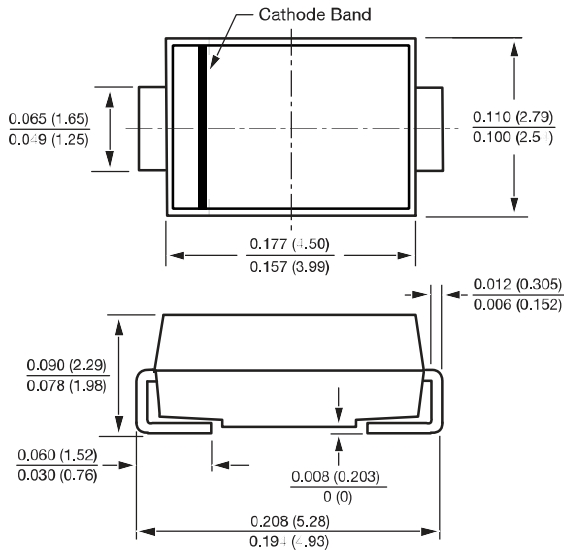


SMA (DO-214AC)



Dimensions in inches (millimeters)

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 μ s waveform, repetitive rate (duty cycle): % (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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



Primary characteristics

V_{WM}	5.0V~188V
P_{PPM}	400W, 300W
I_{FSM}	40A
T_J max.	150°C

DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional use CA suffix (e.g. SMAJ10CA).

Electrical characteristics apply in both directions

Mechanical data

- Case: SMA (DO-214AC)
- Epoxy meets UL 94 V-0 flammability rating
- Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾⁽²⁾ (fig.1)	P_{PPM}	400	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PPM}	See next table	A
Peak forward surge current 8.3ms single half-wave uni-directional only ⁽²⁾	I_{FSM}	40	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +150	°C

Notes:

- (1) Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25^\circ\text{C}$ 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 (Ta=25°C unless otherwise noted)										
Part Number (Uni)	Part Number (Bi)	Device Marking code		Breakdown voltage $V_{BR@I_T}^{(1)}$			Max. Reverse leakage $I_b@V_{WM}$ (μA) ⁽³⁾	Working Peak reverse voltage (V)	Max. reverse surge current I_{PPM} (A) ⁽²⁾	Max. clamping voltage $V_C@I_{PPM}$ (V)
		Uni	Bi	Min (V)	Max.(V)	I_T (mA)				
SMAJ5.0A	SMAJ5.0CA	AE	WE	6.40	7.07	10	800	5.0	43.5	9.2
SMAJ6.0A	SMAJ6.0CA	AG	WG	6.67	7.37	10	800	6.0	38.8	10.3
SMAJ6.5A	SMAJ6.5CA	AK	WK	7.22	7.98	10	500	6.5	35.7	11.2
SMAJ7.0A	SMAJ7.0CA	AM	WM	7.78	8.60	10	200	7.0	33.3	12.0
SMAJ7.5A	SMAJ7.5CA	AP	WP	8.33	9.21	1	100	7.5	31.0	12.9
SMAJ8.0A	SMAJ8.0CA	AR	WR	8.89	9.83	1	50	8.0	29.4	13.6
SMAJ8.5A	SMAJ8.5CA	AT	WT	9.44	10.4	1	10	8.5	27.8	14.4
SMAJ9.0A	SMAJ9.0CA	AV	WV	10.0	11.1	1	5	9.0	26.0	15.4
SMAJ10A	SMAJ10CA	AX	WX	11.1	12.3	1	1	10	23.5	17.0
SMAJ11A	SMAJ11CA	AZ	WZ	12.2	13.5	1	1	11	22.0	18.2
SMAJ12A	SMAJ12CA	BE	XE	13.3	14.7	1	1	12	20.1	19.9
SMAJ13A	SMAJ13CA	BG	XG	14.4	15.9	1	1	13	18.6	21.5
SMAJ14A	SMAJ14CA	BK	XK	15.6	17.2	1	1	14	17.2	23.2
SMAJ15A	SMAJ15CA	BM	XM	16.7	18.5	1	1	15	16.4	24.4
SMAJ16A	SMAJ16CA	BP	XP	17.8	19.7	1	1	16	15.4	26.0
SMAJ17A	SMAJ17CA	BR	XR	18.9	20.9	1	1	17	14.5	27.6
SMAJ18A	SMAJ18CA	BT	XT	20.0	22.1	1	1	18	13.7	29.2
SMAJ20A	SMAJ20CA	BV	XV	22.2	24.5	1	1	20	12.3	32.4
SMAJ22A	SMAJ22CA	BX	XX	24.4	26.9	1	1	22	11.3	35.5
SMAJ24A	SMAJ24CA	BZ	XZ	26.7	29.5	1	1	24	10.3	38.9
SMAJ26A	SMAJ26CA	CE	YE	28.9	31.9	1	1	26	9.5	42.1
SMAJ28A	SMAJ28CA	CG	YG	31.1	34.4	1	1	28	8.8	45.4
SMAJ30A	SMAJ30CA	CK	YK	33.3	36.8	1	1	30	8.3	48.4
SMAJ33A	SMAJ33CA	CM	YM	36.7	40.6	1	1	33	7.5	53.3
SMAJ36A	SMAJ36CA	CP	YP	40.0	44.2	1	1	36	6.9	58.1
SMAJ40A	SMAJ40CA	CR	YR	44.4	49.1	1	1	40	6.2	64.5
SMAJ43A	SMAJ43CA	CT	YT	47.8	52.8	1	1	43	5.8	69.4
SMAJ45A	SMAJ45CA	CV	YV	50.0	55.3	1	1	45	5.5	72.7
SMAJ48A	SMAJ48CA	CX	YX	53.3	58.9	1	1	48	5.2	77.4
SMAJ51A	SMAJ51CA	CZ	YZ	56.7	62.7	1	1	51	4.9	82.4
SMAJ54A	SMAJ54CA	RE	ZE	60.0	66.3	1	1	54	4.6	87.1
SMAJ58A	SMAJ58CA	RG	ZG	64.4	71.2	1	1	58	4.3	93.6
SMAJ60A	SMAJ60CA	RK	ZK	66.7	73.7	1	1	60	4.1	96.8
SMAJ64A	SMAJ64CA	RM	ZM	71.1	78.6	1	1	64	3.9	103
SMAJ70A	SMAJ70CA	RP	ZP	77.8	86.0	1	1	70	3.5	113
SMAJ75A	SMAJ75CA	RR	ZR	83.3	92.1	1	1	75	3.3	121
SMAJ78A	SMAJ78CA	RT	ZT	86.7	95.8	1	1	78	3.2	126
SMAJ85A	SMAJ85CA	RV	ZV	94.4	104	1	1	85	2.2	137
SMAJ90A	SMAJ90CA	RX	ZX	100	111	1	1	90	2.1	146
SMAJ100A	SMAJ100CA	RZ	ZZ	111	123	1	1	100	1.9	162
SMAJ110A	SMAJ110CA	SE	VE	122	135	1	1	110	1.7	177
SMAJ120A	SMAJ120CA	VG	VG	133	147	1	1	120	1.6	193
SMAJ130A	SMAJ130CA	VK	VK	144	159	1	1	130	1.4	209
SMAJ150A	SMAJ150CA	VM	VM	167	185	1	1	150	1.2	243
SMAJ160A	SMAJ160CA	SP	VP	178	197	1	1	160	1.2	259
SMAJ170A	SMAJ170CA	SR	VR	189	209	1	1	170	1.09	275
SMAJ188A	SMAJ188CA	SS	VS	209	231	1	1	188	0.91	328

Note:

- (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 VBR is 7.25 V
- (6) $V_F = 3.5$ V at $I_F = 25$ A (uni-directional only)

Thermal Characteristics (Ta=25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Typical thermal resistance, junction to ambient	RthJ-A	120	°C/W
Typical thermal resistance, junction to lead	RthJ-L	30	°C/W

Ratings and characteristics curves (TA=25°C unless otherwise noted)

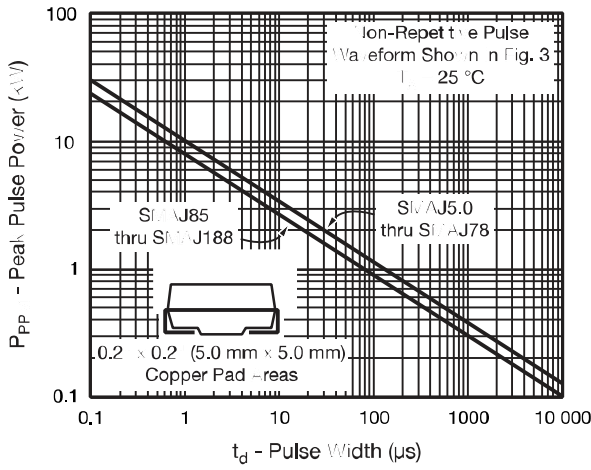


Fig. 1 - Peak Pulse Power Rating Curve

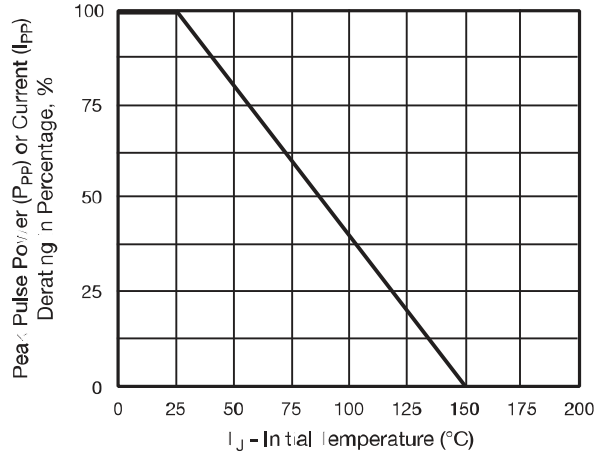


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

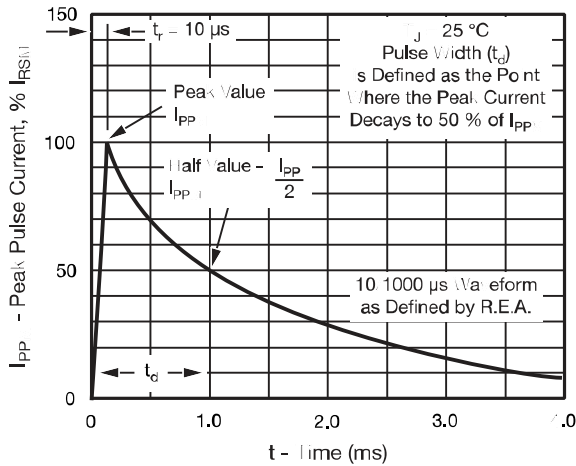


Fig. 3 - Pulse Waveform

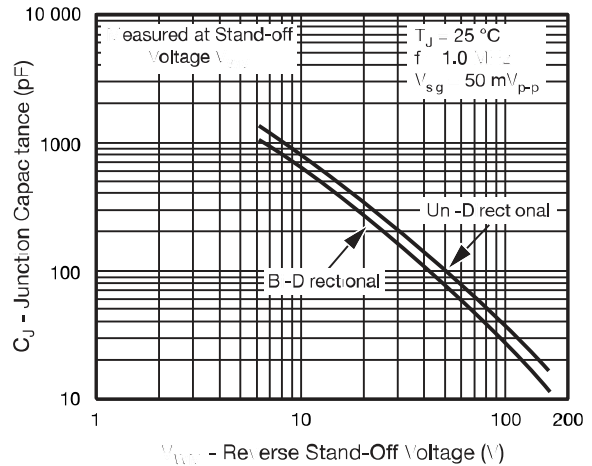


Fig. 4 - Typical Junction Capacitance

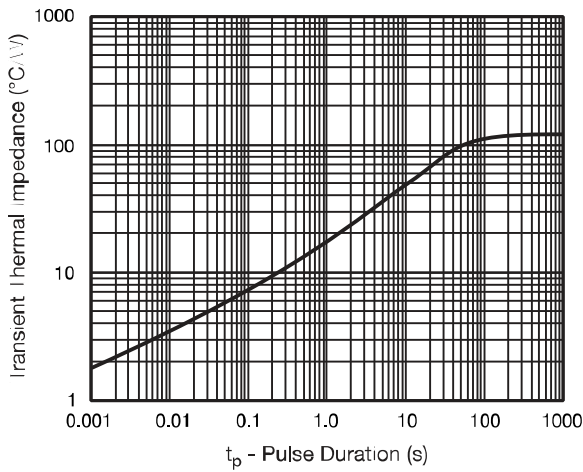


Fig. 5 - Typical Transient Thermal Impedance

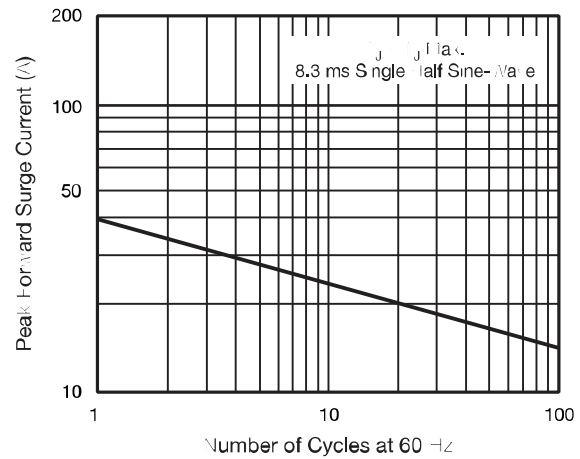


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Un-Directional Only

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