



SMAJ-A SERIES

Surface Mount Transient Voltage Suppressor

Features

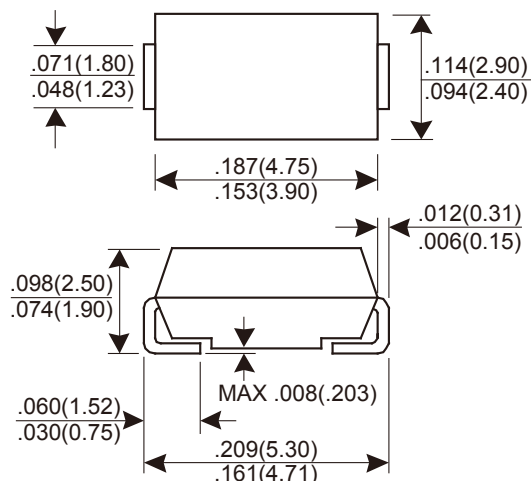
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 400W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ★ ESD protection of data lines in accordance with IEC 61000-4-2
- ★ EFT protection of data lines in accordance with IEC 61000-4-4

Mechanical Data

- ★ Case: Molded plastic, SMA/DO-214AC
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end

Working Voltage 5.0 to 440 V
Peak Pulse Power 400W

SMA/DO-214AC



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform (Note 1,2)	P_{PPM}	400	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	40	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	1.0	W
Maximum instantaneous forward voltage at 50A for unidirectional only (Note 4)	V_F	3.5 / 5.0	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	30	$^\circ\text{C/W}$
Operating junction temperature range ($V_R \leq 78\text{V}$)	T_J	-65 to +175	$^\circ\text{C}$
Operating junction temperature range ($V_R > 78\text{V}$)	T_J	-65 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-65 to +175	$^\circ\text{C}$

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 pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

(4) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

SMAJ-A SERIES

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR@I_T}$			Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
SMAJ5.0A-A	SMAJ5.0CA-A	AEA	WEA	6.40	7.00	10	800	5.0	43.48	9.2
SMAJ6.0A-A	SMAJ6.0CA-A	AGA	WGA	6.67	7.37	10	800	6.0	38.83	10.3
SMAJ6.5A-A	SMAJ6.5CA-A	AKA	WKA	7.22	7.98	10	500	6.5	35.71	11.2
SMAJ7.0A-A	SMAJ7.0CA-A	AMA	WMA	7.78	8.60	10	200	7.0	33.33	12.0
SMAJ7.5A-A	SMAJ7.5CA-A	APA	WPA	8.33	9.21	1	100	7.5	31.01	12.9
SMAJ8.0A-A	SMAJ8.0CA-A	ARA	WRA	8.89	9.83	1	50	8.0	29.41	13.6
SMAJ8.5A-A	SMAJ8.5CA-A	ATA	WTA	9.44	10.4	1	10	8.5	27.78	14.4
SMAJ9.0A-A	SMAJ9.0CA-A	AVA	WVA	10.0	11.1	1	5	9.0	25.97	15.4
SMAJ10A-A	SMAJ10CA-A	AXA	WXA	11.1	12.3	1	5	10	23.53	17.0
SMAJ11A-A	SMAJ11CA-A	AZA	WZA	12.2	13.5	1	1	11	21.98	18.2
SMAJ12A-A	SMAJ12CA-A	BEA	XEA	13.3	14.7	1	1	12	20.10	19.9
SMAJ13A-A	SMAJ13CA-A	BGA	XGA	14.4	15.9	1	1	13	18.60	21.5
SMAJ14A-A	SMAJ14CA-A	BKA	XKA	15.6	17.2	1	1	14	17.24	23.2
SMAJ15A-A	SMAJ15CA-A	BMA	XMA	16.7	18.5	1	1	15	16.39	24.4
SMAJ16A-A	SMAJ16CA-A	BPA	XPA	17.8	19.7	1	1	16	15.38	26.0
SMAJ17A-A	SMAJ17CA-A	BRA	XRA	18.9	20.9	1	1	17	14.49	27.6
SMAJ18A-A	SMAJ18CA-A	BTA	XTA	20.0	22.1	1	1	18	13.70	29.2
SMAJ20A-A	SMAJ20CA-A	BVA	XVA	22.2	24.5	1	1	20	12.35	32.4
SMAJ22A-A	SMAJ22CA-A	BXA	XXA	24.4	26.9	1	1	22	11.27	35.5
SMAJ24A-A	SMAJ24CA-A	BZA	XZA	26.7	29.5	1	1	24	10.28	38.9
SMAJ26A-A	SMAJ26CA-A	CEA	YEA	28.9	31.9	1	1	26	9.50	42.1
SMAJ28A-A	SMAJ28CA-A	CGA	YGA	31.1	34.4	1	1	28	8.81	45.4
SMAJ30A-A	SMAJ30CA-A	CKA	YKA	33.3	36.8	1	1	30	8.26	48.4
SMAJ33A-A	SMAJ33CA-A	CMA	YMA	36.7	40.6	1	1	33	7.50	53.3
SMAJ36A-A	SMAJ36CA-A	CPA	YPA	40.0	44.2	1	1	36	6.88	58.1
SMAJ40A-A	SMAJ40CA-A	CRA	YRA	44.4	49.1	1	1	40	6.20	64.5
SMAJ43A-A	SMAJ43CA-A	CTA	YTA	47.8	52.8	1	1	43	5.76	69.4
SMAJ45A-A	SMAJ45CA-A	CVA	YVA	50.0	55.3	1	1	45	5.50	72.7
SMAJ48A-A	SMAJ48CA-A	CXA	YXA	53.3	58.9	1	1	48	5.17	77.4
SMAJ51A-A	SMAJ51CA-A	CZA	YZA	56.7	62.7	1	1	51	4.85	82.4
SMAJ54A-A	SMAJ54CA-A	REA	ZEA	60.0	66.3	1	1	54	4.59	87.1
SMAJ58A-A	SMAJ58CA-A	RGA	ZGA	64.4	71.2	1	1	58	4.27	93.6
SMAJ60A-A	SMAJ60CA-A	RKA	ZKA	66.7	73.7	1	1	60	4.13	96.8
SMAJ64A-A	SMAJ64CA-A	RMA	ZMA	71.1	78.6	1	1	64	3.88	103.0
SMAJ70A-A	SMAJ70CA-A	RPA	ZPA	77.8	86.0	1	1	70	3.54	113.0
SMAJ75A-A	SMAJ75CA-A	RRA	ZRA	83.3	92.1	1	1	75	3.31	121.0
SMAJ78A-A	SMAJ78CA-A	RTA	ZTA	86.7	95.8	1	1	78	3.17	126.0
SMAJ85A-A	SMAJ85CA-A	RVA	ZVA	94.4	104	1	1	85	2.92	137.0
SMAJ90A-A	SMAJ90CA-A	RXA	ZXA	100	111	1	1	90	2.74	146.0
SMAJ100A-A	SMAJ100CA-A	RZA	ZZA	111	123	1	1	100	2.47	162.0
SMAJ110A-A	SMAJ110CA-A	SEA	VEA	122	135	1	1	110	2.26	177.0
SMAJ120A-A	SMAJ120CA-A	SGA	VGA	133	147	1	1	120	2.07	193.0
SMAJ130A-A	SMAJ130CA-A	SKA	VKA	144	159	1	1	130	1.91	209.0
SMAJ150A-A	SMAJ150CA-A	SMA	VMA	167	185	1	1	150	1.65	243.0
SMAJ160A-A	SMAJ160CA-A	SPA	VPA	178	197	1	1	160	1.54	259.0
SMAJ170A-A	SMAJ170CA-A	SRA	VRA	189	209	1	1	170	1.45	275.0
SMAJ180A-A	SMAJ180CA-A	STA	VTA	200	220	1	1	180	1.37	291.6
SMAJ200A-A	SMAJ200CA-A	SWA	VWA	224	247	1	1	200	1.23	324.0
SMAJ220A-A	SMAJ220CA-A	SXA	VXA	246	272	1	1	220	1.12	356.0
SMAJ250A-A	SMAJ250CA-A	SZA	VZA	279	309	1	1	250	0.99	405.0
SMAJ300A-A	SMAJ300CA-A	DEA	HEA	335	371	1	1	300	0.82	486.0
SMAJ350A-A	SMAJ350CA-A	DGA	HGA	391	432	1	1	350	0.71	567.0
SMAJ400A-A	SMAJ400CA-A	DKA	HKA	447	494	1	1	400	0.62	648.0
SMAJ440A-A	SMAJ440CA-A	DMA	HMA	492	543	1	1	440	0.56	713.0

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having V_{RWM} of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES SMAJ-A SERIES

Fig.1 - Peak Pulse Power Rating Curve

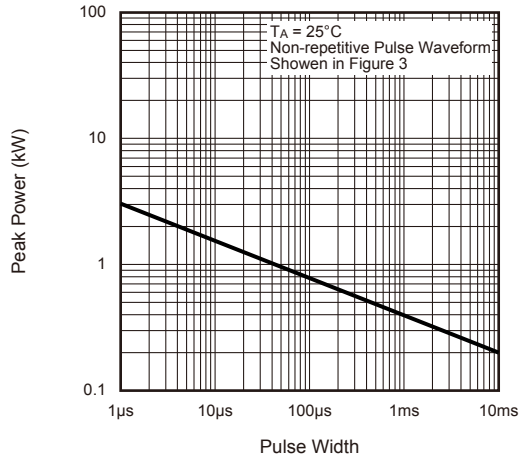


Fig.2 - Pulse Derating Curve

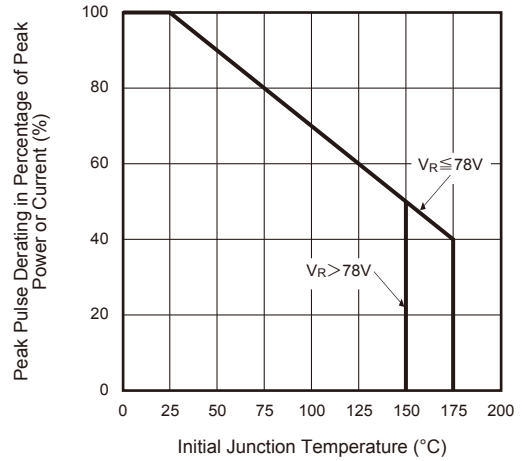


Fig.3 - Pulse Waveform

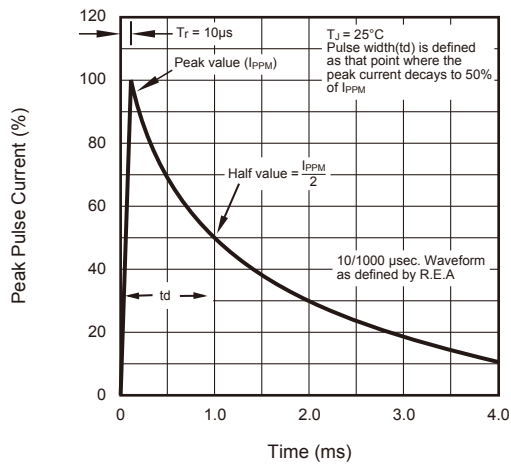


Fig.4 - Typical Junction Capacitance

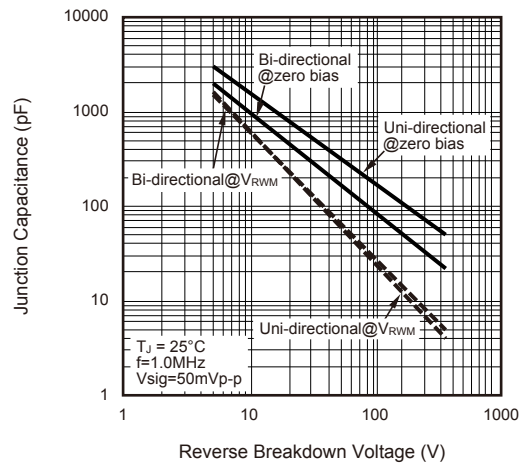


Fig.5 - Steady State Power Derating Curve

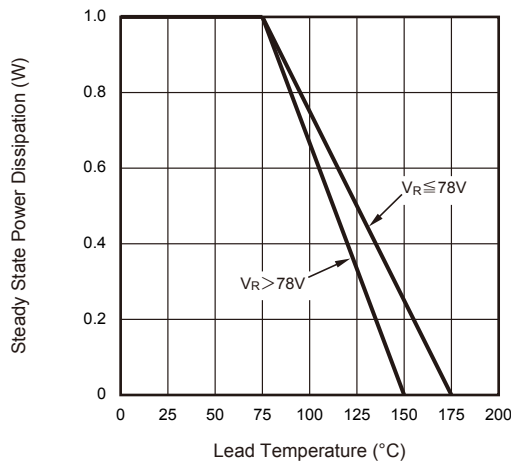


Fig.6 - Maximum Non-Repetitive Surge Current

