

600W, 11 - 250V TRANSIENT VOLTAGE SUPPRESSORS

DESCRIPTION:



The ALP6SMBXXXA/CA (UNI/BI) Series are multi-line transient voltage suppressor arrays with AEC-Q101 qualified series that provides board level protection for standard TTL and MOS bus line applications against the damaging effects of ESD, tertiary lightning and switching transients.

FEATURES:

- Glass Passivated Chip
- 600 Watts Peak Pulse Power per Line ($t_p = 10/1000\mu s$)
- Low Leakage Current
- Bidirectional and Unidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- Available in Multiple Voltages
- RoHS & REACH Compliant
- AEC-Q101 qualified

APPLICATIONS:

- SMPS
- Adapters
- Monitor

MECHANICAL CHARACTERISTICS

- Terminals: Solder plated, solderable per MIL-STD-750, method 2026.
- Case: JEDEC DO-214AA(SMB) molded plastic over glass passivated chip.
- Moisture sensitivity: level 1, per J-STD-020
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Polarity: Indicated by cathode band

ORDERING PART NUMBER

PART NUMBER	ORDERING PART NUMBER
ALP6SMBXXXA/CA	ALP6SMBXXXA/CA-SM



beyond boundaries...

ALP6SMBXXXA/CA Series

DO-214AA(SMB)

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak power dissipation with a 10/1000μs waveform	P _{pp}	600	Watts
Peak pulse current with a 10/1000μs waveform	I _{PPM}	See Next Table	Amps
Power Dissipation on Infinite Heatsink at T _L = 75°C	P _D	3.75	Watts
Peak Forward Surge Current, 8.3ms single half sinewave	I _{FSM}	100	Amps
Typical Thermal Resistance Junction to Ambient	R _{ΘJA}	85	°C/W
Typical Thermal Resistance Junction to Case	R _{ΘJC}	15	°C/W
Typical Thermal Resistance Junction to Lead	R _{ΘJL}	20	°C/W
Operating Temperature	T _J	-55 to 150	°C
Storage Temperature	T _{STG}	-55 to 150	°C
NOTE 1. Mounted on copper pad area of 0.2x0.2" (5.0 x 5.0mm) to each terminal.			

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER (Notes 1-2)	BREAKDOWN VOLTAGE		TEST CURRENT	STANDOFF VOLTAGE	MAXIMUM REVERSE LEAKAGE CURRENT	MAXIMUM PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE
	$V_{(BR)}$ (Volts)						
	MIN	MAX	I_T (mA)	V_{WM} (Volts)	@ V_{WM} (μ A)	I_{PPM} (AMPS)	@ I_{PPM} V_C (VOLTS)
ALP6SMB11A/CA	10.5	11.6	1.0	9.40	5.0	38.5	15.6
ALP6SMB12A/CA	11.4	12.6	1.0	10.2	5.0	35.9	16.7
ALP6SMB13A/CA	12.4	13.7	1.0	11.1	5.0	33.0	18.2
ALP6SMB15A/CA	14.3	15.8	1.0	12.8	1.0	28.3	21.2
ALP6SMB16A/CA	15.2	16.8	1.0	13.6	1.0	26.7	22.5
ALP6SMB18A/CA	17.1	18.9	1.0	15.3	1.0	23.8	25.2
ALP6SMB20A/CA	19.0	21.0	1.0	17.1	1.0	21.7	27.7
ALP6SMB22A/CA	20.9	23.1	1.0	18.8	1.0	19.6	30.6
ALP6SMB24A/CA	22.8	25.2	1.0	20.5	1.0	18.1	33.2
ALP6SMB27A/CA	25.7	28.4	1.0	23.1	1.0	16.0	37.5
ALP6SMB30A/CA	28.5	31.5	1.0	25.6	1.0	14.5	41.4
ALP6SMB33A/CA	31.4	34.7	1.0	28.2	1.0	13.1	45.7
ALP6SMB36A/CA	34.2	37.8	1.0	30.8	1.0	12.0	49.9
ALP6SMB39A/CA	37.1	41.0	1.0	33.3	1.0	11.1	53.9
ALP6SMB43A/CA	40.9	45.2	1.0	36.8	1.0	10.1	59.3
ALP6SMB47A/CA	44.7	49.4	1.0	40.2	1.0	9.3	64.8

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	BREAKDOWN VOLTAGE		TEST CURRENT	STANDOFF VOLTAGE	MAXIMUM REVERSE LEAKAGE CURRENT	MAXIMUM PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE
	$V_{(BR)}$ (Volts)						
	MIN	MAX	I_T (mA)	V_{WM} (Volts)	@ V_{WM} (μA)	I_{PPM} (AMPS)	@ I_{PPM} V_C (VOLTS)
ALP6SMB51A/CA	48.5	53.6	1.0	43.6	1.0	8.6	70.1
ALP6SMB56A/CA	53.2	58.8	1.0	47.8	1.0	7.8	77.0
ALP6SMB62A/CA	58.9	65.1	1.0	53.0	1.0	7.1	85.0
ALP6SMB68A/CA	64.6	71.4	1.0	58.1	1.0	6.5	92.0
ALP6SMB75A/CA	71.3	78.8	1.0	64.1	1.0	5.8	103
ALP6SMB82A/CA	77.9	86.1	1.0	70.1	1.0	5.3	113
ALP6SMB91A/CA	86.5	95.5	1.0	77.8	1.0	4.8	125
ALP6SMB100A/CA	95	105	1.0	85.5	1.0	4.4	137
ALP6SMB110A/CA	105	116	1.0	94.0	1.0	3.9	152
ALP6SMB120A/CA	114	126	1.0	102	1.0	3.6	165
ALP6SMB130A/CA	124	137	1.0	111	1.0	3.4	179
ALP6SMB150A/CA	143	158	1.0	128	1.0	2.9	207
ALP6SMB160A/CA	152	168	1.0	136	1.0	2.7	219
ALP6SMB170A/CA	162	179	1.0	145	1.0	2.6	234
ALP6SMB180A/CA	171	189	1.0	154	1.0	2.4	246
ALP6SMB200A/CA	190	210	1.0	171	1.0	2.2	274
ALP6SMB220A/CA	209	231	1.0	185	1.0	1.9	328
ALP6SMB250A/CA	237	263	1.0	214	1.0	1.8	344

TYPICAL DEVICE CHARACTERISTICS CURVES

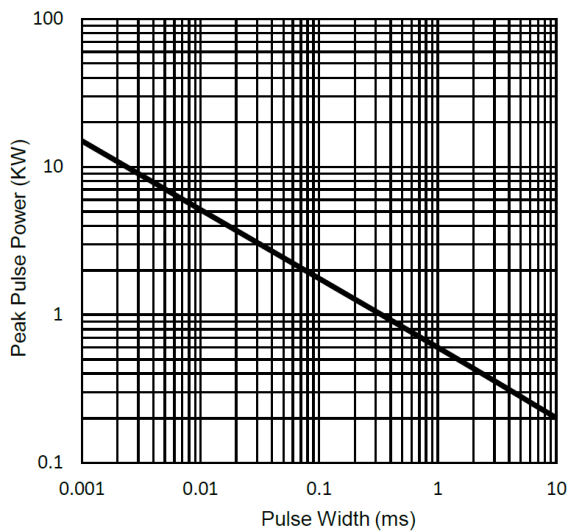


Fig1. Peak Pulse Power Derating Curve

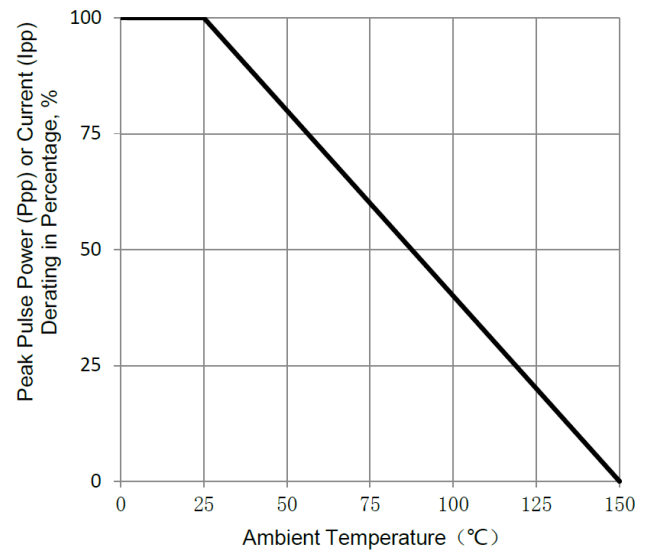


Fig2. Maximum Non-Repetitive Surge Current

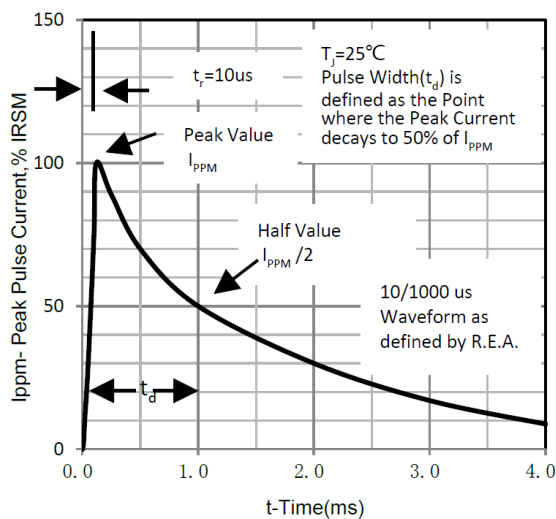


Fig3. Typical Forward Voltage Characteristics

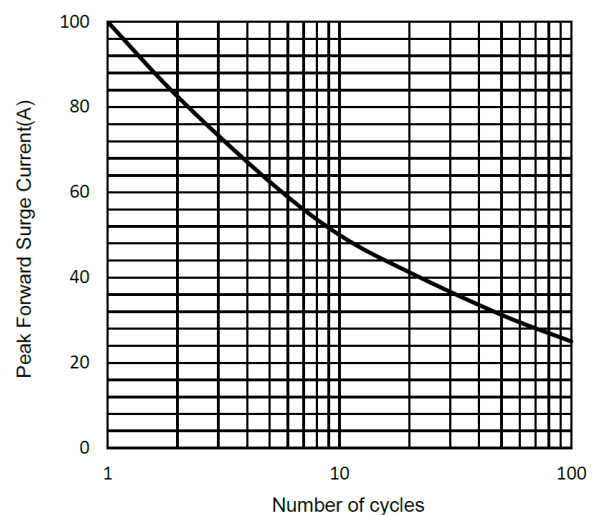


Fig4. Typical Reverse Current Characteristics

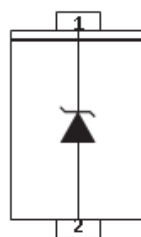
PINNING INFORMATION

SIMPLIFIED OUTLINE

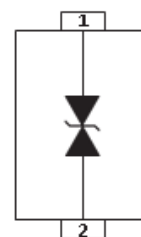
DO-214AA(SMB)



SYMBOL

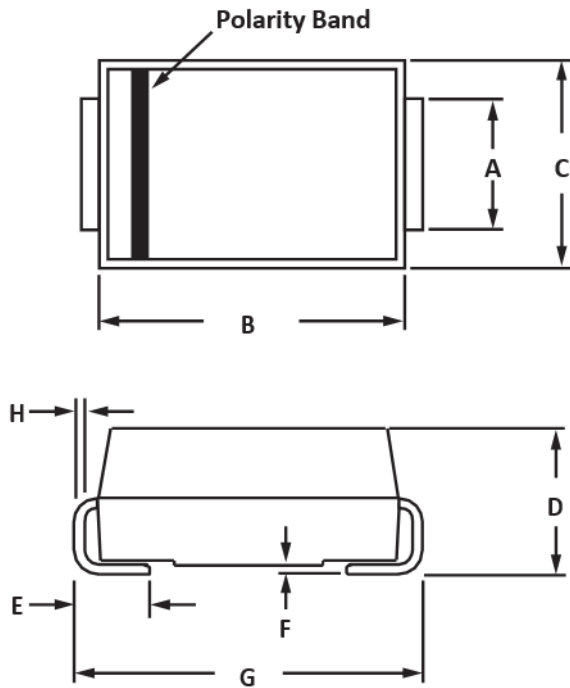


UNI-DIRECTION



BI-DIRECTION

PACKAGE INFORMATION

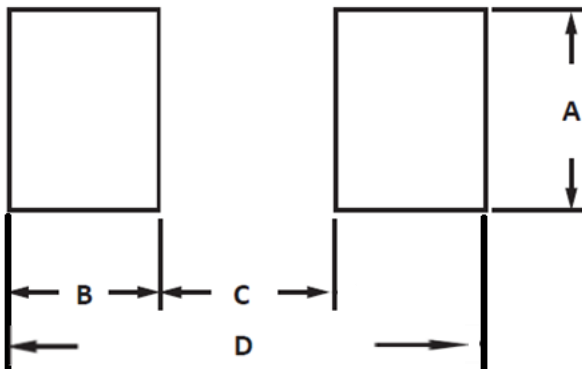


OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.93	2.08	0.076	0.082
B	4.25	4.75	0.167	0.187
C	3.48	3.73	0.137	0.147
D	1.99	2.61	0.078	0.103
E	0.90	1.41	0.035	0.056
F	0.05	0.20	0.002	0.008
G	5.26	5.46	0.207	0.215
H	0.15	0.31	0.006	0.012

NOTES

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



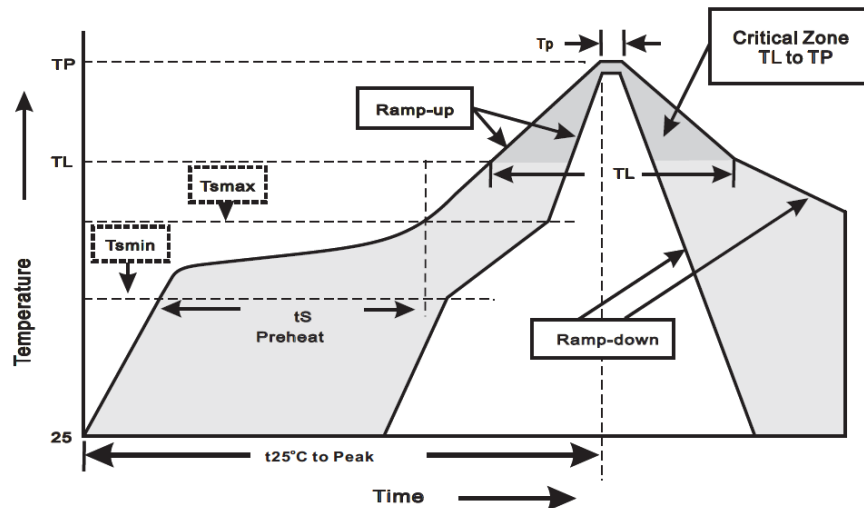
PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS	INCHES
	REF.	REF.
A	2.30	0.091
B	1.60	0.063
C	2.90	0.114
D	6.10	0.24

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})	150 °C
- Temperature Max (T_{smax})	200 °C
- Time (min to max) (t_s)	60 ~ 120 sec
T_{smax} to T_L	
- Ramp-upRate	<3 °C/sec
Time maintained above:	
- Temperature (T_L)	217 °C
- Time(t_L)	60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(t_P)	10 ~ 30 sec
Ramp-down Rate	<3 °C/sec
Time 25 °C to Peak Temperature	<6 minutes



beyond boundaries...

ALP6SMBXXXA/CA Series

DO-214AA(SMB)

CUSTOMER NOTE:

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



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