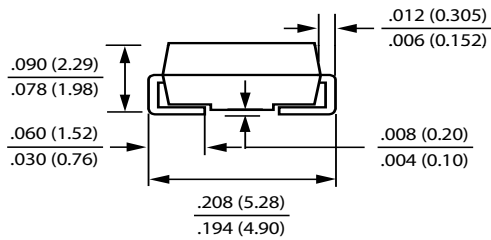
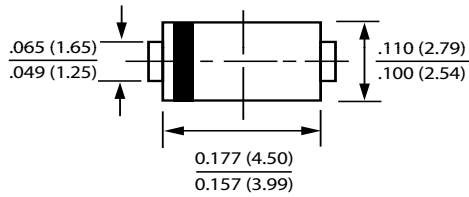




SMAJ SERIES



Transient Voltage Suppressors(400W)



DO-214AC(SMA)

Dimensions in inches and (millimeters)

Ordering Information	
Part Number	Compound
SMAJ SERIES	General
SMAJ SERIES-H	Halogen Free
SMAJ SERIES-Q	Automotive

PRIMARY CHARACTERISTICS	
V_{BR}	5~440V
P_{PPM}	400W
P_D	1W
$T_J \text{ max}$	150°C

Features

- Glass passivated chip
- 400 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant
- AEC-Q101 Qualified

Mechanical Date

- Case: DO-214AC(SMA)
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any
- Weight: 0.063 grams (approximate)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 μs waveform ⁽¹⁾	P_{PP}	400	W
Peak pulse current with a 10/1000 μs waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	1	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	40	A
Maximum instantaneous forward voltage at 25 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(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 $V_{BR} > 201\text{V}$



SMAJ SERIES



Transient Voltage Suppressors(400W)

Part Number		Marking Code		Reverse Stand-off Voltage	Break-down Voltage Min@I _T	Break-down Voltage Max@I _T	Test Current	Max Clamping Voltage V _C @I _{PP}	Peak Pulse Current	Reverse Leakage I _R @V _{RRM}
DIRECTIONAL		DIRECTIONAL		V _{RRM}	V _{BR}	V _{BR}	I _T	V _C	I _{PP}	I _R
UNI	BI	UNI	BI	V	V	V	mA	V	A	uA
SMAJ5.0A	SMAJ5.0CA	AJ5.0A	AJ5.0CA	5.0	6.40	7.00	10.0	9.2	43.48	800
SMAJ6.0A	SMAJ6.0CA	AJ6.0A	AJ6.0CA	6.0	6.67	7.37	10.0	10.3	38.83	800
SMAJ6.5A	SMAJ6.5CA	AJ6.5A	AJ6.5CA	6.5	7.22	7.98	10.0	11.2	35.71	500
SMAJ7.0A	SMAJ7.0CA	AJ7.0A	AJ7.0CA	7.0	7.78	8.60	10.0	12.0	33.30	200
SMAJ7.5A	SMAJ7.5CA	AJ7.5A	AJ7.5CA	7.5	8.33	9.21	1.0	12.9	31.01	100
SMAJ8.0A	SMAJ8.0CA	AJ8.0A	AJ8.0CA	8.0	8.89	9.83	1.0	13.6	29.41	50
SMAJ8.5A	SMAJ8.5CA	AJ8.5A	AJ8.5CA	8.5	9.44	10.40	1.0	14.4	27.78	10
SMAJ9.0A	SMAJ9.0CA	AJ9.0A	AJ9.0CA	9.0	10.00	11.10	1.0	15.4	25.97	5
SMAJ10A	SMAJ10CA	AJ10A	AJ10CA	10.0	11.10	12.30	1.0	17.0	23.50	5
SMAJ11A	SMAJ11CA	AJ11A	AJ11CA	11.0	12.20	13.50	1.0	18.2	21.98	5
SMAJ12A	SMAJ12CA	AJ12A	AJ12CA	12.0	13.30	14.70	1.0	19.9	20.10	5
SMAJ13A	SMAJ13CA	AJ13A	AJ13CA	13.0	14.40	15.90	1.0	21.5	18.60	5
SMAJ14A	SMAJ14CA	AJ14A	AJ14CA	14.0	15.60	17.20	1.0	23.2	17.24	5
SMAJ15A	SMAJ15CA	AJ15A	AJ15CA	15.0	16.70	18.50	1.0	24.4	16.39	5
SMAJ16A	SMAJ16CA	AJ16A	AJ16CA	16.0	17.80	19.70	1.0	26.0	15.38	5
SMAJ17A	SMAJ17CA	AJ17A	AJ17CA	17.0	18.90	20.90	1.0	27.6	14.49	5
SMAJ18A	SMAJ18CA	AJ18A	AJ18CA	18.0	20.00	22.10	1.0	29.2	13.70	5
SMAJ19A	SMAJ19CA	AJ19A	AJ19CA	19.0	21.10	23.30	1.0	30.8	13.00	5
SMAJ20A	SMAJ20CA	AJ20A	AJ20CA	20.0	22.20	24.50	1.0	32.4	12.30	5
SMAJ22A	SMAJ22CA	AJ22A	AJ22CA	22.0	24.40	26.90	1.0	35.5	11.27	5
SMAJ24A	SMAJ24CA	AJ24A	AJ24CA	24.0	26.70	29.50	1.0	38.9	10.28	5
SMAJ26A	SMAJ26CA	AJ26A	AJ26CA	26.0	28.90	31.90	1.0	42.1	9.50	5
SMAJ28A	SMAJ28CA	AJ28A	AJ28CA	28.0	31.10	34.40	1.0	45.4	8.81	5
SMAJ30A	SMAJ30CA	AJ30A	AJ30CA	30.0	33.30	36.80	1.0	48.4	8.26	5
SMAJ33A	SMAJ33CA	AJ33A	AJ33CA	33.0	36.70	40.60	1.0	53.3	7.50	5
SMAJ36A	SMAJ36CA	AJ36A	AJ36CA	36.0	40.00	44.20	1.0	58.1	6.88	5
SMAJ40A	SMAJ40CA	AJ40A	AJ40CA	40.0	44.40	49.10	1.0	64.5	6.20	5
SMAJ43A	SMAJ43CA	AJ43A	AJ43CA	43.0	47.80	52.80	1.0	69.4	5.76	5
SMAJ45A	SMAJ45CA	AJ45A	AJ45CA	45.0	50.00	55.30	1.0	72.7	5.50	5
SMAJ48A	SMAJ48CA	AJ48A	AJ48CA	48.0	53.30	58.90	1.0	77.4	5.17	5
SMAJ51A	SMAJ51CA	AJ51A	AJ51CA	51.0	56.70	62.70	1.0	82.4	4.85	5
SMAJ54A	SMAJ54CA	AJ54A	AJ54CA	54.0	60.00	66.30	1.0	87.1	4.59	5
SMAJ58A	SMAJ58CA	AJ58A	AJ58CA	58.0	64.40	71.20	1.0	93.6	4.27	5
SMAJ60A	SMAJ60CA	AJ60A	AJ60CA	60.0	66.70	73.70	1.0	96.8	4.13	5
SMAJ64A	SMAJ64CA	AJ64A	AJ64CA	64.0	71.10	78.60	1.0	103.0	3.88	5
SMAJ70A	SMAJ70CA	AJ70A	AJ70CA	70.0	77.80	86.00	1.0	113.0	3.54	5
SMAJ75A	SMAJ75CA	AJ75A	AJ75CA	75.0	83.30	92.10	1.0	121.0	3.31	5
SMAJ78A	SMAJ78CA	AJ78A	AJ78CA	78.0	86.70	95.80	1.0	126.0	3.17	5
SMAJ80A	SMAJ80CA	AJ80A	AJ80CA	80.0	88.80	97.60	1.0	129.6	3.09	5
SMAJ85A	SMAJ85CA	AJ85A	AJ85CA	85.0	94.40	104.00	1.0	137.0	2.92	5



Transient Voltage Suppressors(400W)

Part Number		Marking Code		Reverse Stand-off Voltage	Break-down Voltage Min@I _T	Break-down Voltage Max@I _T	Test Current	Max Clamping Voltage V _C @I _{PP}	Peak Pulse Current	Reverse Leakage I _R @V _{RRM}
DIRECTIONAL		DIRECTIONAL		V _{RRM}	V _{BR}	V _{BR}	I _T	V _C	I _{PP}	I _R
UNI	BI	UNI	BI	V	V	V	mA	V	A	uA
	SMAJ90CA	AJ90A	AJ90CA	90.0	100.00	111.00	1.0	146.0	2.74	5
SMAJ100A	SMAJ100CA	AJ100A	AJ100CA	100.0	111.00	123.00	1.0	162.0	2.47	5
SMAJ110A	SMAJ110CA	AJ110A	AJ110CA	110.0	122.00	135.00	1.0	177.0	2.26	5
SMAJ120A	SMAJ120CA	AJ120A	AJ120CA	120.0	133.00	147.00	1.0	193.0	2.07	5
SMAJ130A	SMAJ130CA	AJ130A	AJ130CA	130.0	144.00	159.00	1.0	209.0	1.91	5
SMAJ140A	SMAJ140CA	AJ140A	AJ140CA	140.0	155.00	171.00	1.0	227.0	1.76	5
SMAJ150A	SMAJ150CA	AJ150A	AJ150CA	150.0	167.00	185.00	1.0	243.0	1.65	5
SMAJ160A	SMAJ160CA	AJ160A	AJ160CA	160.0	178.00	197.00	1.0	259.0	1.54	5
SMAJ170A	SMAJ170CA	AJ170A	AJ170CA	170.0	189.00	209.00	1.0	275.0	1.45	5
SMAJ180A	SMAJ180CA	AJ180A	AJ180CA	180.0	200.00	220.00	1.0	292.0	1.37	5
SMAJ190A	SMAJ190CA	AJ190A	AJ190CA	190.0	211.00	232.00	1.0	308.0	1.30	5
SMAJ200A	SMAJ200CA	AJ200A	AJ200CA	200.0	224.00	247.00	1.0	324.0	1.23	5
SMAJ220A	SMAJ220CA	AJ220A	AJ220CA	220.0	246.00	272.00	1.0	356.0	1.12	5
SMAJ250A	SMAJ250CA	AJ250A	AJ250CA	250.0	279.00	309.00	1.0	405.0	0.99	5
SMAJ300A	SMAJ300CA	AJ300A	AJ300CA	300.0	335.00	371.00	1.0	486.0	0.82	5
SMAJ350A	SMAJ350CA	AJ350A	AJ350CA	350.0	391.00	432.00	1.0	567.0	0.71	5
SMAJ400A	SMAJ400CA	AJ400A	AJ400CA	400.0	447.00	494.00	1.0	648.0	0.62	5
SMAJ440A	SMAJ440CA	AJ440A	AJ440CA	440.0	492.00	543.00	1.0	713.0	0.56	5

Note:

1. Suffix 'A ' denotes 5% tolerance device.
2. Add suffix' CA ' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double .

Transient Voltage Suppressors(400W)

Fig. 1 - Pulse Derating Curve

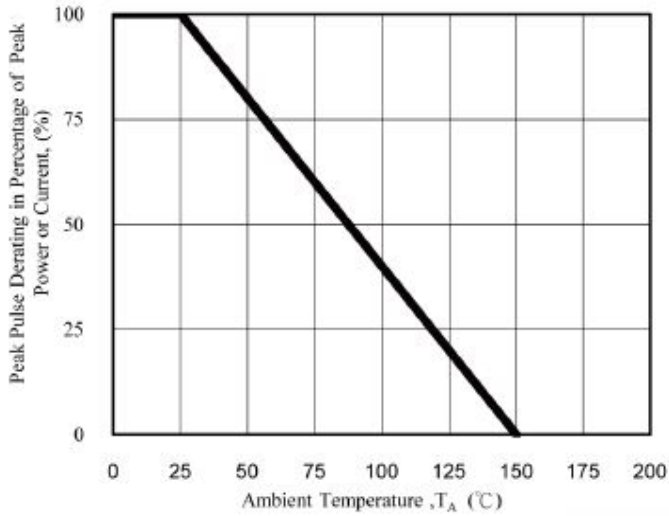


Fig. 2 - Maximum Non-Repetitive Surge Current

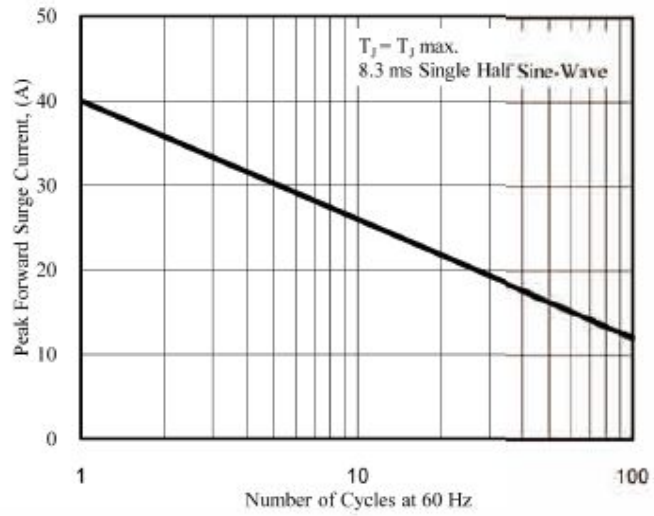


Fig. 3 - Steady State Power Derating Curve

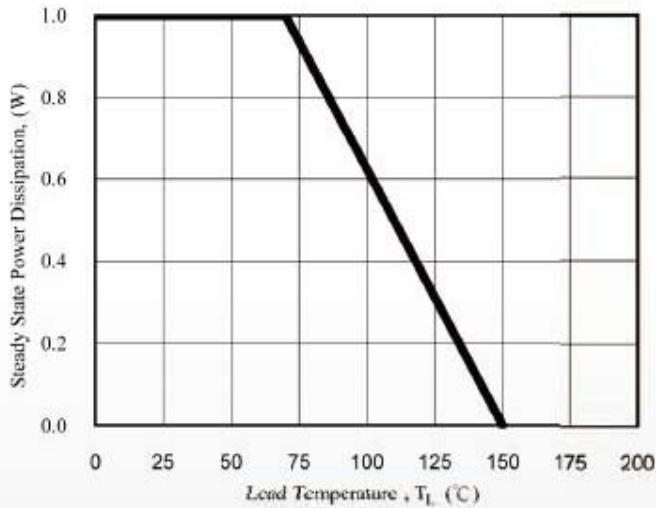


Fig. 4 - Peak Pulse Power Rating Curve

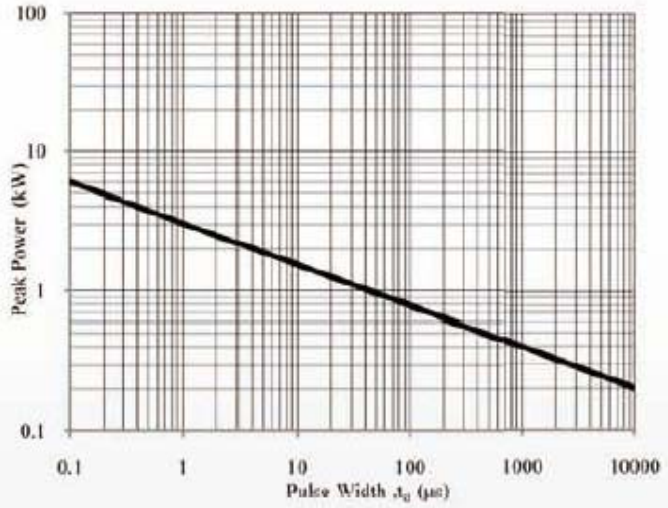


Fig. 5 - Pulse Waveform

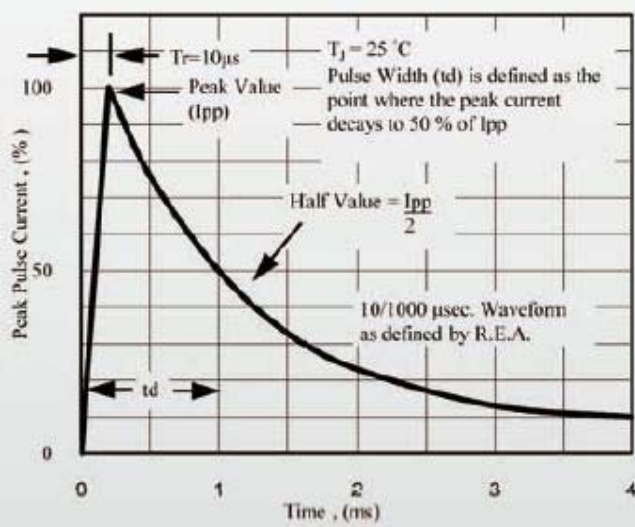


Fig. 6 - Typical junction Capacitance

