

■ Features

- 400W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%.
- Excellent clamping capability.
- Low incremental surge resistance.
- Glass passivated chip junction.
- Ultra high-speed switching.
- Suffix "G" indicates Halogen-free part, ex. SMAJ5.0(C)AG.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

■ Mechanical data

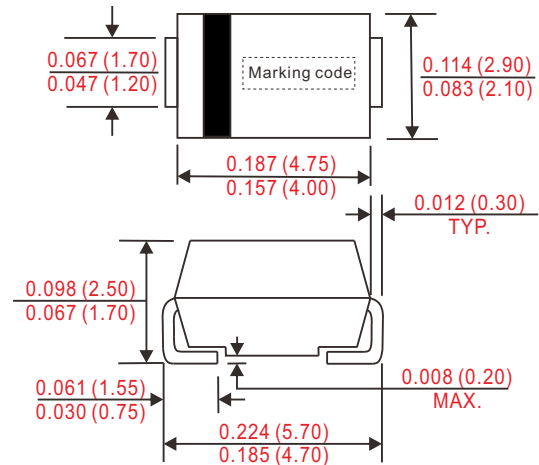
- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AC / SMA
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : 0.002 ounce, 0.055 gram

■ Maximum ratings and electrical characteristics

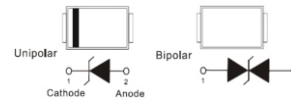
Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

■ Outline

SMA(DO-214AC)



Dimensions in inches and (millimeters)



Parameter	Conditions	Symbol	SMAJ series	UNIT
Peak power dissipation	with a 10/1000us waveform, note 1	P_{PPM}	400	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC method), note 2	I_{FSM}	40	A
Steady state power dissipation	on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	1.0	W
Peak pulse current	with a 10/1000us waveform, note 1	I_{PPM}	See Table 1	A
Maximum instantaneous forward voltage	at 25A for unidirectional only, note 3	V_F	3.5 / 5.0	V
Operating Junction temperature		T_J	-55 ~ +150	°C
Storage temperature		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.
 2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
 3. $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$.

■ Electrical characteristics

table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I _{PP}		Maximum Leakage Current	Marking Code	
	V _{RWM}	V _{BR Min}	V _{BR Max}	I _T	I _{FSM}	V _C	I _{PP}	I _R @V _{RWM}	UNI	BI
	Volts	Volts	Volts	mA	A	Volts	A	uA		
SMAJ5.0(C)A	5.0	6.40	7.00	10	40	9.2	43.48	800	AE	WE
SMAJ6.0(C)A	6.0	6.67	7.37	10	40	10.3	38.83	800	AG	WG
SMAJ6.5(C)A	6.5	7.22	7.98	10	40	11.2	35.71	500	AK	WK
SMAJ7.0(C)A	7.0	7.78	8.60	10	40	12.0	33.33	200	AM	WM
SMAJ7.5(C)A	7.5	8.33	9.21	1.0	40	12.9	31.01	100	AP	WP
SMAJ8.0(C)A	8.0	8.89	9.83	1.0	40	13.6	29.41	50	AR	WR
SMAJ8.5(C)A	8.5	9.44	10.40	1.0	40	14.4	27.78	10	AT	WT
SMAJ9.0(C)A	9.0	10.00	11.10	1.0	40	15.4	25.97	5	AV	WV
SMAJ10(C)A	10.0	11.10	12.30	1.0	40	17.0	23.53	5	AX	WX
SMAJ11(C)A	11.0	12.20	13.50	1.0	40	18.2	21.98	5	AZ	WZ
SMAJ12(C)A	12.0	13.30	14.70	1.0	40	19.9	20.10	5	BE	XE
SMAJ13(C)A	13.0	14.40	15.90	1.0	40	21.5	18.60	5	BG	XG
SMAJ14(C)A	14.0	15.60	17.20	1.0	40	23.2	17.24	5	BK	XK
SMAJ15(C)A	15.0	16.70	18.50	1.0	40	24.4	16.39	5	BM	XM
SMAJ16(C)A	16.0	17.80	19.70	1.0	40	26.0	15.38	5	BP	XP
SMAJ17(C)A	17.0	18.90	20.90	1.0	40	27.6	14.49	5	BR	XR
SMAJ18(C)A	18.0	20.00	22.10	1.0	40	29.2	13.70	5	BT	XT
SMAJ19(C)A	19.0	21.10	23.30	1.0	40	30.8	13.00	5	BB	XB
SMAJ20(C)A	20.0	22.20	24.50	1.0	40	32.4	12.35	5	BV	XV
SMAJ22(C)A	22.0	24.40	26.90	1.0	40	35.5	11.27	5	BX	XX
SMAJ24(C)A	24.0	26.70	29.50	1.0	40	38.9	10.28	5	BZ	XZ
SMAJ26(C)A	26.0	28.90	31.90	1.0	40	42.1	9.50	5	CE	YE
SMAJ28(C)A	28.0	31.10	34.40	1.0	40	45.4	8.81	5	CG	YG
SMAJ30(C)A	30.0	33.30	36.80	1.0	40	48.4	8.26	5	CK	YK
SMAJ33(C)A	33.0	36.70	40.60	1.0	40	53.3	7.50	5	CM	YM
SMAJ36(C)A	36.0	40.00	44.20	1.0	40	58.1	6.88	5	CP	YP
SMAJ40(C)A	40.0	44.40	49.10	1.0	40	64.5	6.20	5	CR	YR
SMAJ43(C)A	43.0	47.80	52.80	1.0	40	69.4	5.76	5	CT	YT
SMAJ45(C)A	45.0	50.00	55.30	1.0	40	72.7	5.50	5	CV	YV
SMAJ48(C)A	48.0	53.30	58.90	1.0	40	77.4	5.17	5	CX	YX
SMAJ51(C)A	51.0	56.70	62.70	1.0	40	82.4	4.85	5	CZ	YZ
SMAJ54(C)A	54.0	60.00	66.30	1.0	40	87.1	4.59	5	RE	ZE
SMAJ58(C)A	58.0	64.40	71.20	1.0	40	93.6	4.27	5	RG	ZG
SMAJ60(C)A	60.0	66.70	73.70	1.0	40	96.8	4.13	5	RK	ZK
SMAJ64(C)A	64.0	71.10	78.60	1.0	40	103.0	3.88	5	RM	ZM

■ Electrical characteristics

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @ I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR Min}$	$V_{BR Max}$	I_T	I_{FSM}	V_C	I_{PP}	$I_R @ V_{RWM}$		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
SMAJ70(C)A	70.0	77.80	86.00	1.0	40	113.0	3.54	5	RP	ZP
SMAJ75(C)A	75.0	83.30	92.10	1.0	40	121.0	3.31	5	RR	ZR
SMAJ78(C)A	78.0	86.70	95.80	1.0	40	126.0	3.17	5	RT	ZT
SMAJ80(C)A	80.0	88.80	97.60	1.0	40	129.6	3.09	5	RB	ZB
SMAJ85(C)A	85.0	94.40	104.00	1.0	40	137.0	2.92	5	RV	ZV
SMAJ90(C)A	90.0	100.00	111.00	1.0	40	146.0	2.74	5	RX	ZX
SMAJ100(C)A	100.0	111.00	123.00	1.0	40	162.0	2.47	5	RZ	ZZ
SMAJ110(C)A	110.0	122.00	135.00	1.0	40	177.0	2.26	5	SE	VE
SMAJ120(C)A	120.0	133.00	147.00	1.0	40	193.0	2.07	5	SG	VG
SMAJ130(C)A	130.0	144.00	159.00	1.0	40	209.0	1.91	5	SK	VK
SMAJ140(C)A	140.0	155.00	171.00	1.0	40	226.8	1.76	5	SB	VB
SMAJ150(C)A	150.0	167.00	185.00	1.0	40	243.0	1.65	5	SM	VM
SMAJ160(C)A	160.0	178.00	197.00	1.0	40	259.0	1.54	5	SP	VP
SMAJ170(C)A	170.0	189.00	209.00	1.0	40	275.0	1.45	5	SR	VR
SMAJ180(C)A	180.0	200.00	220.00	1.0	40	291.6	1.37	5	ST	VT
SMAJ190(C)A	190.0	211.00	232.00	1.0	40	307.8	1.30	5	SV	VV
SMAJ200(C)A	200.0	224.00	247.00	1.0	40	324.0	1.23	5	SW	VW
SMAJ220(C)A	220.0	246.00	272.00	1.0	40	356.0	1.12	5	SX	VX
SMAJ250(C)A	250.0	279.00	309.00	1.0	40	405.0	0.99	5	SZ	VZ
SMAJ300(C)A	300.0	335.00	371.00	1.0	40	486.0	0.82	5	DE	HE
SMAJ350(C)A	350.0	391.00	432.00	1.0	40	567.0	0.71	5	DG	HG
SMAJ400(C)A	400.0	447.00	494.00	1.0	40	648.0	0.62	5	DK	HK
SMAJ440(C)A	440.0	492.00	543.00	1.0	40	713.0	0.56	5	DM	HM

Note 1. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
 2. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled.

Rating and characteristic curves

Fig.1 - Peak Pulse Power Rating Curve

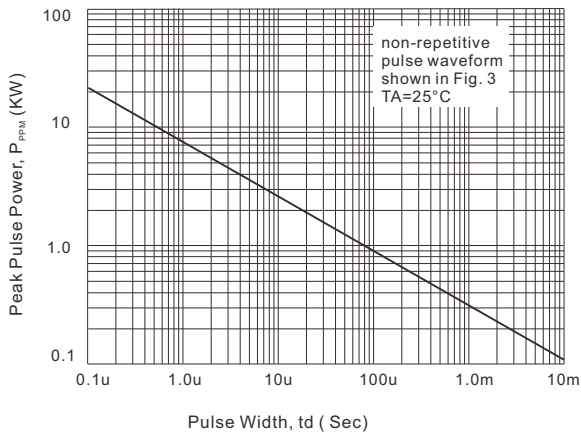


Fig.2 - Pulse Derating Curve

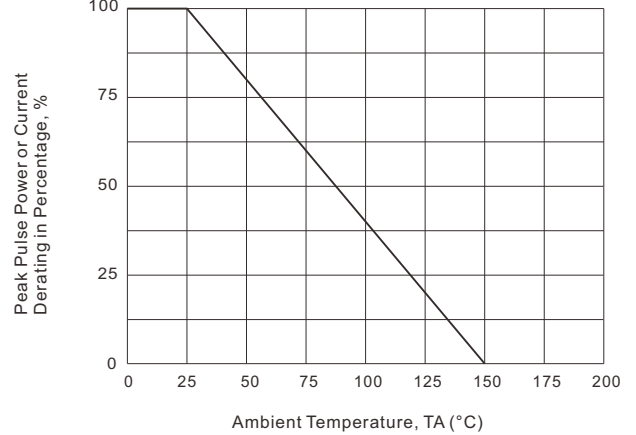


Fig.3 - Pulse Waveform

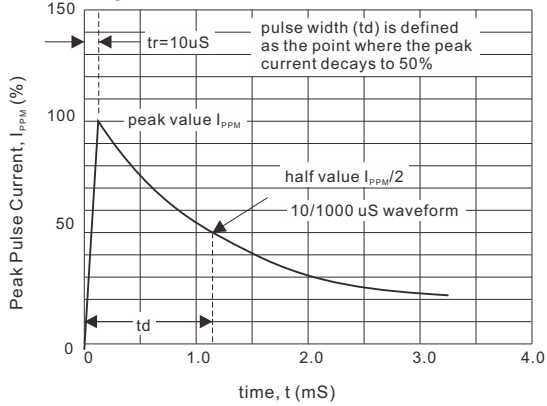


Fig.4 - Typical Junction Capacitance

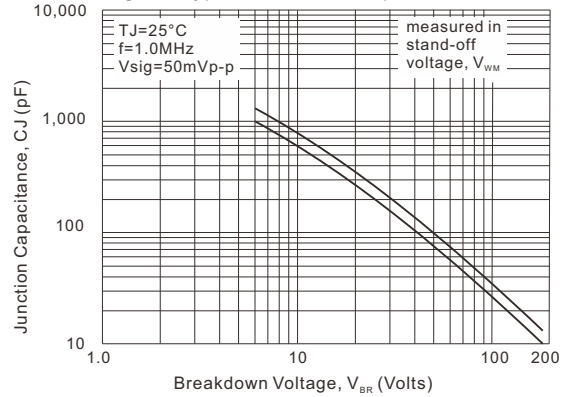


Fig.5 - Steady State Power Derating Curve

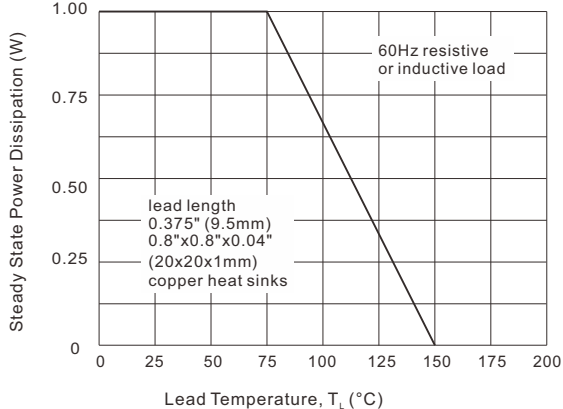
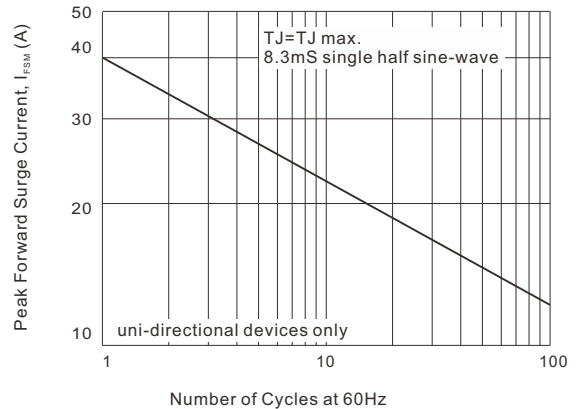
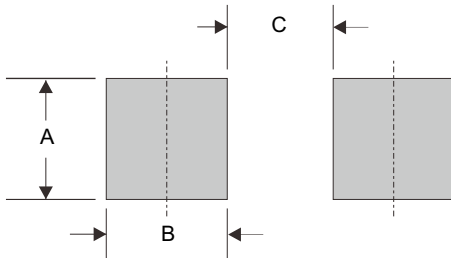


Fig.6 - Maximum Non-Repetitive Forward Surge Current



■ SMA foot print



A	B	C
0.068 (1.70)	0.104 (2.60)	0.060 (1.50)

Dimensions in inches and (millimeters)

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