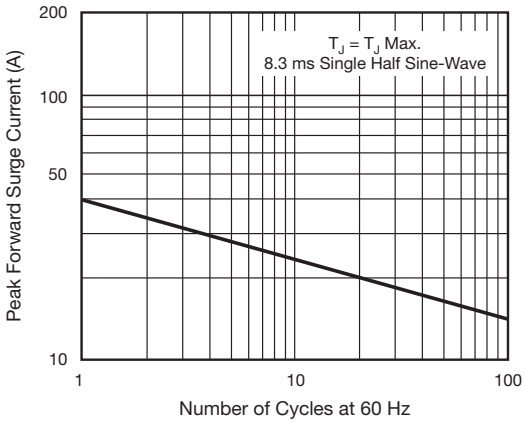


Fig. 6 - Maximum Non-Repetitive Forward Surge Current
Uni-Directional Only

ORDERING INFORMATION

Order Code	Package	Baseqty	Deliverymode
SMAJxxA	SMA	1800	Tape and reel
SMAJxxCA	SMA	1800	Tape and reel