

# ASMAJ SERIES

## SURFACE MOUNT UNIDIRECTIONAL AND BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

## STAND-OFF VOLTAGE - 5.0 to 100 Volts POWER DISSIPATION - 400 Watts

### FEATURES



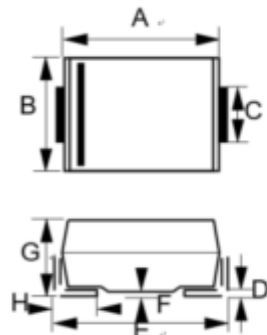
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- IR less than 0.5uA above 10V
- Fast response time: typically less than 1.0ns for Uni-direction less than 5.0ns for Bi-direction form 0 Volts to BV min
- Automotive grade
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ASMAJ SERIES are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

### MECHANICAL DATA

- Package: Molded plastic
- Package Material: Molding compound, UL Flammability classification 94V-0, (No Br. Sb. Cl.) "Halogen-free"
- Polarity: by cathode band denotes uni-directional device none cathode band denotes bi-directional device
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL STD-202, Method 208 (e3)
- Weight: 0.002 ounces, 0.064 gram (Approximate)

### SMA



SMA		
DIM.	MIN.	MAX.
A	4.06	4.57
B	2.29	2.92
C	1.27	1.63
D	0.15	0.31
E	4.83	5.59
F	0.05	0.20
G	1.96	2.40
H	0.76	1.52

All Dimensions in millimeter

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

### ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
PEAK POWER DISSIPATION AT TA = 25 °C , TP = 1ms (Note 4)	P <sub>PK</sub>	400	W
Peak Forward Surge Current 8.3ms single half sine-wave @ TJ = 25 °C (Note 5)	I <sub>FSM</sub>	40	A
Steady State Power Dissipation, with PCB	P <sub>M(AV)</sub>	1.0	W
Maximum Instantaneous forward voltage at 16A (Notes 5, 6)	V <sub>F</sub>	3.0	V
Operating Temperature Range	T <sub>J</sub>	-55 to +175	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +175	°C

#### Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Non-repetitive current pulse, per fig. 3 and derated above TA = 25 °C per fig.1.
5. For unidirectional units only.
6. VF max=3.0V at IF=16 A 300us square wave pulse. (for devices of VBR<100V)

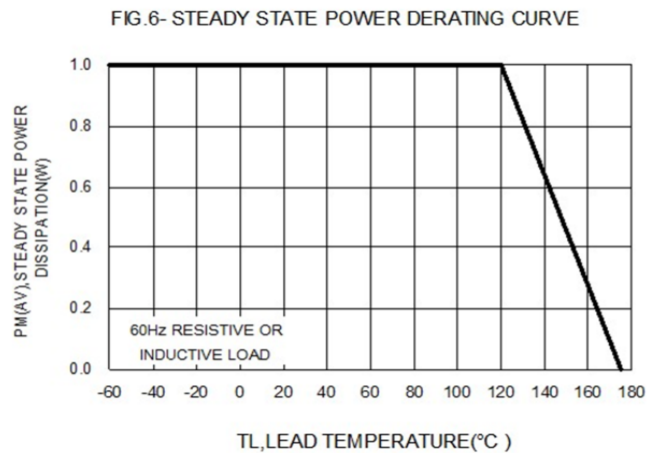
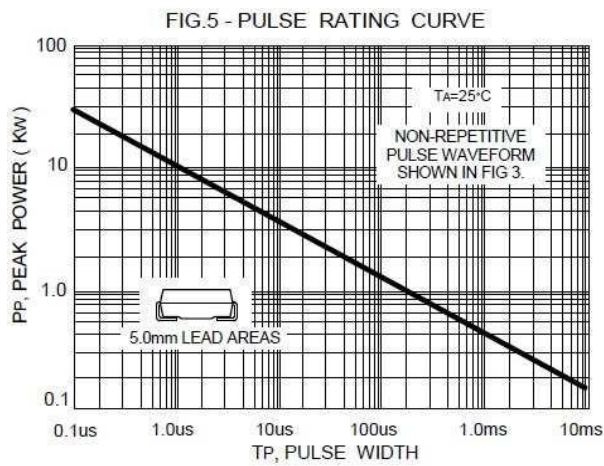
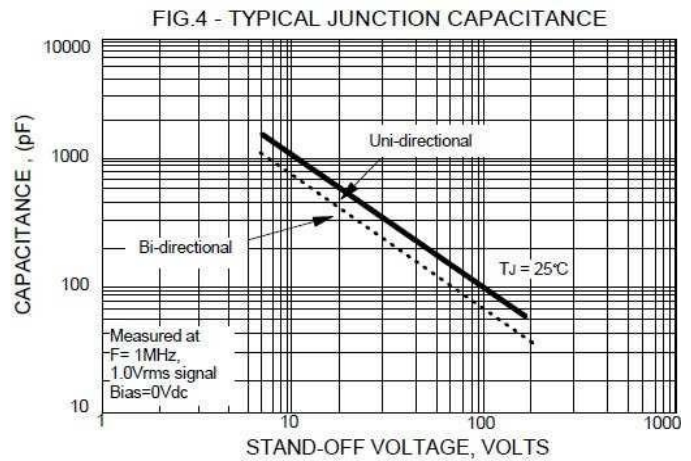
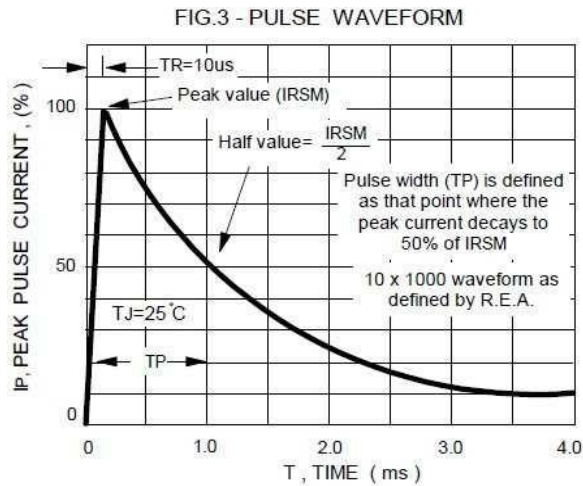
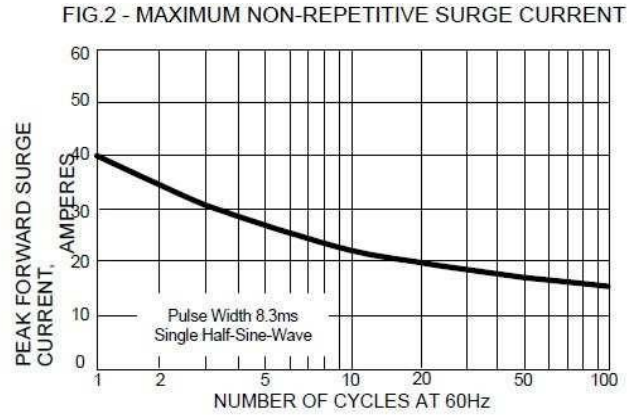
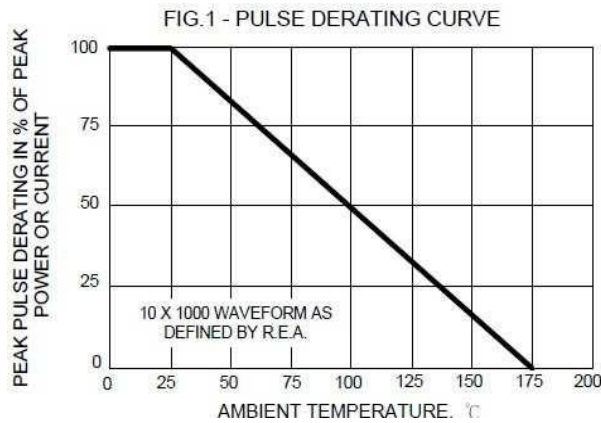
**ELECTRICAL CHARACTERISTICS**

Device Uni- Directional	Device Bi- Directional	Device Marking Code		Working Peak Reverse Voltage	Breakdown Voltage VBR Volts			Maximum Reverse Voltage at I <sub>RSM</sub> (Clamping Voltage)	Maximum Reverse Surge Current	Maximum Reverse Leakage at V <sub>RWM</sub>
		(UNI)	(BI)		V <sub>RWM</sub> (V)	Min (V)	Max (V)			
ASMAJ5.0A	ASMAJ5.0CA	AHE	ATE	5.0	6.40	7.07	10	9.2	43.5	800
ASMAJ6.0A	ASMAJ6.0CA	AHG	ATG	6.0	6.67	7.37	10	10.3	38.8	800
ASMAJ6.5A	ASMAJ6.5CA	AHK	ATK	6.5	7.22	7.98	10	11.2	35.7	500
ASMAJ7.0A	ASMAJ7.0CA	AHM	ATM	7.0	7.78	8.60	10	12.0	33.3	200
ASMAJ7.5A	ASMAJ7.5CA	AHP	ATP	7.5	8.33	9.21	1	12.9	31.0	100
ASMAJ8.0A	ASMAJ8.0CA	AHR	ATR	8.0	8.89	9.83	1	13.6	29.4	50
ASMAJ8.5A	ASMAJ8.5CA	AHT	ATT	8.5	9.44	10.43	1	14.4	27.7	10
ASMAJ9.0A	ASMAJ9.0CA	AHV	ATV	9.0	10.0	11.1	1	15.4	26.0	5
ASMAJ10A	ASMAJ10CA	AHX	ATX	10	11.1	12.3	1	17.0	23.5	5
ASMAJ11A	ASMAJ11CA	AHZ	ATZ	11	12.2	13.5	1	18.2	22.0	0.5
ASMAJ12A	ASMAJ12CA	AIE	AUE	12	13.3	14.7	1	19.9	20.1	0.5
ASMAJ13A	ASMAJ13CA	AIG	AUG	13	14.4	15.9	1	21.5	18.6	0.5
ASMAJ14A	ASMAJ14CA	AIK	AUK	14	15.6	17.2	1	23.2	17.2	0.5
ASMAJ15A	ASMAJ15CA	AIM	AUM	15	16.7	18.5	1	24.4	16.4	0.5
ASMAJ16A	ASMAJ16CA	AIP	AUP	16	17.8	19.7	1	26.0	15.3	0.5
ASMAJ17A	ASMAJ17CA	AIR	AUR	17	18.9	20.9	1	27.6	14.5	0.5
ASMAJ18A	ASMAJ18CA	AIT	AUT	18	20.0	22.1	1	29.2	13.7	0.5
ASMAJ20A	ASMAJ20CA	AIV	AUV	20	22.2	24.5	1	32.4	12.3	0.5
ASMAJ22A	ASMAJ22CA	AIX	AUX	22	24.4	27.0	1	35.5	11.2	0.5
ASMAJ24A	ASMAJ24CA	AIZ	AUZ	24	26.7	29.5	1	38.9	10.3	0.5
ASMAJ26A	ASMAJ26CA	AJE	AVE	26	28.9	31.9	1	42.1	9.5	0.5
ASMAJ28A	ASMAJ28CA	AJG	AVG	28	31.1	34.4	1	45.4	8.8	0.5
ASMAJ30A	ASMAJ30CA	AJK	AVK	30	33.3	36.8	1	48.4	8.3	0.5
ASMAJ33A	ASMAJ33CA	AJM	AVM	33	36.7	40.6	1	53.3	7.5	0.5
ASMAJ36A	ASMAJ36CA	AJP	AVP	36	40.0	44.2	1	58.1	6.9	0.5
ASMAJ40A	ASMAJ40CA	AJR	AVR	40	44.4	49.1	1	64.5	6.2	0.5
ASMAJ43A	ASMAJ43CA	AJT	AVT	43	47.8	52.8	1	69.4	5.7	0.5
ASMAJ45A	ASMAJ45CA	AJV	AVV	45	50.0	55.3	1	72.7	5.5	0.5
ASMAJ48A	ASMAJ48CA	AJX	AVX	48	53.3	58.9	1	77.4	5.2	0.5
ASMAJ51A	ASMAJ51CA	AJZ	AVZ	51	56.7	62.7	1	82.4	4.9	0.5
ASMAJ54A	ASMAJ54CA	ARE	AWE	54	60.0	66.3	1	87.1	4.6	0.5
ASMAJ58A	ASMAJ58CA	ARG	AWG	58	64.4	71.2	1	93.6	4.3	0.5
ASMAJ60A	ASMAJ60CA	ARK	AWK	60	66.7	73.7	1	96.8	4.1	0.5
ASMAJ64A	ASMAJ64CA	ARM	AWM	64	71.1	78.6	1	103	3.9	0.5
ASMAJ70A	ASMAJ70CA	ARP	AWP	70	77.8	86.0	1	113	3.5	0.5
ASMAJ75A	ASMAJ75CA	ARR	AWR	75	83.3	92.1	1	121	3.3	0.5
ASMAJ78A	ASMAJ78CA	ART	AWT	78	86.7	95.8	1	126	3.2	0.5
ASMAJ85A	ASMAJ85CA	ARV	AWV	85	94.4	104	1	137	2.9	0.5
ASMAJ90A	ASMAJ90CA	ARX	AWX	90	100	111	1	146	2.7	0.5
ASMAJ100A	ASMAJ100CA	ARZ	AWZ	100	111	123	1	162	2.5	0.5

**Notes:**

- Suffix 'A' denotes 5% tolerance device.
- 1.) Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
- 2.) The IR limit is double for Bi-Directional devices.

**RATING AND CHARACTERISTIC CURVES  
ASMAJ SERIES**



### Ordering Information :

Part Number	Package	Packing	
		Qty.	Carrier
ASMAJ SERIES	SMA	5000pcs	Reel

### Marking Information :



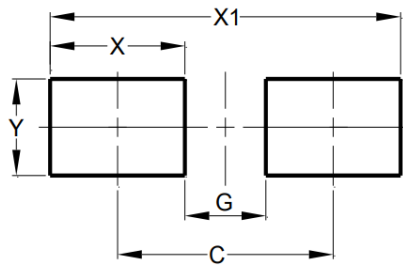
XXXX : Assembly Tracing code  
ZZZ : Product Type Marking code  
Bar Denotes Cathode Side

### Packaging Information :

DEVICE	Q'TY/REEL (PCS)	REEL DIA. (INCH)	Q'TY/BOX (PCS)	Q'TY/CARTON (PCS)
ASMAJXXA ASMAJXXCA	5000	13	10K	80K

### Suggested Pad Layout :

SMA



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

**Note:** The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application. These dimensions may be modified based on user equipment capability or fabrication criteria. A more robust pattern may be desired for wave soldering and is calculated by adding 0.2 mm to the 'Z' dimension. For further information, please reference document IPC-7351A, Naming Convention for Standard SMT Land Patterns, and for International grid details, please see document IEC, Publication 97.

**Note:** For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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