SMAJ5.0(C)A - SMAJ170(C)A

400W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

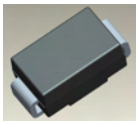
Please click here to visit our online spice models database.

Features

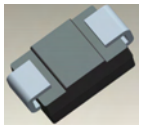
- 400W Peak Pulse Power Dissipation
- Glass Passivated Die Construction
- Unidirectional and Bidirectional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

Mechanical Data

- Case: SMA
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.064 grams (approximate)



Top View



Bottom View

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T_A = 25° C) (Note 3)	P_{PK}	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 3, 4 & 5)	I_{FSM}	40	A
Steady State Power Dissipation @ T_L = 75°C	$PM_{(AV)}$	1.0	W
Instantaneous Forward Voltage @ I_{PP} = 35A (Notes 3, 4, & 5)	V_F	3.5	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/quality/lead_free.html.
2. No purposefully added lead. Halogen and Antimony free.
3. Valid provided that terminals are kept at ambient temperature.
4. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
5. Unidirectional units only.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Part Number Add C For Bidirectional (Note 6)	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 7)		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 8)	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current I_{pp}	Marking Code	
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (μA)	V_C (V)	(A)	BI-	UNI-
SMAJ5.0(C)A	5.0	6.40	7.25	10	800	9.2	43.5	TE	HE
SMAJ6.0(C)A	6.0	6.67	7.37	10	800	10.3	38.8	TG	HG
SMAJ6.5(C)A	6.5	7.22	7.98	10	500	11.2	35.7	TK	HK
SMAJ7.0(C)A	7.0	7.78	8.60	10	200	12.0	33.3	TM	HM
SMAJ7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	31.0	TP	HP
SMAJ8.0(C)A	8.0	8.89	9.83	1.0	50	13.6	29.4	TR	HR
SMAJ8.5(C)A	8.5	9.44	10.4	1.0	10	14.4	27.7	TT	HT
SMAJ9.0(C)A	9.0	10.0	11.1	1.0	5.0	15.4	26.0	TV	HV
SMAJ10(C)A	10	11.1	12.3	1.0	5.0	17.0	23.5	TX	HX
SMAJ11(C)A	11	12.2	13.5	1.0	5.0	18.2	22.0	TZ	HZ
SMAJ12(C)A	12	13.3	14.7	1.0	5.0	19.9	20.1	UE	IE
SMAJ13(C)A	13	14.4	15.9	1.0	5.0	21.5	18.6	UG	IG
SMAJ14(C)A	14	15.6	17.2	1.0	5.0	23.2	17.2	UK	IK
SMAJ15(C)A	15	16.7	18.5	1.0	5.0	24.4	16.4	UM	IM
SMAJ16(C)A	16	17.8	19.7	1.0	5.0	26.0	15.3	UP	IP
SMAJ17(C)A	17	18.9	20.9	1.0	5.0	27.6	14.5	UR	IR
SMAJ18(C)A	18	20.0	22.1	1.0	5.0	29.2	13.7	UT	IT
SMAJ20(C)A	20	22.2	24.5	1.0	5.0	32.4	12.3	UV	IV
SMAJ22(C)A	22	24.4	26.9	1.0	5.0	35.5	11.2	UX	IX
SMAJ24(C)A	24	26.7	29.5	1.0	5.0	38.9	10.3	UZ	IZ
SMAJ26(C)A	26	28.9	31.9	1.0	5.0	42.1	9.5	VE	JE
SMAJ28(C)A	28	31.1	34.4	1.0	5.0	45.4	8.8	VG	JG
SMAJ30(C)A	30	33.3	36.8	1.0	5.0	48.4	8.3	VK	JK
SMAJ33(C)A	33	36.7	40.6	1.0	5.0	53.3	7.5	VM	JM
SMAJ36(C)A	36	40.0	44.2	1.0	5.0	58.1	6.9	VP	JP
SMAJ40(C)A	40	44.4	49.1	1.0	5.0	64.5	6.2	VR	JR
SMAJ43(C)A	43	47.8	52.8	1.0	5.0	69.4	5.7	VT	JT
SMAJ45(C)A	45	50.0	55.3	1.0	5.0	72.7	5.5	VV	JV
SMAJ48(C)A	48	53.3	58.9	1.0	5.0	77.4	5.2	VX	JX
SMAJ51(C)A	51	56.7	62.7	1.0	5.0	82.4	4.9	VZ	JZ
SMAJ54(C)A	54	60.0	66.3	1.0	5.0	87.1	4.6	WE	RE
SMAJ58(C)A	58	64.4	71.2	1.0	5.0	93.6	4.3	WG	RG
SMAJ60(C)A	60	66.7	73.7	1.0	5.0	96.8	4.1	WK	RK
SMAJ64(C)A	64	71.1	78.6	1.0	5.0	103	3.9	WM	RM
SMAJ70(C)A	70	77.8	86.0	1.0	5.0	113	3.5	WP	RP
SMAJ75(C)A	75	83.3	92.1	1.0	5.0	121	3.3	WR	RR
SMAJ78(C)A	78	86.7	95.8	1.0	5.0	126	2.2	WT	RT
SMAJ85(C)A	85	94.4	104	1.0	5.0	137	2.9	WV	RV
SMAJ90(C)A	90	100	111	1.0	5.0	146	2.7	WX	RX
SMAJ100(C)A	100	111	123	1.0	5.0	162	2.5	WZ	RZ
SMAJ110(C)A	110	122	135	1.0	5.0	177	2.3	XE	SE
SMAJ120(C)A	120	133	147	1.0	5.0	193	2.0	XG	SG
SMAJ130(C)A	130	144	159	1.0	5.0	209	1.9	XK	SK
SMAJ150(C)A	150	167	185	1.0	5.0	243	1.6	XM	SM
SMAJ160(C)A	160	178	197	1.0	5.0	259	1.5	XP	SP
SMAJ170(C)A	170	189	209	1.0	5.0	275	1.4	XR	SR

Notes:
6. Suffix C denotes Bi-directional device.
7. V_{BR} measured with I_T current pulse = 300μs
8. For Bidirectional devices having V_{RWM} of 10V and under, the I_R is doubled.

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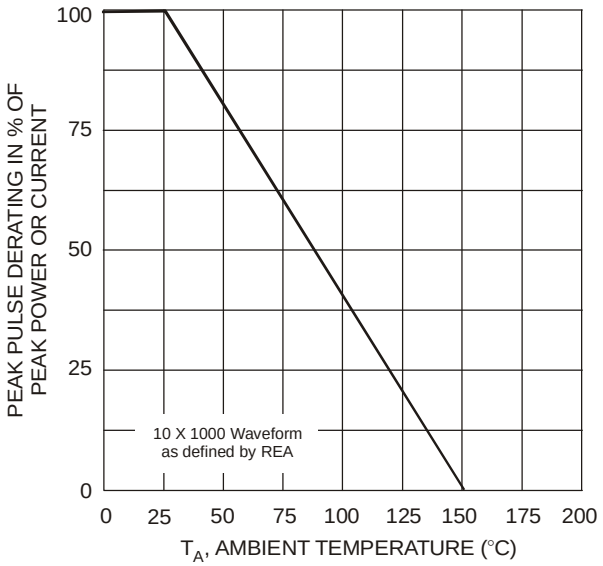


Fig. 1 Pulse Derating Curve

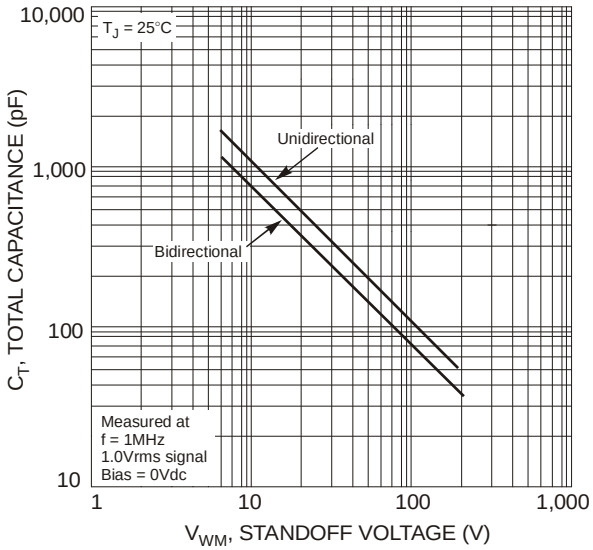


Fig. 2 Typical Total Capacitance

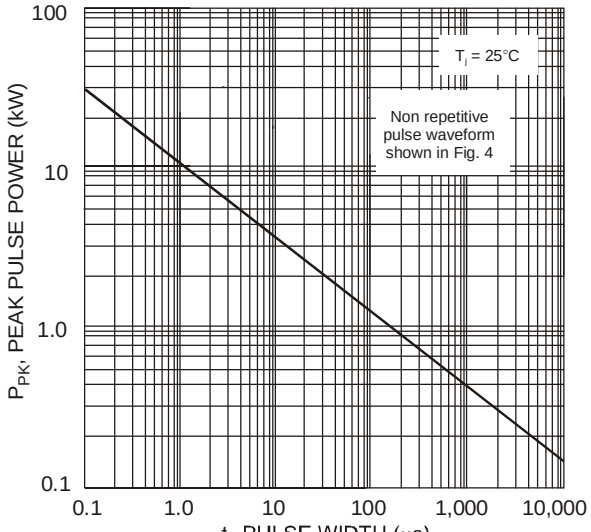


Fig. 3 Pulse Rating Curve

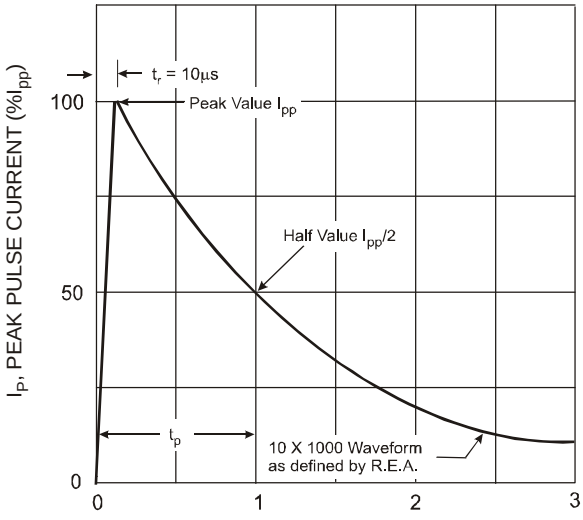


Fig. 4 Pulse Waveform

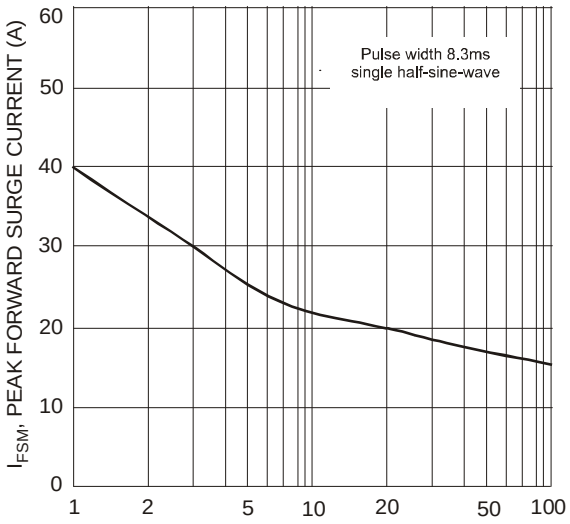


Fig. 5 Maximum Non-Repetitive Surge Current

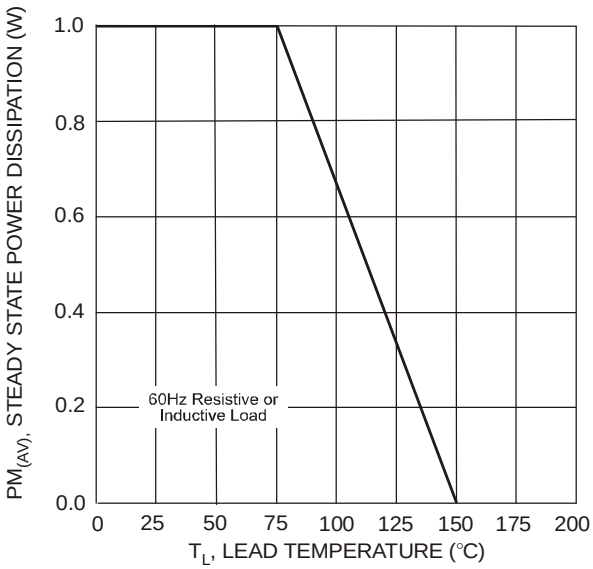


Fig. 6 Steady State Power Derating Curve

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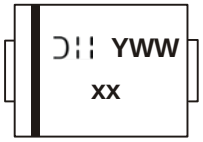
Ordering Information (Note 9)

Part Number	Case	Packaging
SMAJXXX(C)A-13-F	SMA	5000/Tape & Reel

*x = Device Voltage, e.g., SMCJ170A-13-F. Example: SMAJ170A-13-F.

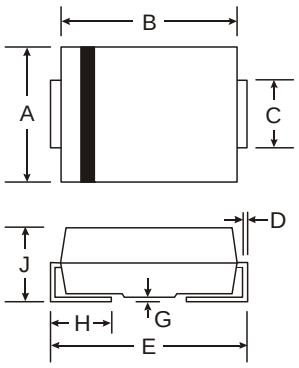
Notes: 9. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



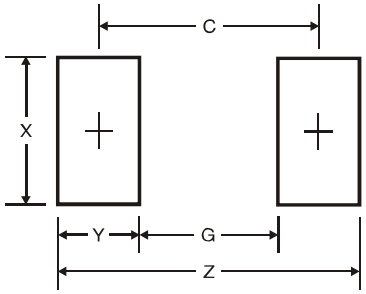
xx = Product type marking code (See Page 2)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code 01 to 52

Package Outline Dimensions



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

Suggested Pad Layout



SMA Dimensions	Value (in mm)
Z	6.5
G	1.5
X	1.7
Y	2.5
C	4.0

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