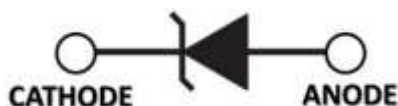


400 WATT PEAK POWER ZENER TRANSIENT VOLTAGE SUPPRESSORS

DESCRIPTION:



The 1ALPSAMJXXAT3G series is designed to protect voltage sensitive components from high voltage, high energy transients. They have excellent clamping capability, high surge capability, low Zener impedance and fast response time. The SMA series is supplied in ON Semiconductor's exclusive, cost-effective, highly reliable package and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer applications.



FEATURES:

- Working Peak Reverse Voltage Range – 5.0 V to 78 V
- Standard Zener Breakdown Voltage Range – 6.7 V to 91.25 V
- Peak Power – 400 W @ 1 ms
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- Response Time is Typically < 1 ns
- Flat Handling Surface for Accurate Placement
- Package Design for Top Side or Bottom Circuit Board Mounting
- Low Profile Package
- Pb-Free Packages are available
- RoHS Compliant
- REACH Compliant

APPLICATIONS:

- Communication Systems
- Automotive
- Numerical and Process controls
- Medical equipment
- Business machines
- Power supplies
- Industrial/consumer applications.



beyond boundaries...

1ALPSAMJXXAT3G

CASE 403D (SMA)

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Power Dissipation (Note 1) @ $T_L = 25^\circ\text{C}$, Pulse Width = 1 ms	P_{PK}	400	W
DC Power Dissipation @ $T_L = 75^\circ\text{C}$ Measured Zero Lead Length (Note 2) Derate Above 75°C	P_D	1.5	W
Thermal Resistance from Junction to Lead	$R_{\theta JL}$	20	$\text{mW}/^\circ\text{C}$
		50	$^\circ\text{C}/\text{W}$
DC Power Dissipation (Note 3) @ $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	0.5 4.0	W $\text{mW}/^\circ\text{C}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Forward Surge Current (Note 4) @ $T_A = 25^\circ\text{C}$	I_{FSM}	40	A
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.			
NOTE			
1. 10 X 1000 μs , non-repetitive.			
2. 1" square copper pad, FR-4 board.			
3. FR-4 board, using ON Semiconductor minimum recommended footprint, as shown in 403B case outline dimensions spec.			
4. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.			

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS (Note 6)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
		MIN	MAX				
1ALPSMA5.0AT3G	5.0	6.40	7.00	10	9.2	43.5	400
1ALPSMA6.0AT3G	6.0	6.67	7.37	10	10.3	38.8	400
1ALPSMA6.5AT3G	6.5	7.22	7.98	10	11.2	35.7	250
1ALPSMA7.0AT3G	7.0	7.78	8.60	10	12.0	33.3	250
1ALPSMA7.5AT3G	7.5	8.33	9.21	1	12.9	31.0	50
1ALPSMA8.0AT3G	8.0	8.89	9.83	1	13.6	29.4	25
1ALPSMA8.5AT3G	8.5	9.44	10.40	1	14.4	27.8	5.0
1ALPSMA9.0AT3G	9.0	10.00	11.10	1	15.4	26.0	2.5
1ALPSMA10AT3G	10.0	11.10	12.30	1	17.0	23.5	2.5
1ALPSMA11AT3G	11.0	12.20	13.50	1	18.2	22.0	2.5
1ALPSMA12AT3G	12.0	13.30	14.70	1	19.9	20.1	2.5
1ALPSMA13AT3G	13.0	14.40	15.90	1	21.5	18.6	2.5
1ALPSMA15AT3G	15.0	16.70	18.50	1	24.4	16.4	2.5
1ALPSMA16AT3G	16.0	17.80	19.70	1	26.0	15.4	2.5

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{DD} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
		MIN	MAX				
1ALPSMA17AT3G	17.0	18.90	20.90	1	27.6	14.5	2.5
1ALPSMA18AT3G	18.0	20.00	22.10	1	29.2	13.7	2.5
1ALPSMA20AT3G	20.0	22.20	24.50	1	32.4	12.3	2.5
1ALPSMA22AT3G	22.0	24.40	26.90	1	35.5	11.3	2.5
1ALPSMA24AT3G	24.0	26.70	29.50	1	38.9	10.3	2.5
1ALPSMA26AT3G	26.0	28.90	31.90	1	42.1	9.5	2.5
1ALPSMA28AT3G	28.0	31.10	34.40	1	45.4	8.8	2.5
1ALPSMA30AT3G	30.0	33.30	36.80	1	48.4	8.3	2.5
1ALPSMA33AT3G	33.0	36.70	40.60	1	53.3	7.5	2.5
1ALPSMA36AT3G	36.0	40.00	44.20	1	58.1	6.9	2.5
1ALPSMA40AT3G	40.0	44.40	49.10	1	64.5	6.2	2.5
1ALPSMA43AT3G	43.0	47.80	52.80	1	69.4	5.8	2.5
1ALPSMA45AT3G	45.0	50.00	55.30	1	72.2	5.5	2.5
1ALPSMA48AT3G	48.0	53.30	58.90	1	77.4	5.2	2.5
1ALPSMA51AT3G	51.0	56.70	62.70	1	82.4	4.9	2.5
1ALPSMA54AT3G	54.0	60.00	66.30	1	87.1	4.6	2.5
1ALPSMA58AT3G	58.0	64.40	71.50	1	93.6	4.3	2.5
1ALPSMA64AT3G	64.0	71.10	78.60	1	103.0	3.9	2.5
1ALPSMA70AT3G	70.0	77.80	86.00	1	113.0	3.5	2.5
1ALPSMA75AT3G	75.0	83.30	92.10	1	121.0	3.3	2.5

TYPICAL DEVICE CHARACTERISTICS CURVES

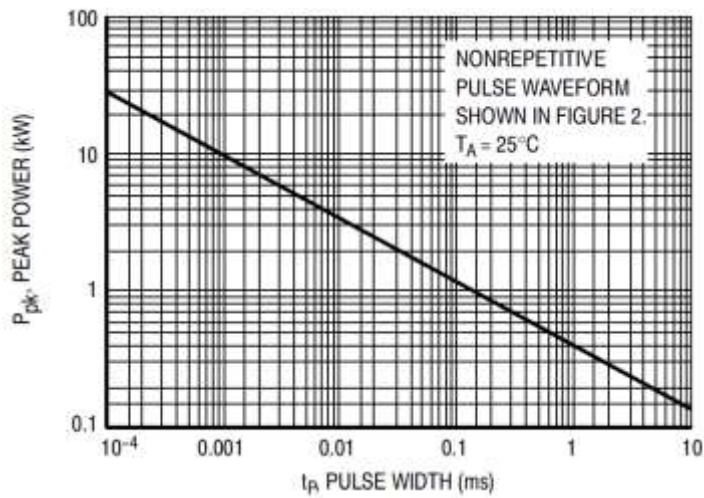


Fig1. PULSE RATING CURVE

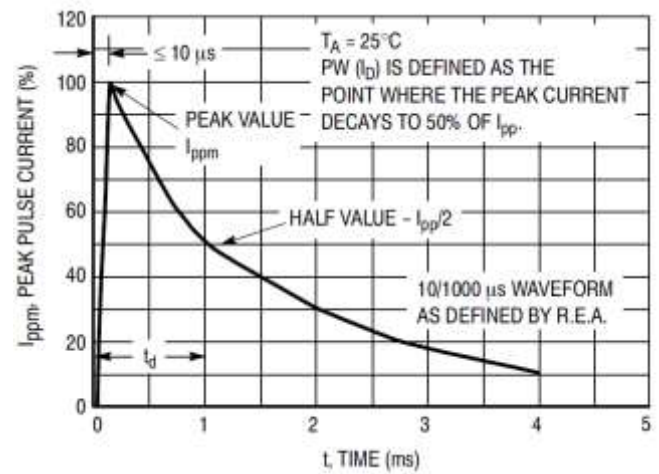


Fig2. PULSE WAVEFORM

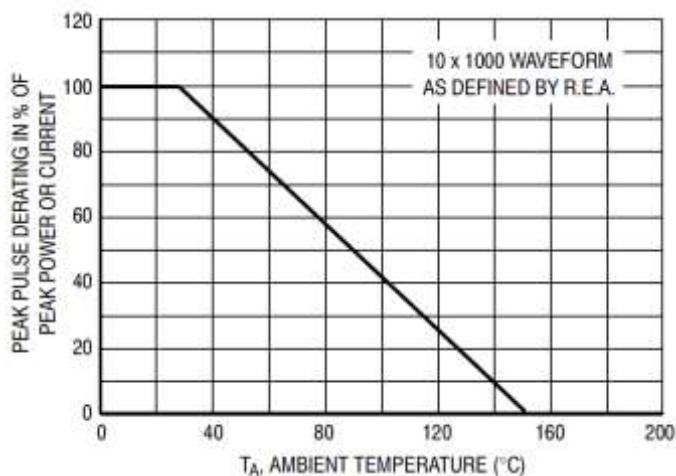


Fig3. POWER DERATING CURVE

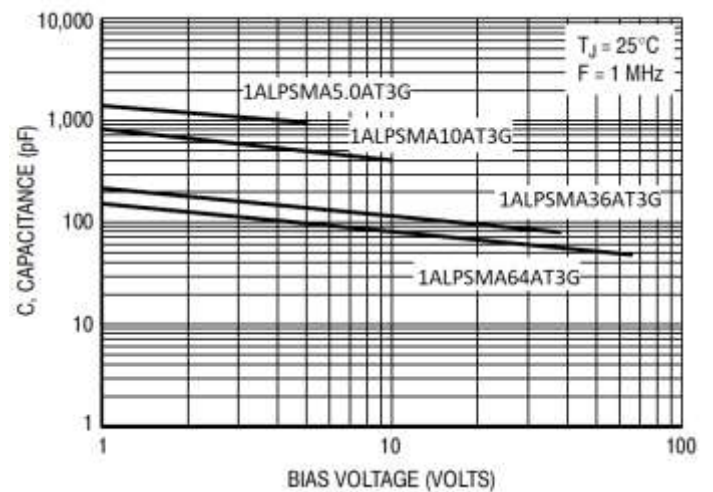


Fig4. TYPICAL JUNCTION CAPACITANCE vs BIAS VOLTAGE

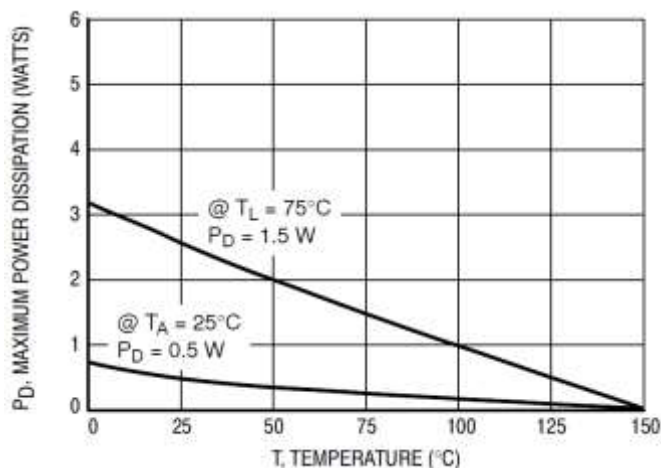
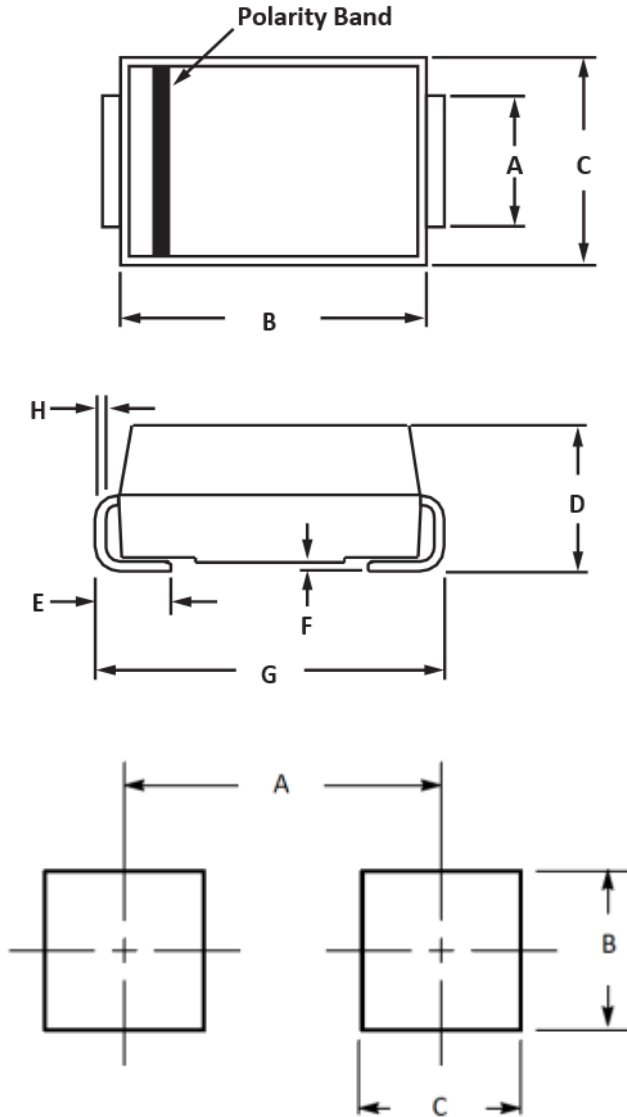


Fig5. STEADY STATE POWER DERATING

PACKAGE INFORMATION

CASE 403D (SMA)



OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.27	1.63	0.050	0.064
B	4.06	4.57	0.160	0.180
C	2.29	2.92	0.090	0.115
D	1.97	2.20	0.078	0.087
E	0.76	1.52	0.030	0.060
F	0.05	0.15	0.002	0.006
G	4.83	5.59	0.190	0.220
H	0.15	0.41	0.006	0.016

NOTES

- Dimensions are exclusive of mold flash and metal burrs.
- PIN 1: CATHODE (POLARITY BAND)
- PIN 2: ANODE

PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.0	-	0.157	-
B	2.0	-	0.0787	-
C	2.0	-	0.0787	-



beyond boundaries...

1ALPSAMJXXAT3G

CASE 403D (SMA)

CUSTOMER NOTE:

DISCLAIMER

The product information and the selection guide facilitates the selection of the ALPINESEMI™'s Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review the Data sheet(s) so as to confirm that the Device(s) meets functionality parameters for your application. The information furnished on the Data Sheet and the ALPINESEMI™'s Web Site is believed to be accurate and reliable at the time of preparation of this document. ALPINESEMI™ however, does not assume any inaccuracies that may arise when the components are mounted and removed. Furthermore, ALPINESEMI™ does not assume liability whatsoever, arising out of the application or the use of any of ALPINESEMI™'s product(s). Neither, does it convey any license under its patent rights nor the rights of others. These products are not guaranteed for use in life saving/support appliances or systems. ALPINESEMI™'s customers using these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and ALPINESEMI™ will not be responsible in any way(s) for any damage(s) resulting from such use.

Please check the website www.alpinesemi.com for continues updates and revision of datasheets.

DESIGN CHANGES: ALPINESEMI™ strives for continuous improvement and reserves the right to change the specifications of its products without prior notice. ALPINESEMI™ reserves the right to discontinue product lines without prior notice. Any product selection is a recommendation based on best understanding of such product(s) by our engineers. However, buyers are advised to rely on their own judgment for such selection of the products.

ALPINESEMI™ makes no warranty, representation or guarantee regarding the suitability of its products for any particular applications. Neither does ALPINESEMI™ assume any liability arising out of the applications nor the use of such products. ALPINESEMI™ specifically disclaims all liabilities either consequential or incidental.

All rights of the product and datasheet are reserved to ALPINESEMI™.

All logos and information provided in the datasheets are for reference only. Any registered and/or trademark/logos belonging to respective companies be the property of those companies. ALPINESEMI™ extends the courtesy to them, if any of the information found in its datasheet.

Component Disposal Instructions

1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



sales@alpinesemi.com
www.alpinesemi.com