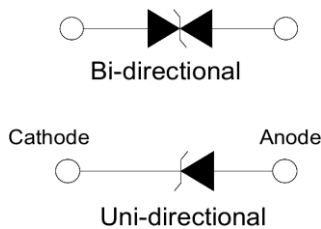


**HIGH POWER TVS ARRAY**

**DESCRIPTION:**



The ALPAMD8SXXA/CA series are **AECQ101 approved** and designed for robust high-power load dump applications. Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

Used for High Reliability and Automotive Requirements.

This device series meets the ISO7637-2 Surge Specification and MSL Level 1, Per J-STD-020, LF Maximum Peak of 245°C.

**FEATURES:**

- **AEC-Q101 Qualified.**
- Junction Passivation Optimized Design Passivated Anisotropic Rectifier Technology
- TJ = 175°C Capability Suitable for High Reliability and Automotive Requirements
- Available in Uni & Bi-directional polarity Configuration
- Low Leakage Current
- Low Forward Voltage Drop
- High Surge Capability
- 6600 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- 5200 Watts Peak Pulse Power per Line (tp = 10/10000µs)
- Meets ISO7637-2 Surge Specification (Varied by Test Condition)
- Meets MSL Level 1, Per J-STD-020, LF Maximum Peak of 245°C
- Compliant to ROHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

**APPLICATIONS:**

- Digital Audio Tuner for Automotive
- Automotive Entertainment Systems
- Automotive Navigation Systems

**MECHANICAL DATA**

- Molding compound flammability rating: UL 94V-0 flammability rating
- Base P/NHE3 - RoHS-compliant
- Case: Molded plastic, SOP-08.
- Terminals: Matte tin-plated leads, solderable per J-STD-002 and JESD 22-B102.
- HE3 suffix meets JESD 201 class 2 whisker test.



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**ALPAMD8SXXA/CA Series**  
**DO218AB (SURFACE MOUNT)**

**TYPICAL DEVICE CHARACTERISTICS**

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Junction Temperature	$T_J$	-55 to 175	°C
Storage Temperature	$T_{STG}$	-55 to 175	°C
Peak Pulse Power Dissipation (tp =10/1000µs) waveform	$P_{PPM}$	6600	Watts
Peak Pulse Power Dissipation (tp =10/10000µs) waveform		5200	Watts
Peak Pulse Current with (tp =10/1000µs) waveform	$I_{PPM}^{(1)}$	See next table	Amps
Peak Forward Surge Current, 8.3ms single half sinewave	$I_{FSM}$	700	Amps
Power Dissipation on Infinite Heaksink, $T_C = 25^\circ\text{C}$ (Figure 2)	$P_D$	8.0	Watts
Typical Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.90	°C/W
<b>NOTES</b>			
1. Non-repetitive current pulse derated above $T_A=25^\circ\text{C}$ .			



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**ALPAMD8SXXA/CA Series**  
**DO218AB (SURFACE MOUNT)**

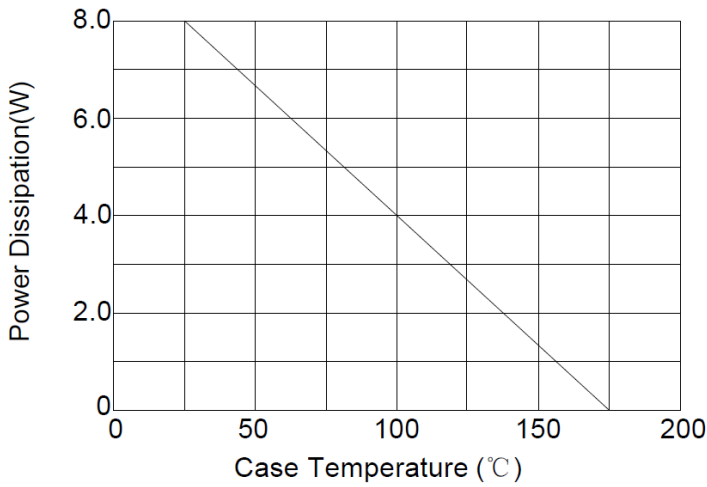
**TYPICAL DEVICE CHARACTERISTICS**

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified								
PART NUMBER (Note 1)	REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE  $V_C @ I_{PP}$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_{RWM}$	
		MIN	MAX				$\mu A @ 25^\circ C$	$\mu A @ 175^\circ C$
ALPAMD8S10A / CA	10.0	11.1	12.3	5.0	17.0	388	15	250
ALPAMD8S11A / CA	11.0	12.2	13.5	5.0	18.2	363	10	150
ALPAMD8S12A / CA	12.0	13.3	14.7	5.0	19.9	332	10	150
ALPAMD8S13A / CA	13.0	14.4	15.9	5.0	21.5	307	10	150
ALPAMD8S14A / CA	14.0	15.6	17.2	5.0	23.2	284	10	150
ALPAMD8S15A / CA	15.0	16.7	18.5	5.0	24.4	270	10	150
ALPAMD8S16A / CA	16.0	17.8	19.7	5.0	26.0	253	10	150
ALPAMD8S17A / CA	17.0	18.9	20.9	5.0	27.6	239	10	150
ALPAMD8S18A / CA	18.0	20.0	22.1	5.0	29.2	226	10	150
ALPAMD8S20A / CA	20.0	22.2	24.5	5.0	32.4	204	10	150
ALPAMD8S22A / CA	22.0	24.4	26.9	5.0	35.5	186	10	150
ALPAMD8S24A / CA	24.0	26.7	29.5	5.0	38.9	170	10	150
ALPAMD8S26A / CA	26.0	28.9	31.9	5.0	42.1	157	10	150
ALPAMD8S28A / CA	28.0	31.1	34.4	5.0	45.4	145	10	150
ALPAMD8S30A / CA	30.0	33.3	36.8	5.0	48.4	136	10	150
ALPAMD8S32A / CA	32.0	35.5	39.4	5.0	51.4	128.5	10	150
ALPAMD8S33A / CA	33.0	36.7	40.6	5.0	53.3	124	10	150
ALPAMD8S36A / CA	36.0	40.0	44.2	5.0	58.1	114	10	150
ALPAMD8S40A / CA	40.0	44.4	49.1	5.0	64.5	102	10	150
ALPAMD8S43A / CA	43.0	47.8	52.8	5.0	69.4	95.1	10	150

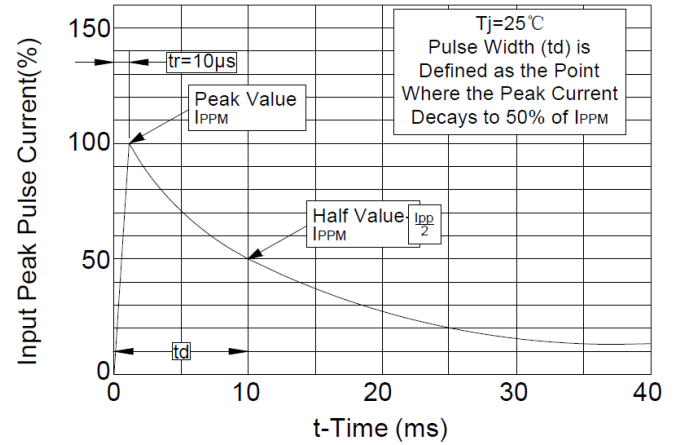
**NOTES**

1. For all types, maximum  $V_F = 1.8V$  at  $I_F = 100A$ , measured on 8.3ms single half-sine wave or equivalent square wave. Maximum duty cycle = 4 pulses per minute.

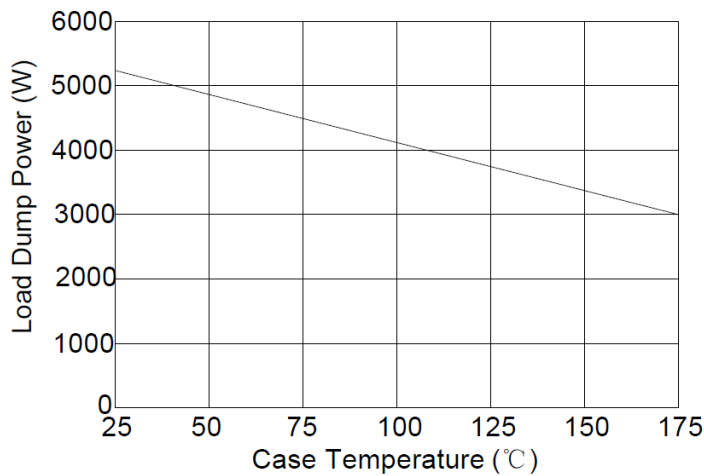
**TYPICAL DEVICE CHARACTERISTICS CURVES**



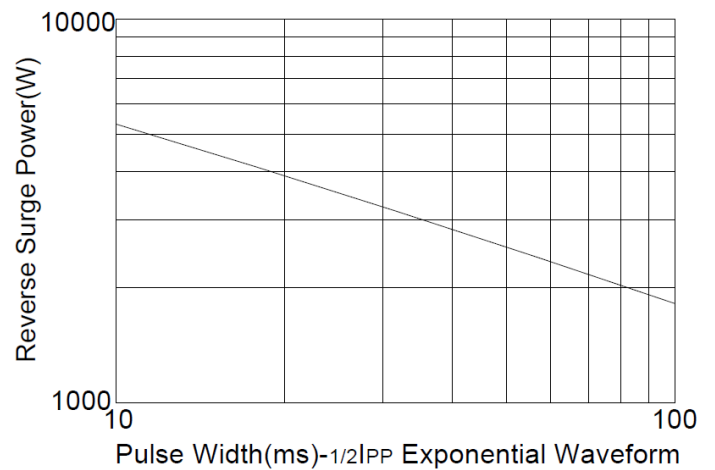
**Fig1. POWER DERATING CURVE**



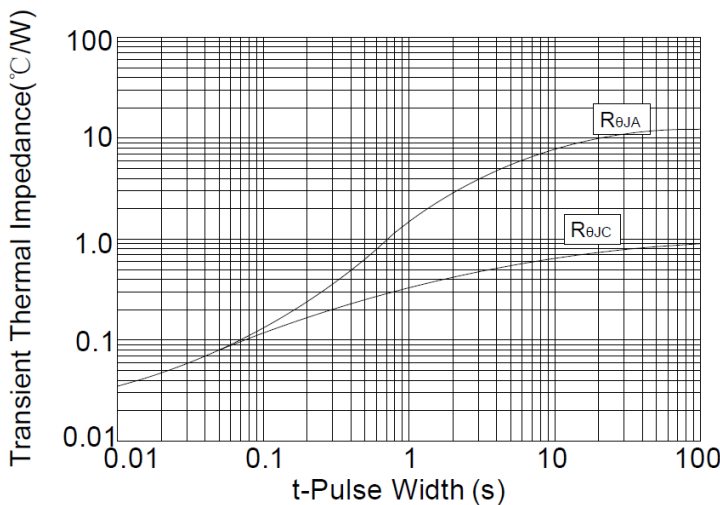
**Fig2. PULSE WAVEFORM**



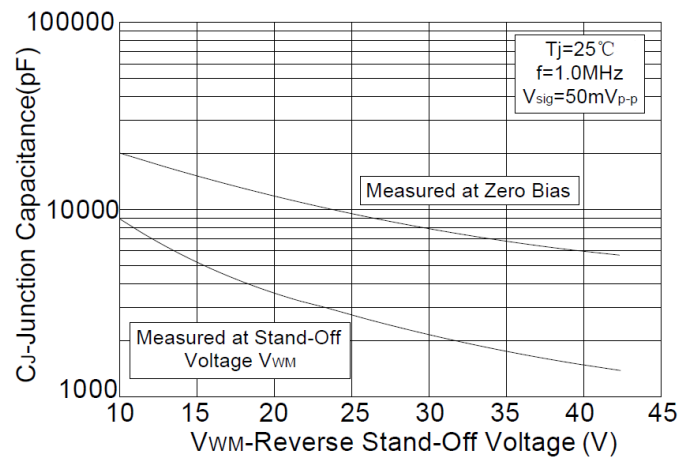
**Fig3. LOAD DUMP POWER CHARACTERISTICS**  
**10ms Exponential Waveform**



**Fig4. REVERSE POWER CAPABILITY**

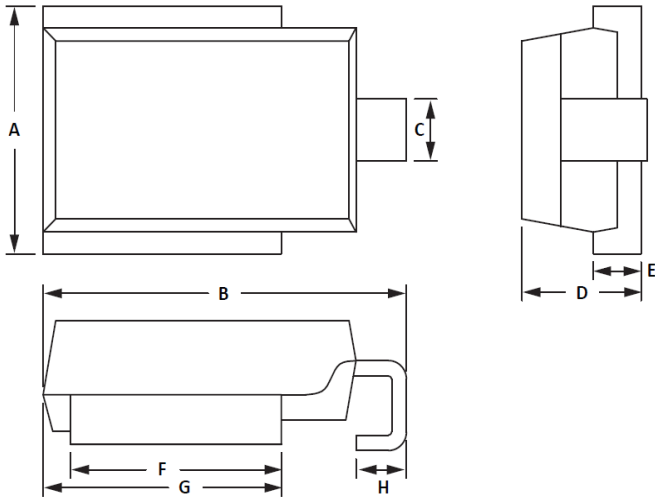


**Fig.5 TYPICAL TRANSIENT THERMAL IMPEDANCE**



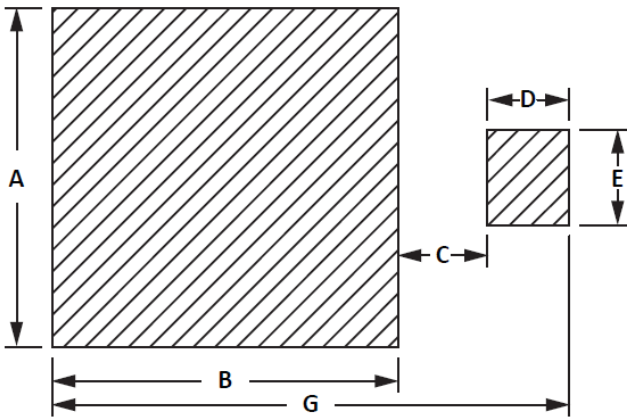
**Fig.6 TYPICAL JUNCTION CAPACITANCE**

**PACKAGE INFORMATION**



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.50	10.50	0.374	0.413
B	15.00	16.00	0.592	0.628
C	2.40	3.00	0.094	0.118
D	4.70	5.10	0.185	0.201
E	1.90	2.10	0.075	0.083
F	8.50	9.30	0.335	0.366
G	9.50	10.30	0.374	0.406
H	1.70	2.70	0.067	0.106

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

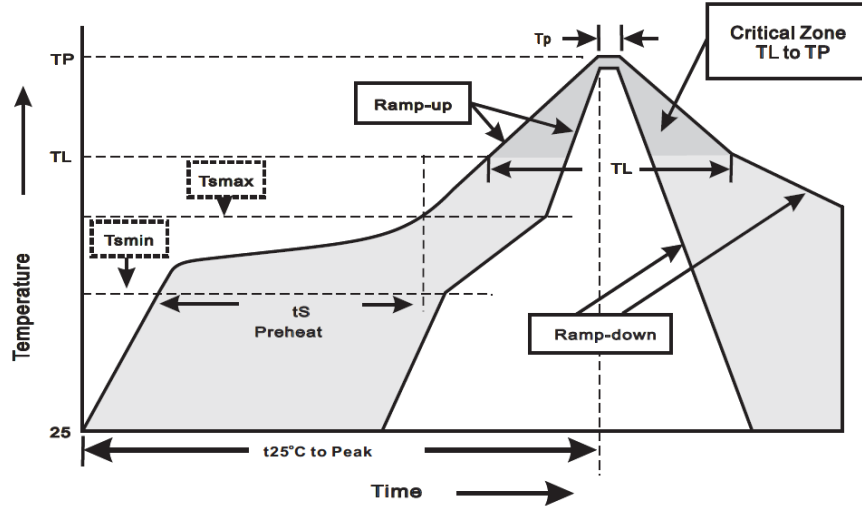


PAD LAYOUT DIMENSIONS		
DIM	MILLIMETERS	INCHES
	NOM	NOM
A	11.0	0.433
B	9.5	0.374
C	3.3	0.130
D	3.0	0.118
E	3.5	0.137
G	15.8	0.662

**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 (TL to TP)	<3 °C/sec
Preheat	
- Temperature Min (T <sub>smmin</sub> )	150 °C
- Temperature Max (T <sub>smmax</sub> )	200 °C
- Time (min to max) (ts)	60 ~ 180 sec
T <sub>smmax</sub> to TL	
- Ramp-up Rate	<3 °C/sec
Time maintained above:	
- Temperature (TL)	217 °C
- Time(t <sub>l</sub> )	60 ~ 260 sec
Peak Temperature (TP)	260 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(t <sub>p</sub> )	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes



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## ALPAMD8SXXA/CA Series DO218AB (SURFACE MOUNT)

### 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.

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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).



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[www.alpinesemi.com](http://www.alpinesemi.com)