Elektronische Bauelemente

SMAJ SERIES

5V ~ 440V, 400W

Peak Power Surface Mount TVS

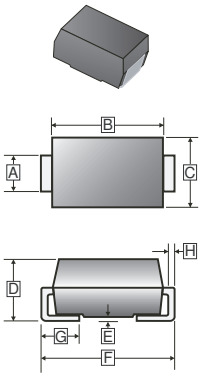
RoHS Compliant Product

A suffix of "-C" specifies halogen-free and lead-free

FEATURES

- For surface mount application
- Build-in strain relief
- Excellent clamping capability
- Low profile package
- Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- Typical I_R less than 1mA above 10V
- High temperature soldering guaranteed: 260℃ / 10 seconds at terminals

SMA



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.24	1.65	E	-	0.203
B	3.99	4.75	F	4.80	5.28
C	2.40	2.90	G	0.76	1.52
D	1.90	2.44	H	0.15	0.31

MECHANICAL DATA

- Case: Molded Plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-202, Method 208 Guaranteed
- Polarity: Color band denotes cathode end except bidirectional
- Mounting position: Any

PACKAGE INFORMATION

Package	MPQ	Leader Size
SMA	5K	13 inch

ORDER INFORMATION

Part Number	Type
SMAJ5.0A~SMAJ440A	Lead (Pb)-free
SMAJ5.0CA~SMAJ440CA	
SMAJ5.0A-C~SMAJ440A-C	Lead (Pb)-free and Halogen-free
SMAJ5.0CA-C~SMAJ440CA-C	

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

(Rating 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	Unit
Peak Power Dissipation@ a 10/1000μs waveform [1]	P_{PK}	400	W
Peak Pulse Current@ a 10/1000μs waveform [1]	I_{PP}	See next table	A
Power Dissipation@ on a infinite heat sink at T_L=70℃	P_D	1	W
Peak Forward Surge Current@ 8.3ms single Half Sine-Wave, for unidirectional only [2]	I_{FSM}	40	A
Maximum Instantaneous Forward voltage@ at 25A for unidirectional only [3]	V_F	3.5 / 5	V
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	℃

Notes:

1. Non-repetitive current pulse is on Fig. 5 and it derates above T_A=25℃ on Fig. 1.
2. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
3. V_F＜3.5V for devices of V_{BR}＜200V and V_F＜5V for devices of V_{BR}＞201V.

ELECTRICAL CHARACTERISTICS (Rating T_A=25℃ unless otherwise specified)

Part Number		Marking Code		Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R@ V_{RWM}	Working Peak Reverse Voltage	Maximum Reverse Surge Current	Maximum Clamping Voltage V_C @I_{PP}
Directional		Directional		Min	Max	I_T	I_R	V_{RWM}	I_{PP}	V_C
Uni	Bi	Uni	Bi	V	V	mA	μA	V	A	V
SMAJ5.0A	SMAJ5.0CA	AJ05A	AJ05CA	6.40	7.00	10	800	5.0	43.48	9.2
SMAJ6.0A	SMAJ6.0CA	AJ06A	AJ06CA	6.67	7.37	10	800	6.0	38.83	10.3
SMAJ6.5A	SMAJ6.5CA	AJ6.5A	AJ6.5CA	7.22	7.98	10	500	6.5	35.71	11.2
SMAJ7.0A	SMAJ7.0CA	AJ07A	AJ07CA	7.78	8.60	10	200	7.0	33.3	12.0
SMAJ7.5A	SMAJ7.5CA	AJ7.5A	AJ7.5CA	8.33	9.21	1	100	7.5	31.01	12.9
SMAJ8.0A	SMAJ8.0CA	AJ08A	AJ08CA	8.89	9.83	1	50	8.0	29.41	13.6
SMAJ8.5A	SMAJ8.5CA	AJ8.5A	AJ8.5CA	9.44	10.4	1	10	8.5	27.78	14.4
SMAJ9.0A	SMAJ9.0CA	AJ09A	AJ09CA	10.0	11.1	1	5	9.0	25.97	15.4
SMAJ10A	SMAJ10CA	AJ10A	AJ10CA	11.1	12.3	1	5	10	23.5	17.0
SMAJ11A	SMAJ11CA	AJ11A	AJ11CA	12.2	13.5	1	5	11	21.98	18.2
SMAJ12A	SMAJ12CA	AJ12A	AJ12CA	13.3	14.7	1	5	12	20.1	19.9
SMAJ13A	SMAJ13CA	AJ13A	AJ13CA	14.4	15.9	1	5	13	18.6	21.5
SMAJ14A	SMAJ14CA	AJ14A	AJ14CA	15.6	17.2	1	5	14	17.24	23.2
SMAJ15A	SMAJ15CA	AJ15A	AJ15CA	16.7	18.5	1	5	15	16.39	24.4
SMAJ16A	SMAJ16CA	AJ16A	AJ16CA	17.8	19.7	1	5	16	15.38	26.0
SMAJ17A	SMAJ17CA	AJ17A	AJ17CA	18.9	20.9	1	5	17	14.49	27.6
SMAJ18A	SMAJ18CA	AJ18A	AJ18CA	20.0	22.1	1	5	18	13.7	29.2
SMAJ19A	SMAJ19CA	AJ19A	AJ19CA	21.1	23.3	1	5	19	13.0	30.8
SMAJ20A	SMAJ20CA	AJ20A	AJ20CA	22.2	24.5	1	5	20	12.3	32.4
SMAJ22A	SMAJ22CA	AJ22A	AJ22CA	24.4	26.9	1	5	22	11.27	35.5
SMAJ24A	SMAJ24CA	AJ24A	AJ24CA	26.7	29.5	1	5	24	10.28	38.9
SMAJ26A	SMAJ26CA	AJ26A	AJ26CA	28.9	31.9	1	5	26	9.5	42.1
SMAJ28A	SMAJ28CA	AJ28A	AJ28CA	31.1	34.4	1	5	28	8.81	45.4
SMAJ30A	SMAJ30CA	AJ30A	AJ30CA	33.3	36.8	1	5	30	8.26	48.4
SMAJ33A	SMAJ33CA	AJ33A	AJ33CA	36.7	40.6	1	5	33	7.5	53.3
SMAJ36A	SMAJ36CA	AJ36A	AJ36CA	40.0	44.2	1	5	36	6.88	58.1
SMAJ40A	SMAJ40CA	AJ40A	AJ40CA	44.4	49.1	1	5	40	6.2	64.5
SMAJ43A	SMAJ43CA	AJ43A	AJ43CA	47.8	52.8	1	5	43	5.76	69.4
SMAJ45A	SMAJ45CA	AJ45A	AJ45CA	50.0	55.3	1	5	45	5.5	72.7
SMAJ48A	SMAJ48CA	AJ48A	AJ48CA	53.3	58.9	1	5	48	5.17	77.4
SMAJ51A	SMAJ51CA	AJ51A	AJ51CA	56.7	62.7	1	5	51	4.85	82.4

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Part Number		Marking Code		Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R@ V_{RWM}	Working Peak Reverse Voltage	Maximum Reverse Surge Current	Maximum Clamping Voltage V_C @I_{PP}
Directional		Directional		Min	Max	I_T	I_{PP}	V_C	I_{PP}	V_C
Uni	Bi	Uni	Bi	V	V	mA	μA	V	A	V
SMAJ54A	SMAJ54CA	AJ54A	AJ54CA	60.0	66.3	1	5	54	4.59	87.1
SMAJ58A	SMAJ58CA	AJ58A	AJ58CA	64.4	71.2	1	5	58	4.27	93.6
SMAJ60A	SMAJ60CA	AJ60A	AJ60CA	66.7	73.7	1	5	60	4.13	96.8
SMAJ64A	SMAJ64CA	AJ64A	AJ64CA	71.1	78.6	1	5	64	3.88	103.0
SMAJ70A	SMAJ70CA	AJ70A	AJ70CA	77.8	86.0	1	5	70	3.54	113.0
SMAJ75A	SMAJ75CA	AJ75A	AJ75CA	83.3	92.1	1	5	75	3.31	121.0
SMAJ78A	SMAJ78CA	AJ78A	AJ78CA	86.7	95.8	1	5	78	3.17	126.0
SMAJ80A	SMAJ80CA	AJ80A	AJ80CA	88.8	97.6	1	5	80	3.09	129.6
SMAJ85A	SMAJ85CA	AJ85A	AJ85CA	94.4	104	1	5	85	2.92	137.0
SMAJ90A	SMAJ90CA	AJ90A	AJ90CA	100	111	1	5	90	2.74	146.0
SMAJ100A	SMAJ100CA	AJ100A	AJ100CA	111	123	1	5	100	2.47	162.0
SMAJ110A	SMAJ110CA	AJ110A	AJ110CA	122	135	1	5	110	2.26	177.0
SMAJ120A	SMAJ120CA	AJ120A	AJ120CA	133	147	1	5	120	2.07	193.0
SMAJ130A	SMAJ130CA	AJ130A	AJ130CA	144	159	1	5	130	1.91	209.0
SMAJ140A	SMAJ140CA	AJ140A	AJ140CA	155	171	1	5	140	1.76	227.0
SMAJ150A	SMAJ150CA	AJ150A	AJ150CA	167	185	1	5	150	1.65	243.0
SMAJ160A	SMAJ160CA	AJ160A	AJ160CA	178	197	1	5	160	1.54	259.0
SMAJ170A	SMAJ170CA	AJ170A	AJ170CA	189	209	1	5	170	1.45	275.0
SMAJ180A	SMAJ180CA	AJ180A	AJ180CA	200	220	1	5	180	1.37	292.0
SMAJ190A	SMAJ190CA	AJ190A	AJ190CA	211	232	1	5	190	1.3	308.0
SMAJ200A	SMAJ200CA	AJ200A	AJ200CA	224	247	1	5	200	1.23	324.0
SMAJ220A	SMAJ220CA	AJ220A	AJ220CA	246	272	1	5	220	1.12	356.0
SMAJ250A	SMAJ250CA	AJ250A	AJ250CA	279	309	1	5	250	0.99	405.0
SMAJ300A	SMAJ300CA	AJ300A	AJ300CA	335	371	1	5	300	0.82	486.0
SMAJ350A	SMAJ350CA	AJ350A	AJ350CA	391	432	1	5	350	0.71	567.0
SMAJ400A	SMAJ400CA	AJ400A	AJ400CA	447	494	1	5	400	0.62	648.0
SMAJ440A	SMAJ440CA	AJ440A	AJ440CA	492	543	1	5	440	0.56	713.0

Notes：

1. Suffix 'A' denotes 5% tolerance device.
2. For Bidirectional devices, CA suffix is added.
3. For Bidirectional devices having 10 volts and under V_R, the I_R limit is double.

CHARACTERISTICS CURVE

Fig. 1 - Pulse Derating Curve

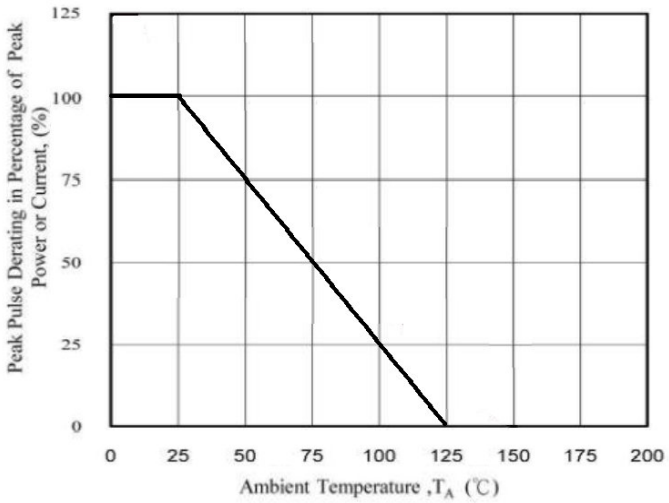

Fig. 2 - Maximum Non-Repetitive Surge Current

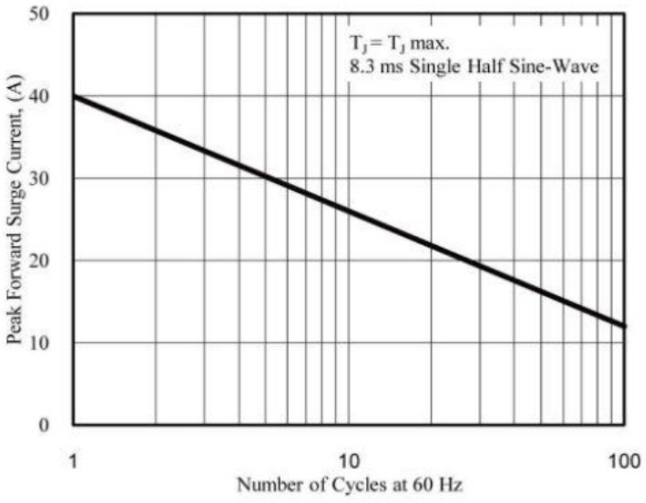

Fig. 3 - Steady State Power Derating Curve

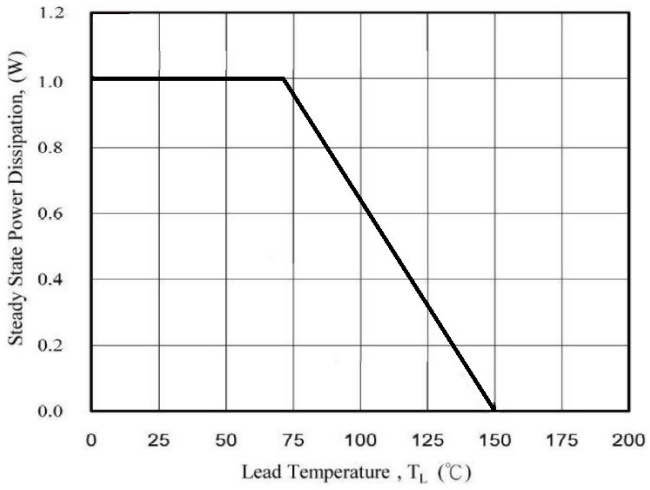

Fig. 4 - Peak Pulse Power Rating Curve

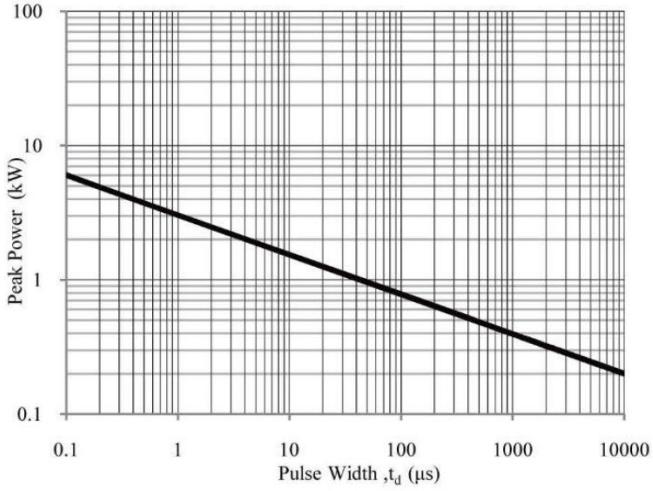

Fig. 5 - Pulse Waveform

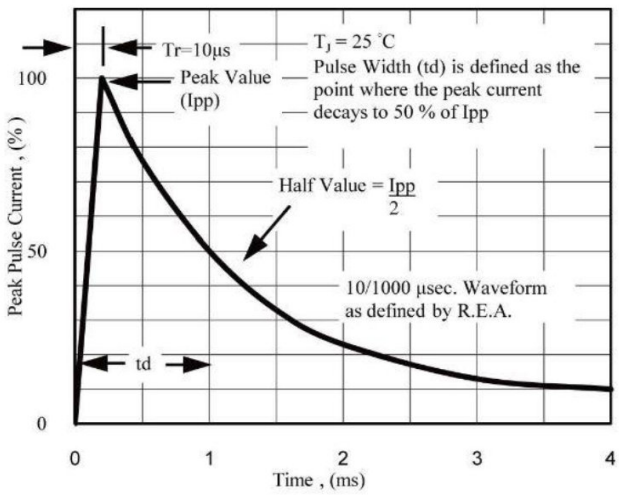
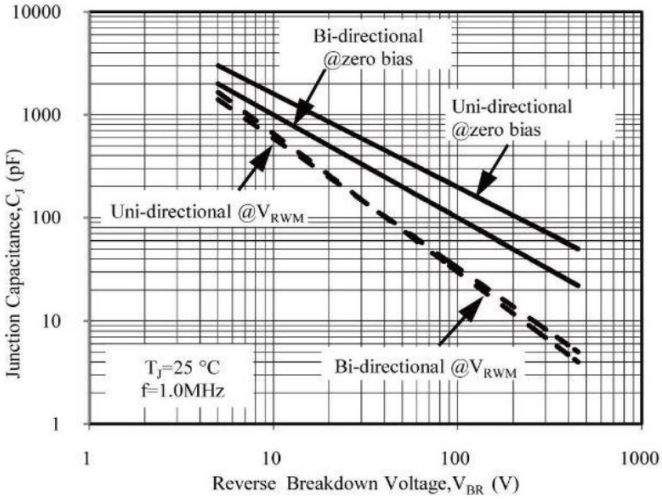
Fig. 6 - Typical juncition Capacitance