

SMAJ***CA Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 to 250 Volts

400 Watt Peak Pulse Power

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- * For surface mounted applications in order to optimize board space
- * Low profile package
- * Built-in strain relief
- * Glass passivated junction
- * Low inductance
- * Excellent clamping capability
- * Repetition Rate (duty cycle):0.01%
- * Typical IR less than 1mA above 10V
- * High temperature soldering guaranteed:260°C/10 seconds
- * MSL: Level 1



We declare that the material of product compliance with ROHS requirements

MECHANICAL DATA

Case: JEDEC DO-214AC(SMA) molded plastic

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Bidirectional without color band denoting cathode end

Mounting Position: Any

Weight: 0.0023 ounce, 0.065 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use CA Suffix for types SMAJ5.0CA thru types SMAJ250CA

Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1)	P_{PPM}	400	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2)	$P_{M(AV)}$	1.0	Watts
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
IEC 61000-4-2 (ESD), Contact / Air Discharge		$\pm 30 / \pm 30$	KV

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in²(40mm²).

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Bi-Directional Part Number	Device marking code	Reverse Stand-off Voltage VRWM (V)	Breakdown Voltage VBR (V) Min. @IT	Breakdown Voltage VBR (V) Max. @IT	Test Current IT (mA)	Maximum Clamping Voltage @IPP VC (V)	Peak Pulse Current Ipp (A)	Reverse Leakage @VRWM IR (uA)
SMAJ5.0CA	AE	5.00	6.40	7.00	10.00	9.20	43.50	800
SMAJ6.0CA	AG	6.00	6.67	7.37	10.00	10.30	38.80	800
SMAJ6.5CA	AK	6.50	7.22	7.98	10.00	11.20	35.70	500
SMAJ7.0CA	AM	7.00	7.78	8.60	10.00	12.00	33.30	200
SMAJ7.5CA	AP	7.50	8.33	9.21	1.00	12.90	31.00	100
SMAJ8.0CA	AR	8.00	8.89	9.83	1.00	13.60	29.40	50
SMAJ8.5CA	AT	8.50	9.44	10.40	1.00	14.40	27.80	20
SMAJ9.0CA	AV	9.00	10.00	11.10	1.00	15.40	26.00	10
SMAJ10CA	AX	10.00	11.10	12.30	1.00	17.00	23.50	1
SMAJ11CA	AZ	11.00	12.20	13.50	1.00	18.20	22.00	1
SMAJ12CA	BE	12.00	13.30	14.70	1.00	19.90	20.10	1
SMAJ13CA	BG	13.00	14.40	15.90	1.00	21.50	18.60	1
SMAJ14CA	BK	14.00	15.60	17.20	1.00	23.20	17.20	1
SMAJ15CA	BM	15.00	16.70	18.50	1.00	24.40	16.40	1
SMAJ16CA	BP	16.00	17.80	19.70	1.00	26.00	15.40	1
SMAJ17CA	BR	17.00	18.90	20.90	1.00	27.60	14.50	1
SMAJ18CA	BT	18.00	20.00	22.10	1.00	29.20	13.70	1
SMAJ20CA	BV	20.00	22.20	24.50	1.00	32.40	12.30	1
SMAJ22CA	BX	22.00	24.40	26.90	1.00	35.50	11.30	1
SMAJ24CA	BZ	24.00	26.70	29.50	1.00	38.90	10.30	1
SMAJ26CA	CE	26.00	28.90	31.90	1.00	42.10	9.50	1
SMAJ28CA	CG	28.00	31.10	34.40	1.00	45.40	8.80	1
SMAJ30CA	CK	30.00	33.30	36.80	1.00	48.40	8.30	1
SMAJ33CA	CM	33.00	36.70	40.60	1.00	53.30	7.50	1
SMAJ36CA	CP	36.00	40.00	44.20	1.00	58.10	6.90	1
SMAJ40CA	CR	40.00	44.40	49.10	1.00	64.50	6.20	1
SMAJ43CA	CT	43.00	47.80	52.80	1.00	69.40	5.80	1
SMAJ45CA	CV	45.00	50.00	55.30	1.00	72.70	5.50	1
SMAJ48CA	CX	48.00	53.30	58.90	1.00	77.40	5.20	1
SMAJ51CA	CZ	51.00	56.70	62.70	1.00	82.40	4.90	1
SMAJ54CA	RE	54.00	60.00	66.30	1.00	87.10	4.60	1
SMAJ58CA	RG	58.00	64.40	71.20	1.00	93.60	4.30	1
SMAJ60CA	RK	60.00	66.70	73.70	1.00	96.80	4.10	1
SMAJ64CA	RM	64.00	71.10	78.60	1.00	103.00	3.90	1
SMAJ70CA	RP	70.00	77.80	86.00	1.00	113.00	3.50	1
SMAJ75CA	RR	75.00	83.30	92.10	1.00	121.00	3.30	1
SMAJ78CA	RT	78.00	86.70	95.80	1.00	126.00	3.20	1
SMAJ85CA	RV	85.00	94.40	104.00	1.00	137.00	2.90	1
SMAJ90CA	RX	90.00	100.00	111.00	1.00	146.00	2.70	1
SMAJ100CA	RZ	100.00	111.00	123.00	1.00	162.00	2.50	1
SMAJ110CA	SE	110.00	122.00	135.00	1.00	177.00	2.30	1
SMAJ120CA	SG	120.00	133.00	147.00	1.00	193.00	2.10	1
SMAJ130CA	SK	130.00	144.00	159.00	1.00	209.00	1.90	1
SMAJ150CA	SM	150.00	167.00	185.00	1.00	243.00	1.60	1
SMAJ160CA	SP	160.00	178.00	197.00	1.00	259.00	1.50	1
SMAJ170CA	SR	170.00	189.00	209.00	1.00	275.00	1.50	1
SMAJ180CA	ST	180.00	198.00	221.00	1.00	291.00	1.40	1
SMAJ190CA	SV	190.00	209.00	233.00	1.00	307.00	1.30	1
SMAJ200CA	SX	200.00	220.00	246.00	1.00	324.00	1.30	1
SMAJ220CA	SY	220.00	246.00	272.00	1.00	356.00	1.20	1
SMAJ250CA	SZ	250.00	279.00	309.00	1.00	405.00	1.00	1
SMAJ300CA	TE	300.00	335.00	371.00	1.00	486.00	0.80	1
SMAJ350CA	TG	350.00	391.00	432.00	1.00	567.00	0.70	1
SMAJ400CA	TK	400.00	447.00	494.00	1.00	648.00	0.60	1
SMAJ440CA	TM	440.00	492.00	543.00	1.00	713.00	0.60	1

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.

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CHARACTERISTIC CURVES (TA = 25°C unless otherwise noted)

Fig. 1-Peak Pulse Power Rating Curve

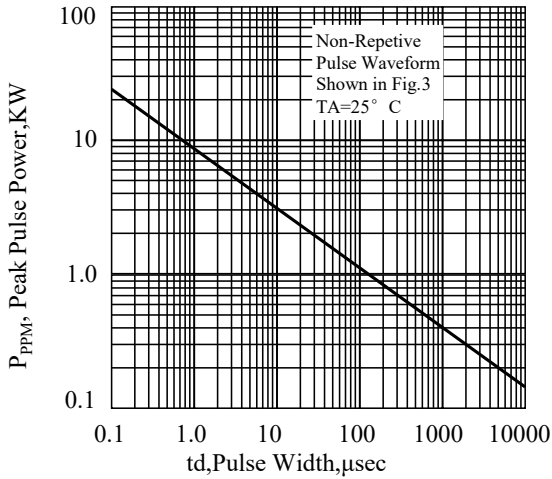


Fig. 2-Pulse Derating Curve

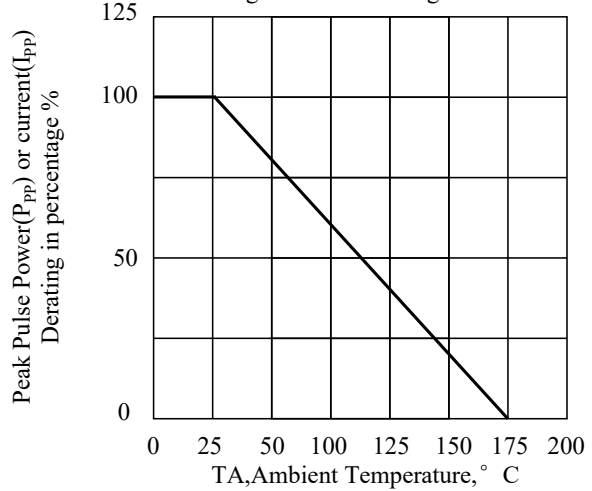


Fig. 3-Pulse Waveform

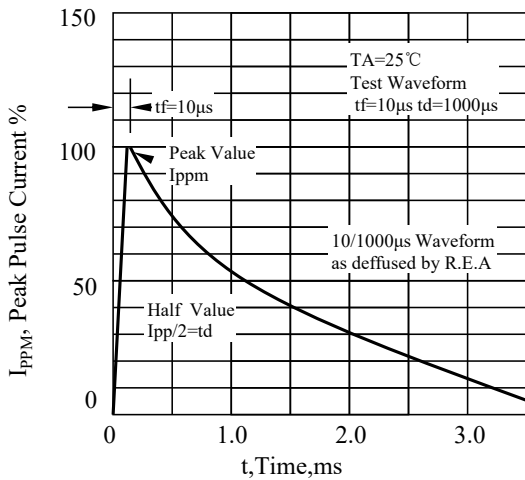
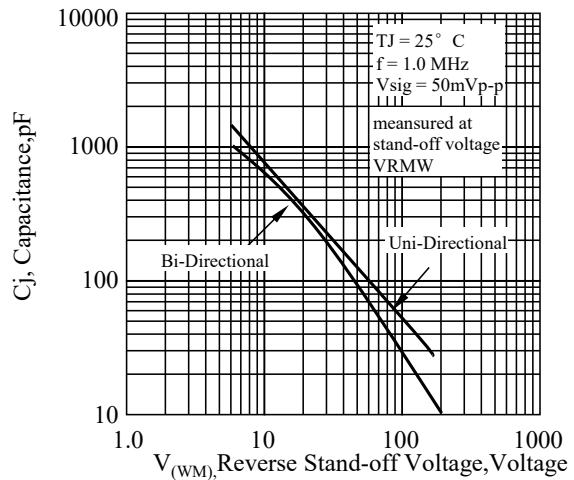
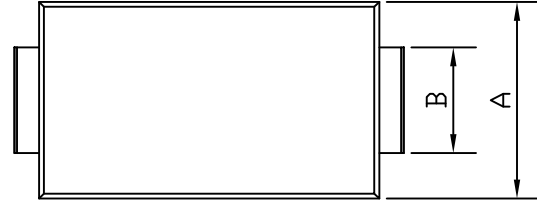
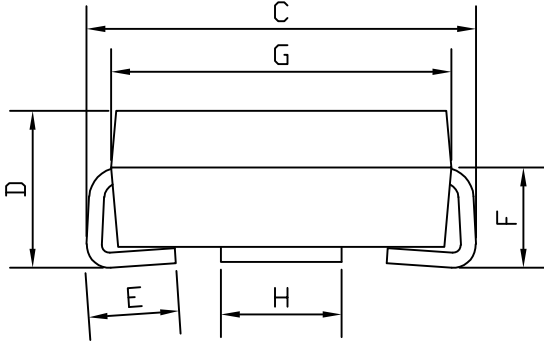


Fig. 4-Typical Junction Capacitance Unidirectional



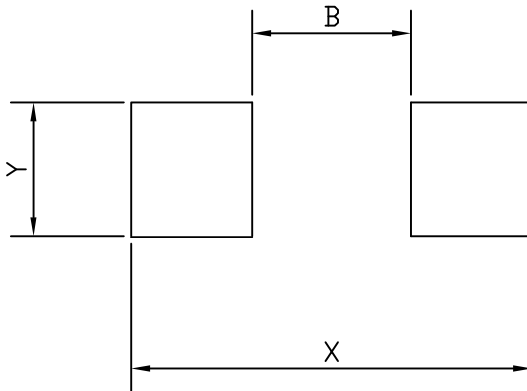
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PACKAGE OUTLINE DIMENSIONS



SMA			
DIM	MIN	TYP	MAX
A	2.20	2.60	2.80
B	1.30	1.40	1.70
C	4.70	5.15	5.30
D	1.70	2.10	2.30
E	0.90	1.20	1.50
F	0.90	1.35	1.50
G	4.20	4.50	4.80
H	1.40	1.60	1.80
All Dimensions in mm			

RECOMMENDED PAD LAYOUT



SMA		
DIM(mm)	Min	Max
X	5.30REF	
Y	1.72	1.82
B	1.90	2.30

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UPDATE RECORD

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2010/4/27
2	调整储存温度为175度	周杰	2010/9/23
3	增加建议焊片尺寸，调整产品单只重量。	周杰	2011/12/6
C	增加MSL和ESD参数，刷新POD	陈帅	2024/11/8
D	增加440V产品	陈帅	2025/7/15
E	POD D尺寸上限值由2.55mm改为2.3mm	陈帅	2026/3/13

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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