8000 WATT SURFACE MOUNT TVS RECTIFIERS
REVERSE VOLTAGE – 12.0V ~ 110V

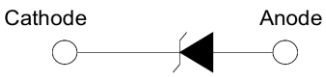
DESCRIPTION:

SMC (DO-214AB)

The 8.0ALPSMDJXXA/CA (UNI/BI) Series are Surface Mount Transient Voltage Suppressor Rectifiers designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

The 8.0ALPSMDJXXA/CA Series has a peak pulse power rating of 8000 Watts peak pulse power capability with a 10/1000μs waveshape and Reverse Voltage 12.0V ~ 110V

Bi-directional



Uni-directional

FEATURES:

- 8000W peak pulse power capacity with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Excellent clamping capability.
- Low reverse leakage.
- Very fast response time.
- Glass passivated chip junction in DO-214AB(SMC) package
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. 8.0ALPSMDJ12A-H.

APPLICATIONS:

- TVS components are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

MECHANICAL CHARACTERISTICS

- Epoxy: UL94-V0 rated flame retardant.
- Case: Molded plastic, DO-214AB / SMC.
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Mounting Position: Any.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Operating Junction Temperature range	T_J	-55 to +150	°C
Storage Temperature range	T_{STG}	-55 to 150	°C
Peak Pulse Power Dissipation with 10/1000µs waveform, (Note 1)	P_{PP}	8000	W
Peak Pulse current with a 10/1000µs Waveform (Note 1)	I_{PP}	See Table Below	A
Power Dissipation on infinite heatsink at T_L=75°C	P_D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine wave Unidirectional only (Note 2)	I_{FSM}	300	A

Notes:
1. Non repetitive current pulse, per Fig. 4 and derated above T_A =25°C per Fig. 3.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

TYPICAL ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE @ I_{PP}	MAXIMUM PEAK PULSE CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT @V_{RWM} I_R µA
		MIN	MAX		V_C VOLTS	I_{PP} AMPS	
8.0ALPSMDJ12A / CA	12	13.3	14.7	10	19.9	402.1	800
8.0ALPSMDJ13A / CA	13	14.4	15.9	10	21.5	372.1	500
8.0ALPSMDJ14A / CA	14	15.6	17.2	10	23.2	344.9	200
8.0ALPSMDJ15A / CA	15	16.7	18.5	1	24.4	327.9	100
8.0ALPSMDJ16A / CA	16	17.8	19.7	1	26.0	307.7	50
8.0ALPSMDJ17A / CA	17	18.9	20.9	1	27.6	290.0	20
8.0ALPSMDJ18A / CA	18	20.0	22.1	1	29.2	274.0	10
8.0ALPSMDJ20A / CA	20	22.2	24.5	1	32.4	247.0	5
8.0ALPSMDJ22A / CA	22	24.4	26.9	1	35.5	225.4	5
8.0ALPSMDJ24A / CA	24	26.7	29.5	1	38.9	205.7	5
8.0ALPSMDJ26A / CA	26	28.9	31.9	1	42.1	190.1	5
8.0ALPSMDJ28A / CA	28	31.1	34.4	1	45.4	176.2	5
8.0ALPSMDJ30A / CA	30	33.3	36.8	1	48.4	165.3	5
8.0ALPSMDJ33A / CA	33	36.7	40.6	1	53.3	150.1	5
8.0ALPSMDJ36A / CA	36	40.0	44.2	1	58.1	137.8	5
8.0ALPSMDJ40A / CA	40	44.4	49.1	1	64.5	124.1	5
8.0ALPSMDJ43A / CA	43	47.8	52.8	1	69.4	115.3	5
8.0ALPSMDJ45A / CA	45	50.0	55.3	1	72.7	110.1	5
8.0ALPSMDJ48A / CA	48	53.3	58.9	1	77.4	103.4	5
8.0ALPSMDJ51A / CA	51	56.7	62.7	1	82.4	97.1	5
8.0ALPSMDJ54A / CA	54	60.0	66.3	1	87.1	92.0	5
8.0ALPSMDJ58A / CA	58	64.4	71.2	1	93.6	85.5	5
8.0ALPSMDJ60A / CA	60	66.7	73.7	1	96.8	82.7	5

PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE @ I_{PP}	MAXIMUM PEAK PULSE CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT @V_{RWM} I_R µA
		MIN	MAX		V_C VOLTS	@I_{PP} AMPS	
8.0ALPSMDJ64A / CA	64	71.1	78.6	1	103.0	77.7	5
8.0ALPSMDJ70A / CA	70	77.8	86.0	1	113.0	71.0	5
8.0ALPSMDJ75A / CA	75	83.3	92.1	1	121.0	66.2	5
8.0ALPSMDJ78A / CA	78	86.7	95.8	1	126.0	63.5	5
8.0ALPSMDJ85A / CA	85	94.4	104.0	1	137.0	58.4	5
8.0ALPSMDJ90A / CA	90	100.0	111.0	1	146.0	55.0	5
8.0ALPSMDJ100A / CA	100	111.0	123.0	1	162.0	49.4	5
8.0ALPSMDJ110A / CA	110	122.0	135.0	1	177.0	45.2	5

NOTE:
1. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
2. Part numbers with "CA" suffix are bidirectional devices, i.e., 8.0ALPSMDJ110CA.

TYPICAL DEVICE CHARACTERISTICS CURVES

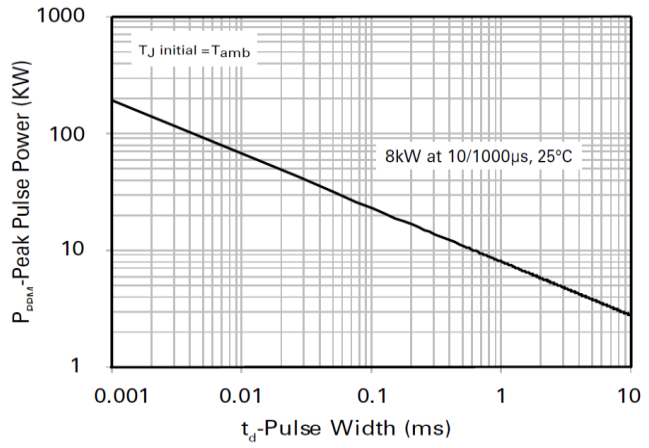


Fig1. PEAK PULSE POWER RATING CURVE

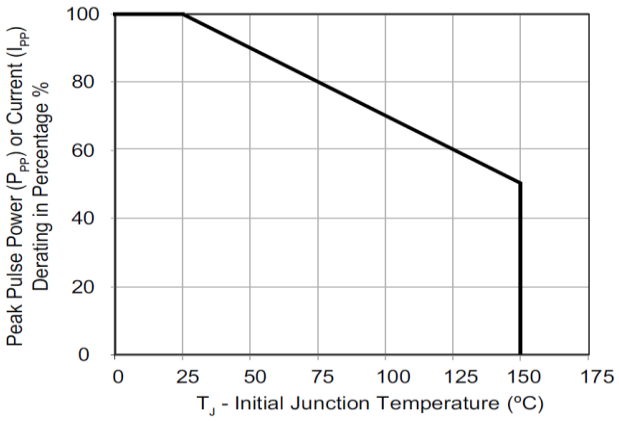


Fig2. PEAK PULSE POWER DERATING CURVE

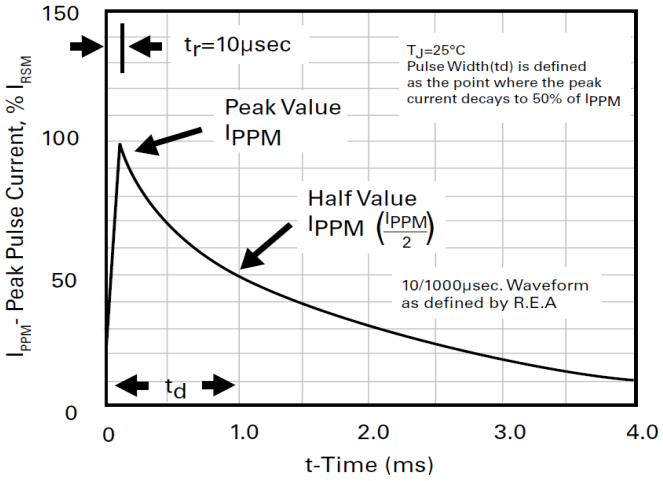


Fig3. PULSE WAVEFORM

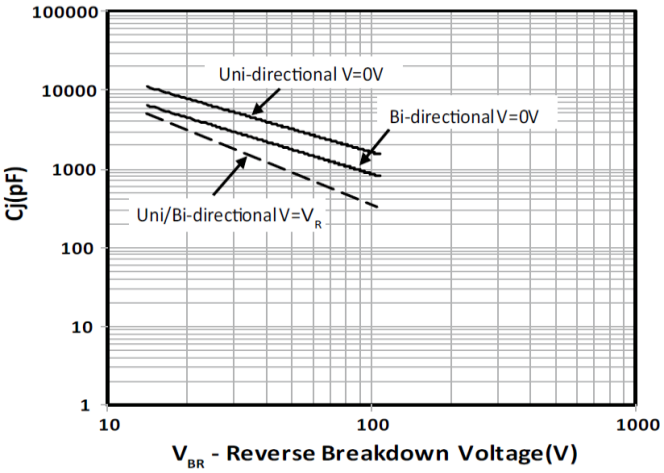


Fig4. TYPICAL JUNCTION CAPACITANCE

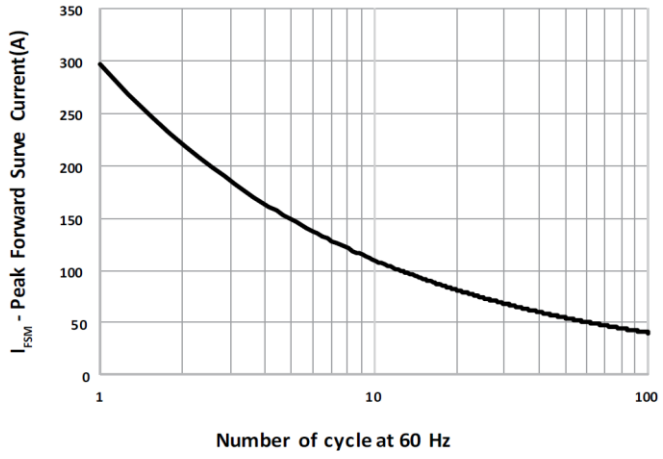


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNI-DIRECTIONAL ONLY

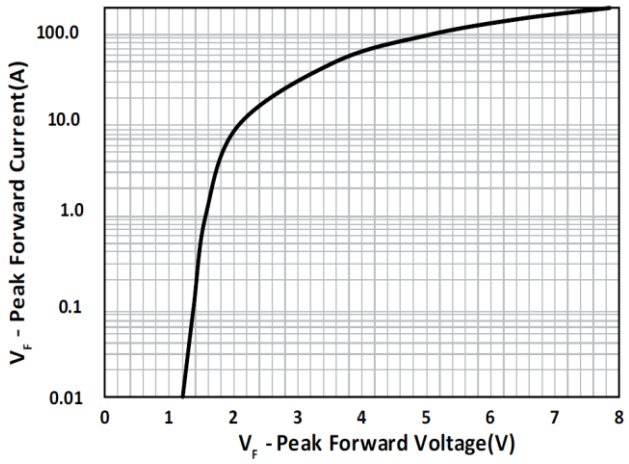
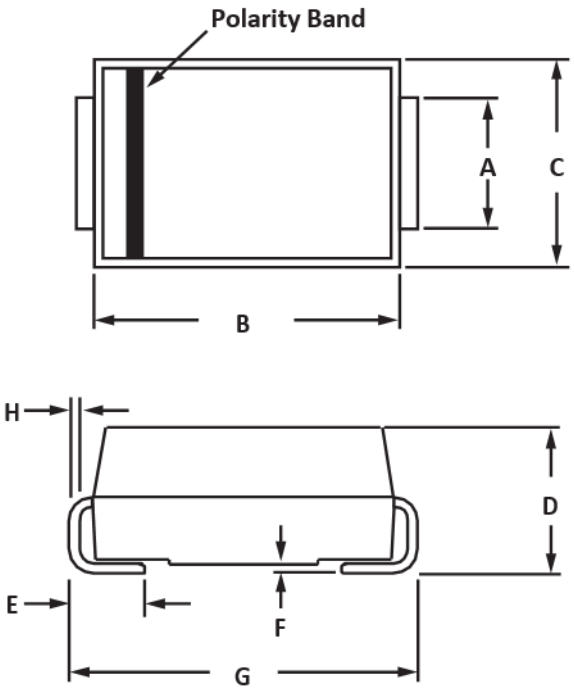


Fig.6 PEAK FORWARD VOLTAGE DROP VS PEAK FORWARD CURRENT (TYPICAL VALUES)

PACKAGE INFORMATION



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.75	3.25	0.108	0.128
B	6.50	7.10	0.256	0.280
C	5.50	6.10	0.217	0.240
D	2.10	2.70	0.083	0.106
E	0.76	1.52	0.030	0.060
F	0.203 MAX.		0.008 MAX.	
G	7.40	8.40	0.291	0.331
H	0.152	0.305	0.006	0.012

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.

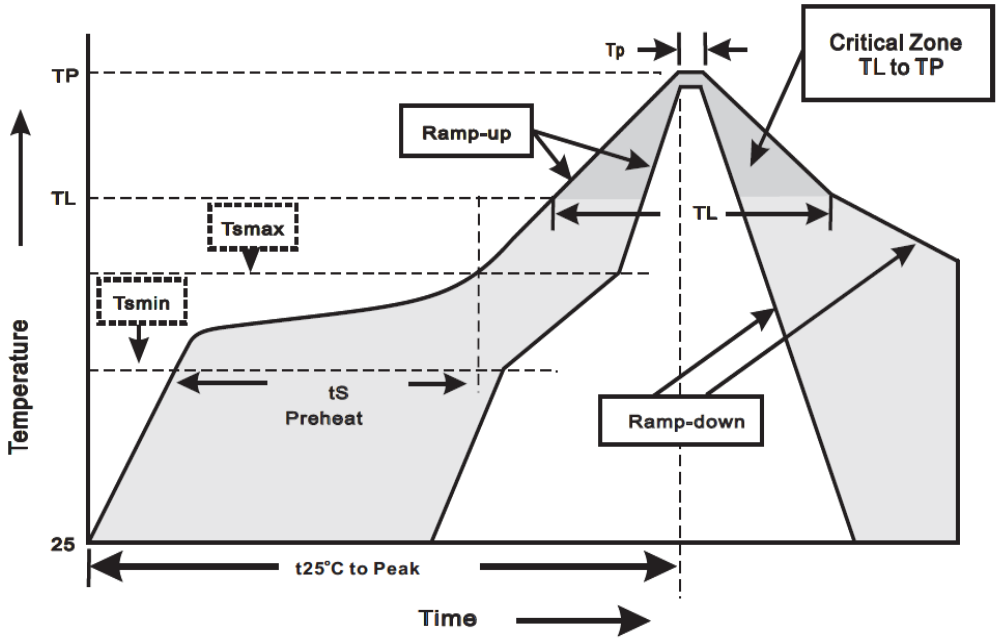
PINNING INFORMATION

PIN	SIMPLIFIED OUTLINE	SYMBOL
Uni-Directional Pin1 Cathode Pin2 Anode		
Bi-Directional		

SOLDERING PARAMETERS

SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

1. Storage environment: Temperature=5 °C~40 °C Humidity=55% ±25%
2. Reflow soldering of surface-mount devices



3. Reflow soldering

PROFILE FEATURE	SOLDERING CONDITION
Average ramp-up rate (T_L to T_P)	<3 °C/sec
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (min to max) (t_s)	 150 °C 200 °C 60 ~ 120 sec
T_{smax} to T_L - Ramp-upRate	 <3 °C/sec
Time maintained above: - Temperature (T_L) - Time(tL)	 217 °C 60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(tP)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes

PRODUCT HIGH RELIABLITY TEST CAPABILITIES

ITEM	TEST CONDITIONS	STANDARD
Solder Resistance	At 260±5°C for 10±Sec.	MIL-STD-750D METHOD-2031
Solderability	At 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
High Temperature Reverse Bias	V_{BR}= V_{BR} N_{OM}*80% at T_J=150° for 168 hrs.	MIL-STD-750D METHOD-1038
Pressure Cooker	15P_{SIG} at T_A=121°C for 4Hrs	JESD22-A102
Temperature Cycling	-55°C to +125°C dwelled for 30min and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
Humidity	At T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
High Temperature Storage Life	At 175°C for 1000hrs.	MIL-STD-750D METHOD-1031

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 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).

ALPINESEMI®

sales@alpinesemi.com
www.alpinesemi.com