

APSM AJ SERIES

SURFACE MOUNT UNIDIRECTIONAL AND BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

STAND-OFF VOLTAGE – 6.8 to 120 Volts POWER DISSIPATION - 400 Watts

FEATURES

- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- Glass Passivation used, IR less than 0.5uA above 11V
- Fast response time: typically less than 1.0ns for Uni-direction less than 5.0ns for Bi-direction form 0 Volts to BV min
- RoHS compliant
- AEC-Q101 qualified
- PPAP capable
- Automotive grade
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.**
<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 TJ = 25 °C , TP = 1ms (Note 4)	P _{PK}	400	W
Peak Forward Surge Current 8.3ms single half sine-wave @ TJ = 25 °C (Note 5)	I _{FSM}	40	A
Steady State Power Dissipation, with PCB	P _{M(AV)}	1.0	W
Maximum Instantaneous forward voltage at 16A (Notes 5, 6)	V _F	3.0	V
Operating Temperature Range	T _J	-55 to +175	°C
Storage Temperature Range	T _{STG}	-55 to +175	°C

- Notes:**
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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. Only for uni-directional units.
 6. V_F max=3V at I_F=16A 300us square wave pulse.

ELECTRICAL CHARACTERISTICS

Device Uni- Directional	Device Bi- Directional	Device Marking Code		Reverse Standoff Voltage	Breakdown Voltage VBR Volts			Max. Peak Pulse Current	Max. Clamping Voltage @Ipp	Max. Peak Pulse Current
		(UNI)	(BI)		Min (V)	Max (V)	It (mA)			
APSM AJ6.8A	APSM AJ6.8CA	A6V8A	A6V8C	5.8	6.45	7.13	10	10.5	38.1	1000
APSM AJ7.5A	APSM AJ7.5CA	A7V5A	A7V5C	6.4	7.13	7.88	10	11.3	35.4	500
APSM AJ8.2A	APSM AJ8.2CA	A8V2A	A8V2C	7.0	7.79	8.61	10	12.1	33.1	200
APSM AJ9.1A	APSM AJ9.1CA	A9V1A	A9V1C	7.8	8.65	9.56	1.0	13.4	29.9	50
APSM AJ10A	APSM AJ10CA	A10A	A10C	8.6	9.50	10.5	1.0	14.5	27.6	10
APSM AJ11A	APSM AJ11CA	A11A	A11C	9.4	10.5	11.6	1.0	15.6	25.6	5
APSM AJ12A	APSM AJ12CA	A12A	A12C	10.	11.4	12.6	1.0	16.7	24.0	0.5
APSM AJ13A	APSM AJ13CA	A13A	A13C	11.	12.4	13.7	1.0	18.2	22.0	0.5
APSM AJ15A	APSM AJ15CA	A15A	A15C	12.8	14.3	15.8	1.0	21.2	18.9	0.5
APSM AJ16A	APSM AJ16CA	A16A	A16C	13.6	15.2	16.8	1.0	22.5	17.8	0.5
APSM AJ18A	APSM AJ18CA	A18A	A18C	15.3	17.1	18.9	1.0	25.2	15.9	0.5
APSM AJ20A	APSM AJ20CA	A20A	A20C	17.1	19.0	21.0	1.0	27.7	14.4	0.5
APSM AJ22A	APSM AJ22CA	A22A	A22C	18.8	20.9	23.1	1.0	30.6	13.1	0.5
APSM AJ24A	APSM AJ24CA	A24A	A24C	20.5	22.8	25.2	1.0	33.2	12.0	0.5
APSM AJ27A	APSM AJ27CA	A27A	A27C	23.1	25.7	28.4	1.0	37.5	10.7	0.5
APSM AJ30A	APSM AJ30CA	A30A	A30C	25.6	28.5	31.5	1.0	41.4	9.7	0.5
APSM AJ33A	APSM AJ33CA	A33A	A33C	28.2	31.4	34.7	1.0	45.7	8.8	0.5
APSM AJ36A	APSM AJ36CA	A36A	A36C	30.8	34.2	37.8	1.0	49.9	8.0	0.5
APSM AJ39A	APSM AJ39CA	A39A	A39C	33.3	37.1	41.0	1.0	53.9	7.4	0.5
APSM AJ43A	APSM AJ43CA	A43A	A43C	36.8	40.9	45.2	1.0	59.3	6.7	0.5
APSM AJ47A	APSM AJ47CA	A47A	A47C	40.2	44.7	49.4	1.0	64.8	6.2	0.5
APSM AJ51A	APSM AJ51CA	A51A	A51C	43.6	48.5	53.6	1.0	70.1	5.7	0.5
APSM AJ56A	APSM AJ56CA	A56A	A56C	47.8	53.2	58.8	1.0	77.0	5.2	0.5
APSM AJ62A	APSM AJ62CA	A62A	A62C	53.0	58.9	65.1	1.0	85.0	4.7	0.5
APSM AJ68A	APSM AJ68CA	A68A	A68C	58.1	64.6	71.4	1.0	92.0	4.3	0.5
APSM AJ75A	APSM AJ75CA	A75A	A75C	64.7	71.3	78.8	1.0	103.0	3.9	0.5
APSM AJ82A	APSM AJ82CA	A82A	A82C	70.1	77.9	86.1	1.0	113.0	3.5	0.5
APSM AJ91A	APSM AJ91CA	A91A	A91C	77.8	86.5	95.6	1.0	125.0	3.2	0.5
APSM AJ100A	APSM AJ100CA	A100A	A100C	85.5	95.0	105.0	1.0	137.0	2.9	0.5
APSM AJ110A	APSM AJ110CA	A110A	A110C	94.0	105.0	116.1	1.0	152.0	2.6	0.5
APSM AJ120A	APSM AJ120CA	A120A	A120C	102.0	114.0	126.0	1.0	165.0	2.4	0.5

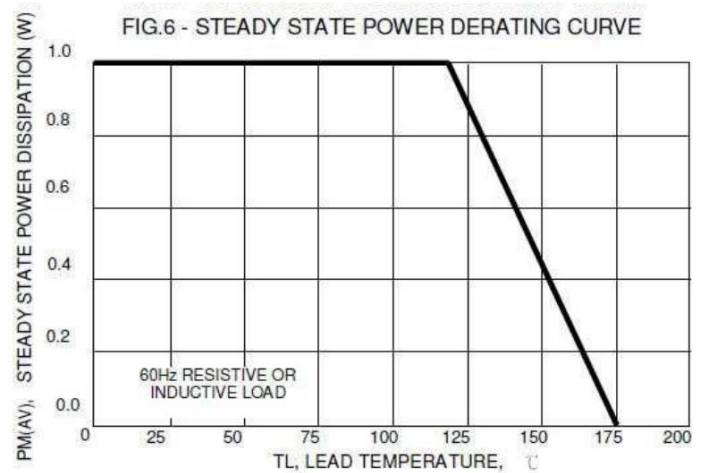
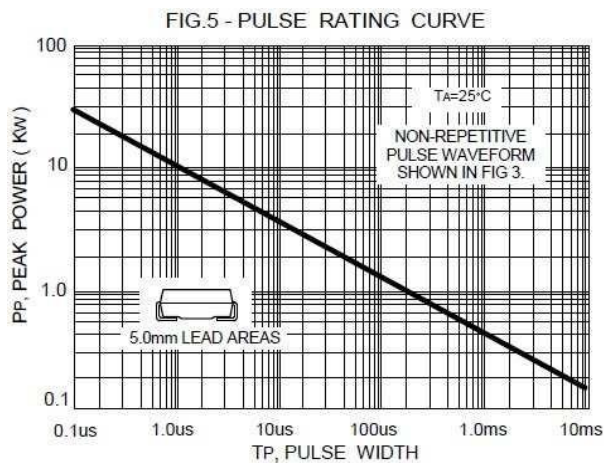
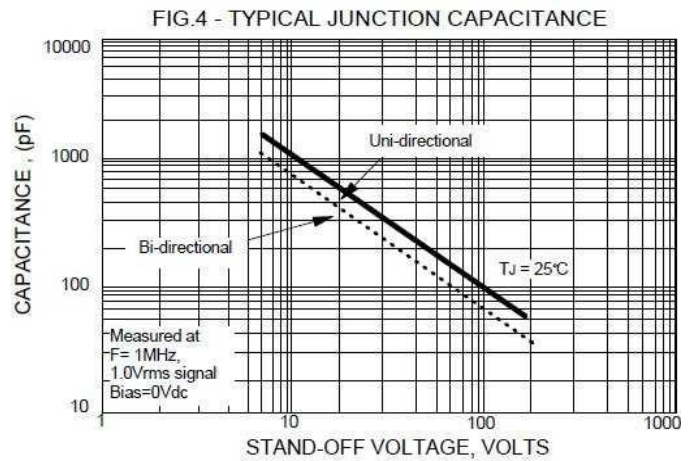
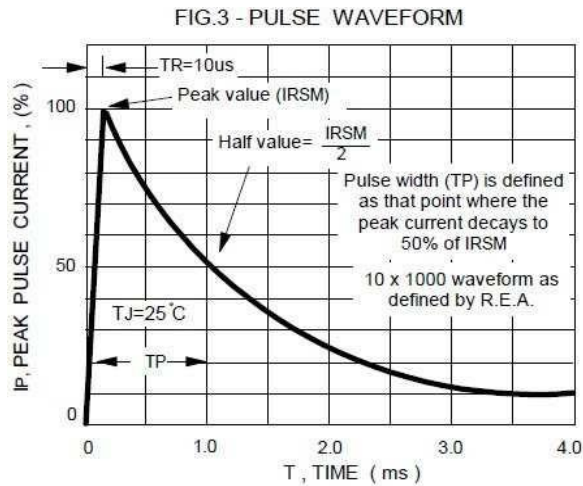
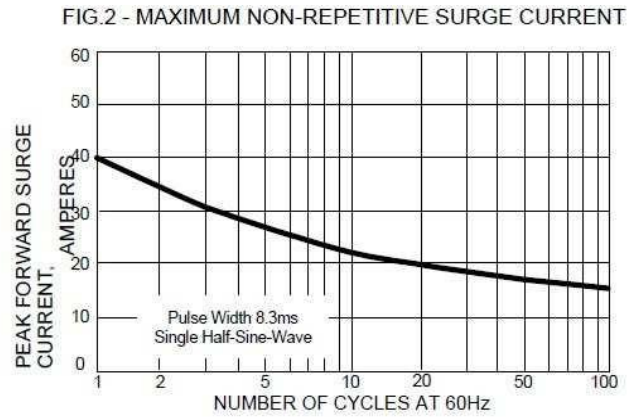
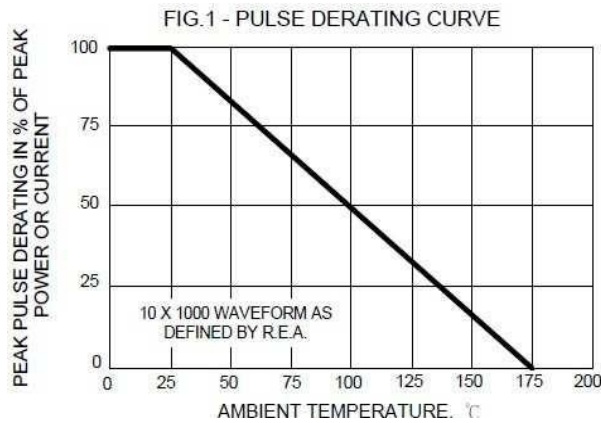
Notes:

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.

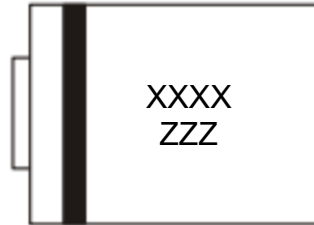
**RATING AND CHARACTERISTIC CURVES
APSM AJ SERIES**



Ordering Information :

Orderable Part Number	Package	Packing	
		Qty.	Carrier
AP SMAJ SERIES	SMA	5000pcs	Reel

Marking Information :



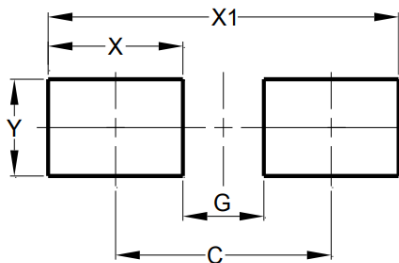
XXXX : Assembly Tracing Code
ZZZ : Product Type Marking Code
Bar Denotes Cathode Side

Packaging Information :

DEVICE	Q'TY/REEL (PCS)	REEL DIA. (INCH)	Q'TY/BOX (PCS)	Q'TY/CARTON (PCS)
AP SMAJXXA AP SMAJXXCA	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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