

SMA SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODES

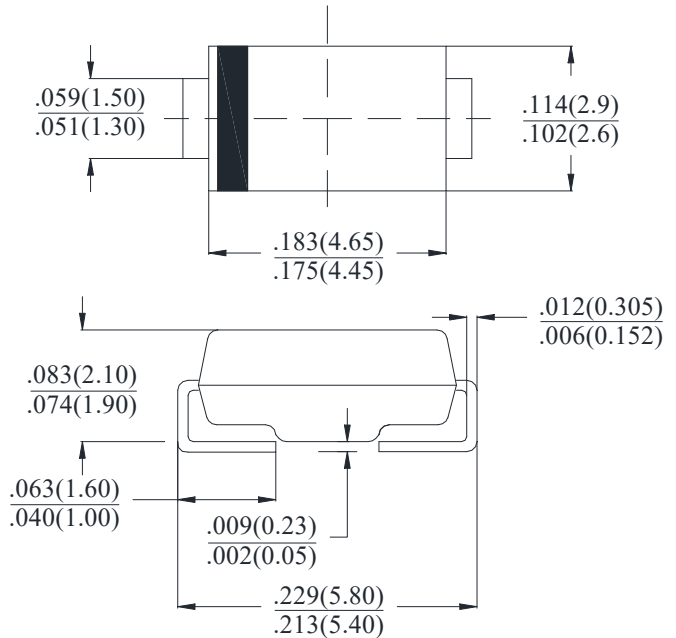
FEATURE

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction
- 400W surge capability at 10/1000us waveform, Duty cycle:0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: Typically less than 1.0ps from 0 volts to BV min.
- Typical IR less than 1 μ A above 13V
- High temperature soldering guaranteed: 260°C/10 seconds at terminals.

MECHANICAL DATA

- Case: SMA, Transfer Molded Epoxy
- Epoxy: UL94V-0 rate flame retardant
- Terminals: MIL-STD- 202E, Method 208 guaranteed
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Mounting position: Any

SMA(DO-214AC)



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise stated.

Single-phase, half-wave, 60HZ, resistive or inductive load. For capacitive load, derate current by 20%

Type Number	SYM BOL	Value	units
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (Note 1)	P_{PPM}	Minimum 400	Watts
Peak Pulse Current of on 10/1000us waveform. (Note1, Fig.3)	I_{PPM}	See Table	Amps
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (note 2)	P_D	1.0	Watts
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3)	I_{FSM}	40	Amps
Storage Temperature	T_{STG}	-55 to +150	°C
Operating Junction Temperature	T_J	-55 to +150	°C

Note:

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 $0.2 \times 0.2''$ ($5 \times 5\text{mm}$) Per Fig.5 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types SMAJ5.0 thru Types SMAJ250.
2. Electrical Characteristics Apply in Both Directions.

ELECTRICAL CHARACTERISTICS(TA=25°C unless otherwise noted)

Device		Reverse Stand-Off Voltage	Breakdown Voltage VBR(volts)@IT		Test Current	Maximum Reverse Leakage @VR	Maximum Peak Pulse Current	Maximum Clamping Voltage @IPP
UNI	BI	VR(V)	VBL(V)	VBH(V)	IT(mA)	IR(μA)	IPP(A)	VCH(V)
SMAJ 5.0A	SMAJ 5.0CA	5.0	6.40	7.00	10	800	43.38	9.2
SMAJ 6.0A	SMAJ 6.0CA	6.0	6.67	7.37	10	800	38.83	10.3
SMAJ 6.5A	SMAJ 6.5CA	6.5	7.22	7.98	10	500	35.71	11.2
SMAJ 7.0A	SMAJ 7.0CA	7.0	7.78	8.60	10	200	33.33	12
SMAJ 7.5A	SMAJ 7.5CA	7.5	8.33	9.21	1.0	100	31.01	12.9
SMAJ 8.0A	SMAJ 8.0CA	8.0	8.89	9.83	1.0	50.0	29.41	13.6
SMAJ 8.5A	SMAJ 8.5CA	8.5	9.44	10.4	1.0	20.0	27.78	14.4
SMAJ 9.0A	SMAJ 9.0CA	9.0	10.0	11.1	1.0	10.0	25.97	15.4
SMAJ 10A	SMAJ 10CA	10	11.1	12.3	1.0	5.0	23.53	17
SMAJ 11A	SMAJ 11CA	11	12.2	13.5	1.0	1.0	21.98	18.2
SMAJ 12A	SMAJ 12CA	12	13.3	14.7	1.0	1.0	20.1	19.9
SMAJ 13A	SMAJ 13CA	13	14.4	15.9	1.0	1.0	18.6	21.5
SMAJ 14A	SMAJ 14CA	14	15.6	17.2	1.0	1.0	17.24	23.2
SMAJ 15A	SMAJ 15CA	15	16.7	18.5	1.0	1.0	16.39	24.4
SMAJ 16A	SMAJ 16CA	16	17.8	19.7	1.0	1.0	15.4	26
SMAJ 17A	SMAJ 17CA	17	18.9	20.9	1.0	1.0	14.49	27.6
SMAJ 18A	SMAJ 18CA	18	20.0	22.1	1.0	1.0	13.7	29.2
SMAJ 20A	SMAJ 20CA	20	22.2	24.5	1.0	1.0	12.35	32.4
SMAJ 22A	SMAJ 22CA	22	24.4	26.9	1.0	1.0	11.27	35.5
SMAJ 24A	SMAJ 24CA	24	26.7	29.5	1.0	1.0	10.28	38.9
SMAJ 26A	SMAJ 26CA	26	28.9	31.9	1.0	1.0	9.5	42.1
SMAJ 28A	SMAJ 28CA	28	31.1	34.4	1.0	1.0	8.81	45.4
SMAJ 30A	SMAJ 30CA	30	33.3	36.8	1.0	1.0	8.26	48.4
SMAJ 33A	SMAJ 33CA	33	36.7	40.6	1.0	1.0	7.5	53.3
SMAJ 36A	SMAJ 36CA	36	40.0	44.2	1.0	1.0	6.88	58.1
SMAJ 40A	SMAJ 40CA	40	44.4	49.1	1.0	1.0	6.2	64.5
SMAJ 43A	SMAJ 43CA	43	47.8	52.8	1.0	1.0	5.76	69.4
SMAJ 45A	SMAJ 45CA	45	50.0	55.3	1.0	1.0	5.5	72.7
SMAJ 48A	SMAJ 48CA	48	53.3	58.9	1.0	1.0	5.17	77.4
SMAJ 51A	SMAJ 51CA	51	56.7	62.7	1.0	1.0	4.85	82.4

SMAJ 54A	SMAJ 54CA	54	60.0	66.3	1.0	1.0	4.59	87.1
SMAJ 58A	SMAJ 58CA	58	64.4	71.2	1.0	1.0	4.27	93.6
SMAJ 60A	SMAJ 60CA	60	66.7	73.7	1.0	1.0	4.13	96.8
SMAJ 64A	SMAJ 64CA	64	71.1	78.6	1.0	1.0	3.88	103
SMAJ 70A	SMAJ 70CA	70	77.8	86.0	1.0	1.0	3.54	113
SMAJ 75A	SMAJ 75CA	75	83.3	92.1	1.0	1.0	3.31	121
SMAJ 78A	SMAJ 78CA	78	86.7	95.8	1.0	1.0	3.17	126
SMAJ 85A	SMAJ 85CA	85	94.4	104	1.0	1.0	2.92	137
SMAJ 90A	SMAJ 90CA	90	100	111	1.0	1.0	2.74	146
SMAJ 100A	SMAJ 100CA	100	111	123	1.0	1.0	2.47	162
SMAJ 110A	SMAJ 110CA	110	122	135	1.0	1.0	2.26	177
SMAJ 120A	SMAJ 120CA	120	133	147	1.0	1.0	2.07	193
SMAJ 130A	SMAJ 130CA	130	144	159	1.0	1.0	1.91	209
SMAJ 150A	SMAJ 150CA	150	167	185	1.0	1.0	1.65	243
SMAJ 160A	SMAJ 160CA	160	178	197	1.0	1.0	1.54	259
SMAJ 170A	SMAJ 170CA	170	189	209	1.0	1.0	1.45	275
SMAJ 180A	SMAJ 180CA	180	201	222	1.0	1.0	1.37	291.6
SMAJ 200A	SMAJ 200CA	200	224	247	1.0	1.0	1.23	324
SMAJ 220A	SMAJ 220CA	220	246	272	1.0	1.0	1.12	356
SMAJ 250A	SMAJ 250CA	250	268	300	1.0	1.0	0.99	405
SMAJ300A	SMAJ300CA	300	335	371	1.0	1.0	0.82	486
SMAJ350A	SMAJ350CA	350	391	432	1.0	1.0	0.71	567
SMAJ400A	SMAJ400CA	400	447	494	1.0	1.0	0.62	648
SMAJ440A	SMAJ440CA	440	492	543	1.0	1.0	0.56	713

Note:

1. VBR measured after IT applied for 300us, IT=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. All terms and symbols are consistent with ANSI/IEEE C62.35.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER RATING CURVE

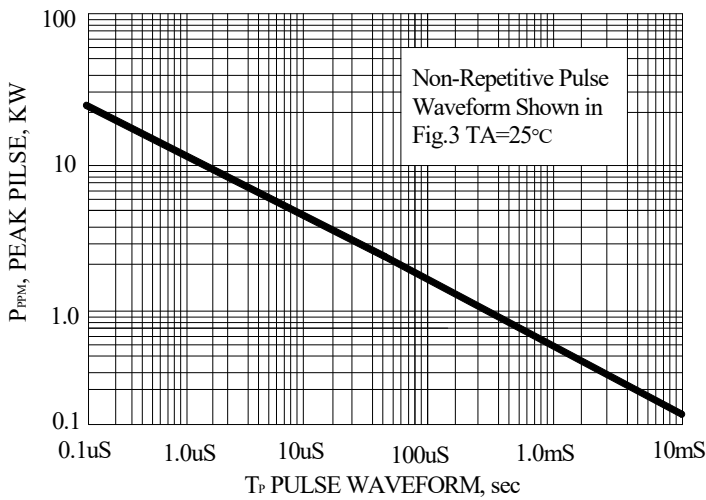


FIG.2-PULSE DERATING CURVE

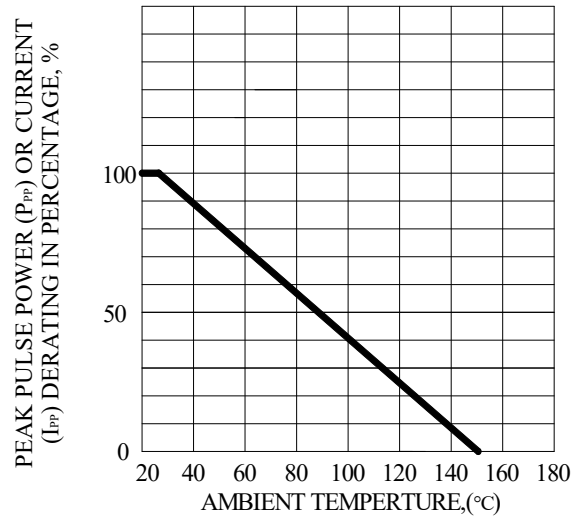


FIG.3-PULSE WAVEFORM

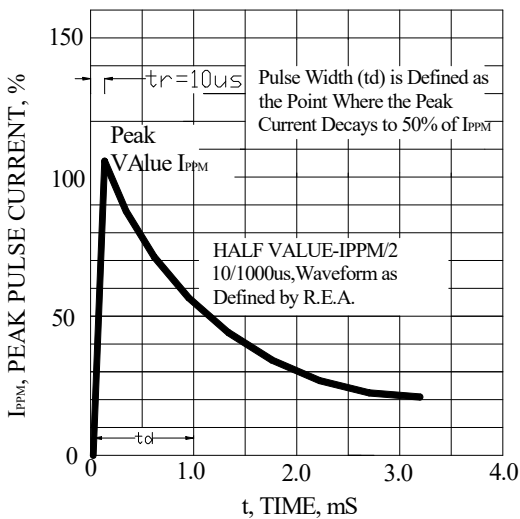


FIG.4- TYPICAL JUNCTION CAPACITANCE

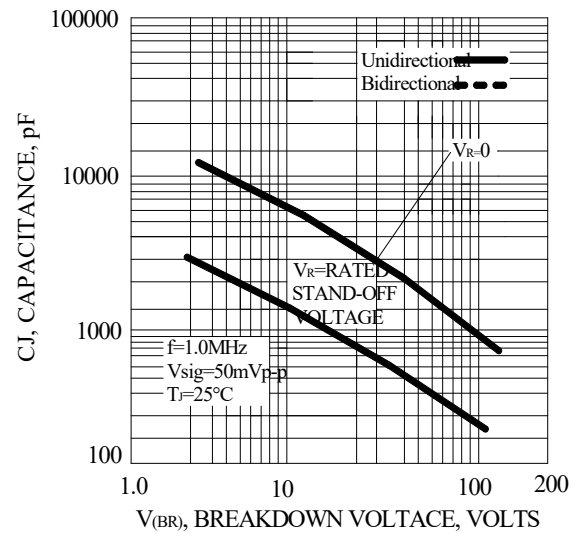


FIG.5- STEADY STATE POWER DERATING CURVE

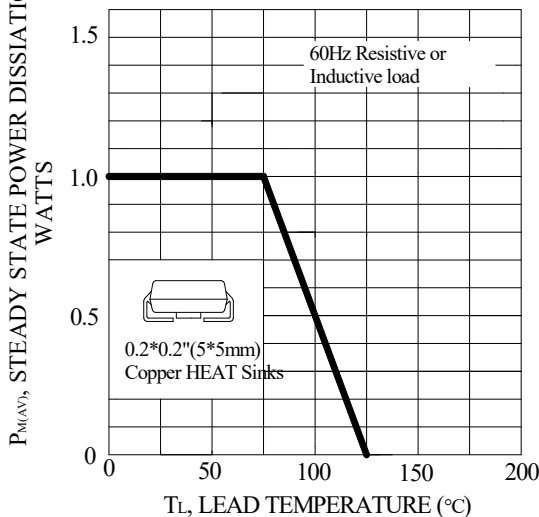
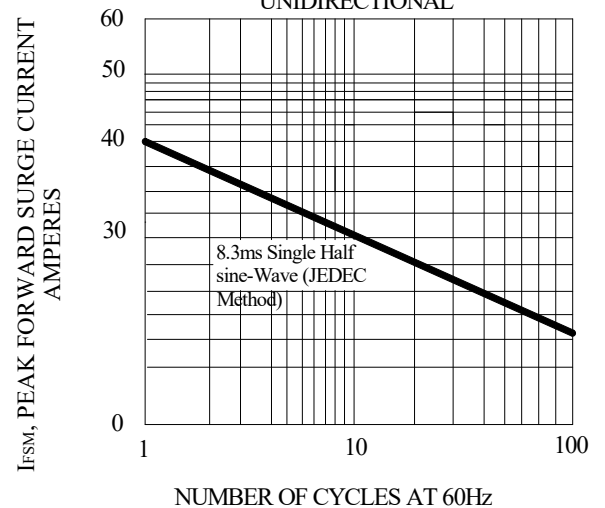
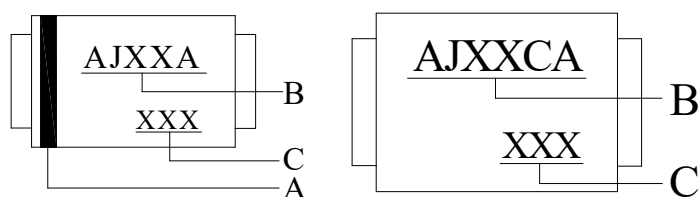


FIG.6- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



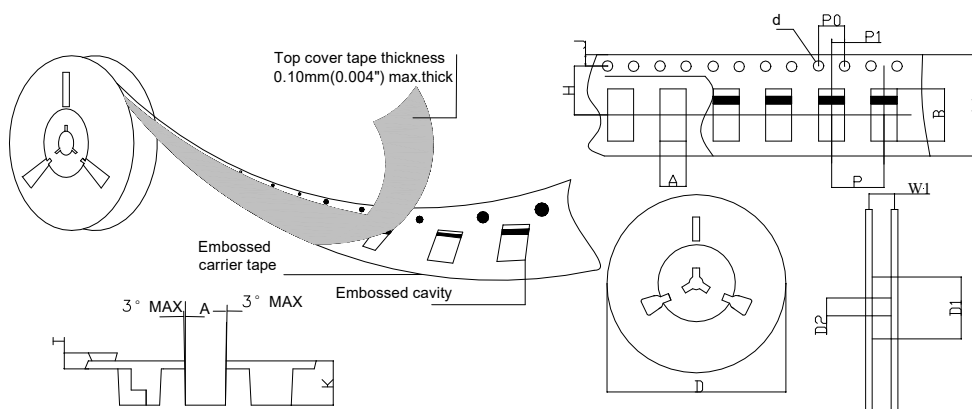
Marking and packaging illustration

1、Marking



SYMBOL	Explanation
A	Color Band Denotes Cathode
B	Product name
C	Date Code

2、Packaging



SPECIFICATIONS mm(inch)		PACKAGE	SPECIFICATIONS mm(inch)		PACKAGE
ITEM	SYM BOL	SMA (DO-214AC)	ITEM	SYM BOL	SMA (DO-214AC)
Carrier width	A	3.17(0.125)Max	Carrier depth	K	2.42(0.095)Typ
Carrier length	B	5.81(0.229)Max	Punch hole pitch	P	4.00(0.157)Typ
Sprocket hole	d	ø1.55(0.061)Typ	Sprocket hole pitch	P0	4.00(0.157)Typ
Reel outer diameter	D	330.0(13)Typ	Embossment center	P1	2.00(0.079)Typ
Reel inner diameter	D1	50.0(1.969)Min	Overall tape thickness	T	0.30(0.012)Typ
Feed hole diameter	D2	13.0(0.512)Typ	Tape width	W	12.0(0.472)Typ
Sprocket hole position	J	1.75(0.069)Typ	Reel width	W1	12.4(0.488)Min
Punch hole position	H	5.55(0.219)Typ			