

1500 WATT TVS COMPONENT

DESCRIPTION:



The ALPAMDOCBXXA/CA (UNI/BI) Series are multi-line transient voltage suppressor arrays with **AEC-Q101 approved** 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.

The ALPAMDOCBXXA/CA Series has a peak pulse power rating of 1500 Watts for an 10/1000µs waveshape. This device series meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 requirements.



Bi-directional



Uni-directional

FEATURES:

- **AEC-Q101 Qualified.**
- RTCA DO-160G COMPLIANT PRODUCT
- UL File Recognition #E208219
- Compatible with IEC 61000-4-2 (ESD): Level 4 - Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 8/20µs Waveform
- Glass Passivated Chip
- 1500 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- Low Leakage Current
- Bidirectional and Unidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant

APPLICATIONS:

- Automotive application



beyond boundaries...

ALPAMDOCBXXA/CA Series
DO-214AB(SMC)

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_A	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Peak Pulse Power (tp =10/1000µs) - See Figure 1 and Note 2	P_{PP}	1500	Watts
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	I_{FSM}	200	Amps
Maximum Instantaneous Forward Voltage at 100A - Unidirectional Only (Note 3)	V_F	3.5/5.0	V

NOTE
 1. Non-repetitive current pulse per Figure 2 and derated above $T_A = 25^\circ\text{C}$ per Figure 2.
 2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
 3. $V_F < 3.5\text{V}$

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE		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
		$V_{(BR)}$ @ I_T VOLTS					
		MIN	MAX				
ALPAMDOCB5.0A / CA	5.0	6.40	7.00	10	9.2	163	800
ALPAMDOCB6.0A / CA	6.0	6.67	7.37	10	10.3	146	800
ALPAMDOCB6.5A / CA	6.5	7.22	7.98	10	11.2	134	500
ALPAMDOCB7.0A / CA	7.0	7.78	8.60	10	12.0	125	200
ALPAMDOCB7.5A / CA	7.5	8.33	9.21	1	12.9	116	100
ALPAMDOCB8.0A / CA	8.0	8.89	9.83	1	13.6	110	50
ALPAMDOCB8.5A / CA	8.5	9.44	10.40	1	14.4	104	20
ALPAMDOCB9.0A / CA	9.0	10.00	11.10	1	15.4	97.4	10
ALPAMDOCB10A / CA	10.0	11.10	12.30	1	17.0	88.2	5
ALPAMDOCB11A / CA	11.0	12.20	13.50	1	18.2	82.4	1
ALPAMDOCB12A / CA	12.0	13.30	14.70	1	19.9	75.4	1
ALPAMDOCB13A / CA	13.0	14.40	15.90	1	21.5	69.8	1
ALPAMDOCB14A / CA	14.0	15.60	17.20	1	23.2	64.7	1
ALPAMDOCB15A / CA	15.0	16.70	18.50	1	24.4	61.5	1
ALPAMDOCB16A / CA	16.0	17.80	19.70	1	26.0	57.7	1
ALPAMDOCB17A / CA	17.0	18.90	20.90	1	27.6	54.4	1
ALPAMDOCB18A / CA	18.0	20.00	22.10	1	29.2	51.4	1
ALPAMDOCB19A / CA	19.0	21.10	23.30	1	30.8	48.7	1
ALPAMDOCB20A / CA	20.0	22.20	24.50	1	32.4	46.3	1



beyond boundaries...

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PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE		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
		$V_{(BR)}$ @ I_T VOLTS					
		MIN	MAX				
ALPAMDOCB22A / CA	22.0	24.40	26.90	1	35.5	42.3	1
ALPAMDOCB24A / CA	24.0	26.70	29.50	1	38.9	38.6	1
ALPAMDOCB26A / CA	26.0	28.90	31.90	1	42.1	35.6	1
ALPAMDOCB28A / CA	28.0	31.10	34.40	1	45.4	33.0	1
ALPAMDOCB30A / CA	30.0	33.30	36.80	1	48.4	31.0	1
ALPAMDOCB33A / CA	33.0	36.70	40.60	1	53.3	28.1	1
ALPAMDOCB36A / CA	36.0	40.00	44.20	1	58.1	25.8	1
ALPAMDOCB40A / CA	40.0	44.40	49.10	1	64.5	23.3	1
ALPAMDOCB43A / CA	43.0	47.80	52.80	1	69.4	21.6	1
ALPAMDOCB45A / CA	45.0	50.0	55.30	1	72.7	20.6	1
ALPAMDOCB48A / CA	48.0	53.30	58.90	1	77.4	19.4	1
ALPAMDOCB51A / CA	51.0	56.70	62.70	1	82.4	18.2	1
ALPAMDOCB54A / CA	54.0	60.00	66.30	1	87.1	17.2	1
ALPAMDOCB58A / CA	58.0	64.40	71.20	1	93.6	16.0	1
ALPAMDOCB60A / CA	60.0	66.70	73.70	1	96.8	15.5	1
ALPAMDOCB64A / CA	64.0	71.10	78.60	1	103.0	14.6	1
ALPAMDOCB70A / CA	70.0	77.80	86.00	1	113.0	13.3	1
ALPAMDOCB75A / CA	75.0	83.30	92.10	1	121.0	12.4	1
ALPAMDOCB78A / CA	78.0	86.70	95.80	1	126.0	11.9	1
ALPAMDOCB80A / CA	80.0	88.80	97.60	1	129.6	11.6	1
ALPAMDOCB85A / CA	85.0	94.40	104.00	1	137.0	11.0	1
ALPAMDOCB90A / CA	90.0	100.00	111.00	1	146.0	10.3	1
ALPAMDOCB100A / CA	100.0	111.00	123.00	1	162.0	9.3	1
ALPAMDOCB110A / CA	110.0	122.00	135.00	1	177.0	8.5	1
ALPAMDOCB120A / CA	120.0	133.00	147.00	1	193.0	7.8	1
ALPAMDOCB130A / CA	130.0	144.00	159.00	1	209.0	7.2	1

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_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
		MIN	MAX				
ALPAMDOCB140A / CA	140.0	155.00	171.00	1	226.8	6.6	1
ALPAMDOCB150A / CA	150.0	167.00	185.00	1	243.0	6.2	1
ALPAMDOCB160A / CA	160.0	178.00	197.00	1	259.0	5.8	1
ALPAMDOCB170A / CA	170.0	189.00	209.00	1	275.0	5.5	1
ALPAMDOCB180A / CA	180.0	200.00	220.00	1	291.6	5.1	1
ALPAMDOCB190A / CA	190.0	211.00	232.00	1	307.8	4.9	1
ALPAMDOCB200A / CA	200.0	224.00	247.00	1	324.0	4.6	1
ALPAMDOCB220A / CA	220.0	246.00	272.00	1	356.0	4.2	1
ALPAMDOCB250A / CA	250.0	279.00	309.00	1	405.0	3.7	1
ALPAMDOCB300A / CA	300.0	335.00	371.00	1	486.0	3.1	1
ALPAMDOCB350A / CA	350.0	391.00	432.00	1	567.0	2.6	1
ALPAMDOCB376A / CA	376.00	418.00	462.00	1	602.0	2.5	1
ALPAMDOCB400A / CA	400.0	447.00	494.00	1	648.0	2.5	1
ALPAMDOCB408A / CA	408.0	456.0	504.00	1	658.0	2.15	1
ALPAMDOCB440A / CA	440.0	492.00	543.00	1	713.0	2.1	1

NOTE

1. Part numbers with "CA" suffix are bidirectional devices, i.e., ALPAMDOCB440CA.
2. For bidirectional devices having a V_{RWM} of 10 Volts and under, the I_R limit is double.

TYPICAL DEVICE CHARACTERISTICS CURVES

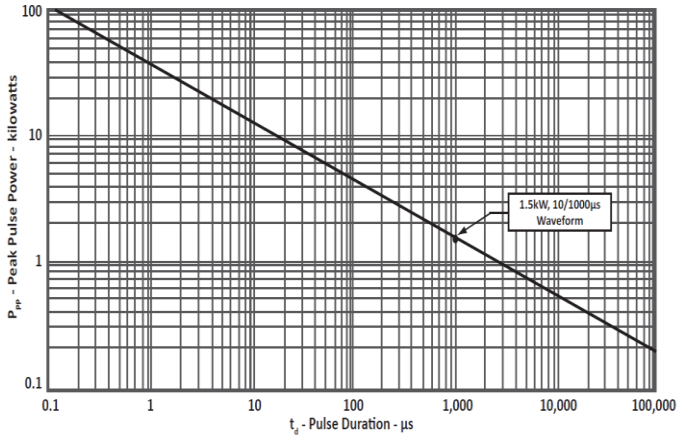


Fig1. PEAK PULSE POWER VS PULSE TIME

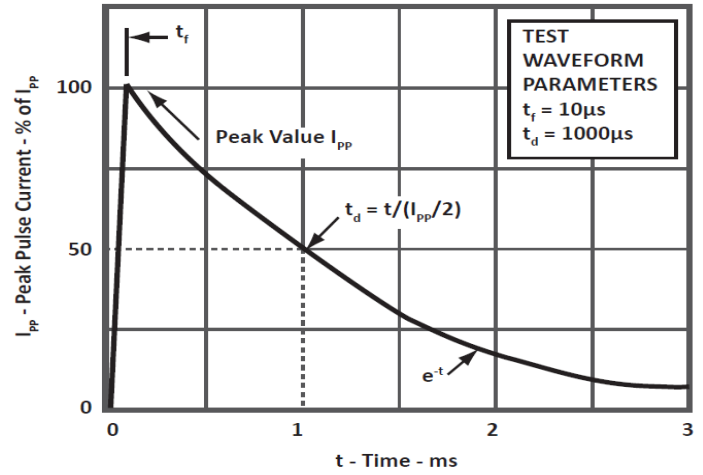


Fig2. PULSE WAVEFORM

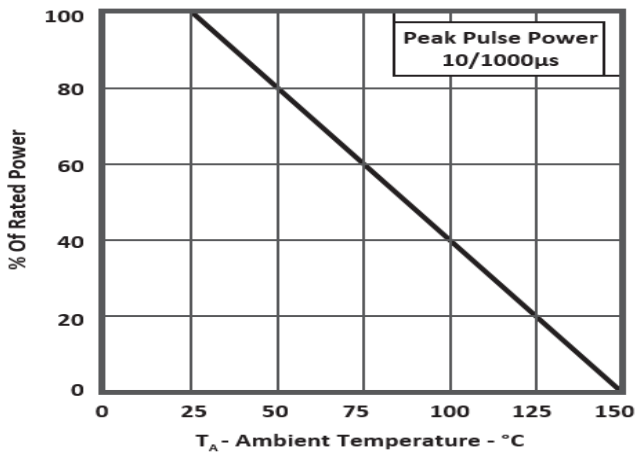


Fig3. POWER DERATING CURVE

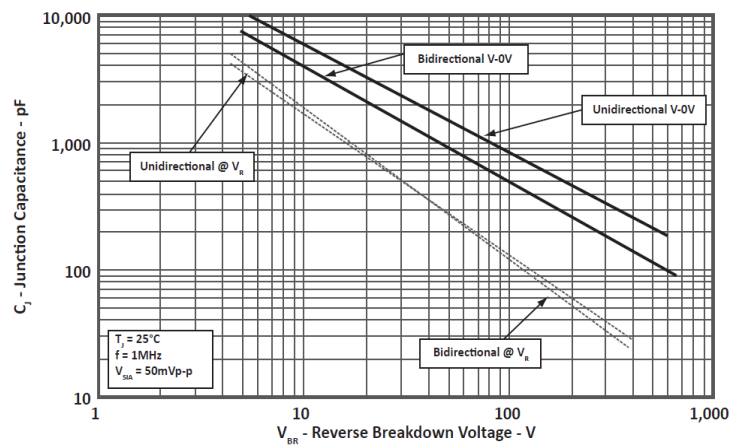


Fig4. TYPICAL JUNCTION CAPACITANCE

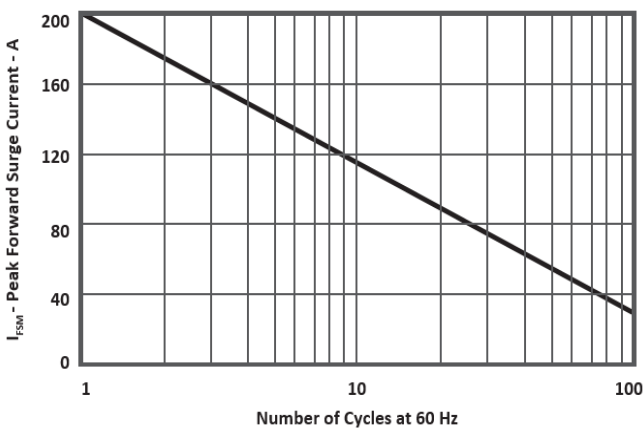


Fig5. MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

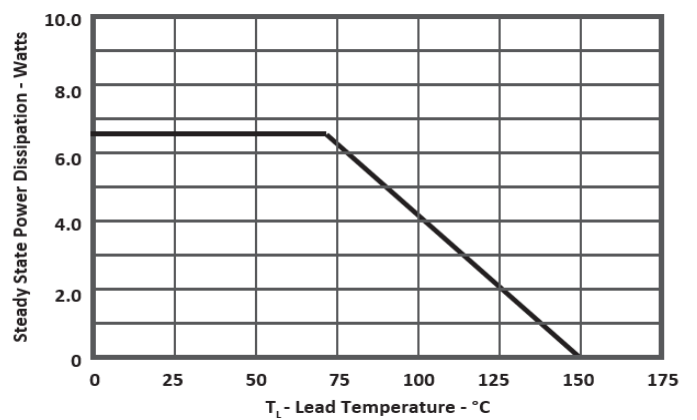
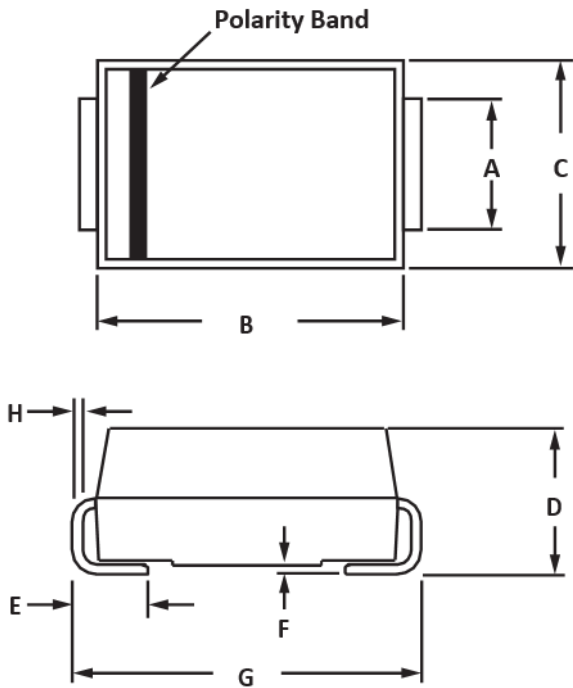


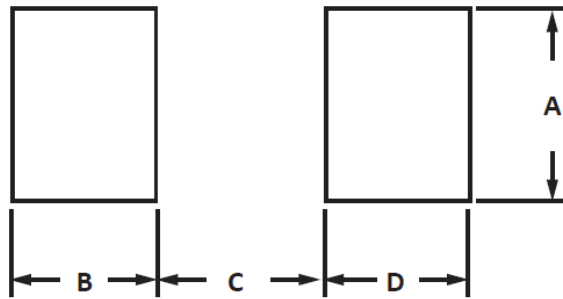
Fig6. STEADY STATE POWER DERATING CURVE

PACKAGE INFORMATION



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.86	3.16	0.114	0.126
B	6.52	7.02	0.260	0.280
C	5.52	6.15	0.220	0.245
D	1.98	2.59	0.079	0.103
E	0.75	1.51	0.030	0.060
F	0.00	0.20	0.000	0.008
G	7.64	8.02	0.305	0.320
H	0.15	0.30	0.006	0.012

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



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.17	-	0.124	-
B	1.49	-	0.059	-
C	-	4.60	-	0.180
D	1.49	-	0.059	-



beyond boundaries...

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DO-214AB(SMC)

CUSTOMER NOTE:

DISCLAIMER

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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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