

### Description

The ALDxxCU series low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and SMART phones. This series is available in bidirectional configurations and is rated at 300 Watts for an 8/20 $\mu$ s waveshape. This series offers a low capacitance and low leakage current in a miniature SOD323 package.



### Features

- IEC 61000-4-2 (ESD)
  - $\pm$ 30kV Contact Discharge
  - $\pm$ 30kV Air Discharge
- 300W Peak pulse Power (8/20us)
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- Halogen free and RoHS compliant
- Protects one directional I/O line
- Transient protection for high-speed data lines
- Low clamping voltage
- Low leakage current

### Mechanical Data

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation
- Peripherals & Pagers

### Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
ALDxxCU	SOD323	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches	
Marking for the ALDxxCU series							
V <sub>RWM</sub>	3.3V	5V	8V	12V	15V	24V	-
Marking	S3	S5	S8	S12	S15	S24	-

Table-1 Ordering information

### Pin Configuration and Functions

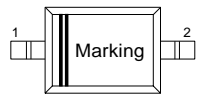
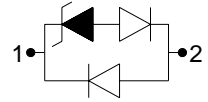
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

Table-2 Pin configuration

### Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	$P_{pk}$	-	300	W
Peak pulse current (tp=8/20us)@25°C	$I_{PP}$		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	$V_{ESD}$	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	$V_{ESD}$	-	±30	kV
Junction temperature	$T_J$	-	125	°C
Operating temperature	$T_{OP}$	-40	125	°C
Storage temperature	$T_{STG}$	-55	150	°C
Lead temperature	$T_L$	-	260	°C

Table-3 Absolute Maximum rating

**Electrical Characteristics**

Symbol	Description
$V_{RWM}$	Rated reverse stand-off voltage
$V_{BR}$	Minimum breakdown voltage @ $I_T = 1\text{mA}$
$V_{CL}$	Clamping voltage
$I_{PP}$	Maximum peak pulse current
$I_R$	Reverse leakage current @ $V_{RWM}$
$C_J$	Typical line capacitance ( $V_{IO}=0\text{V}$ , $V_{P-P} = 30\text{mV}$ , $f = 1\text{MHz}$ )

Table-4 Parameters Description

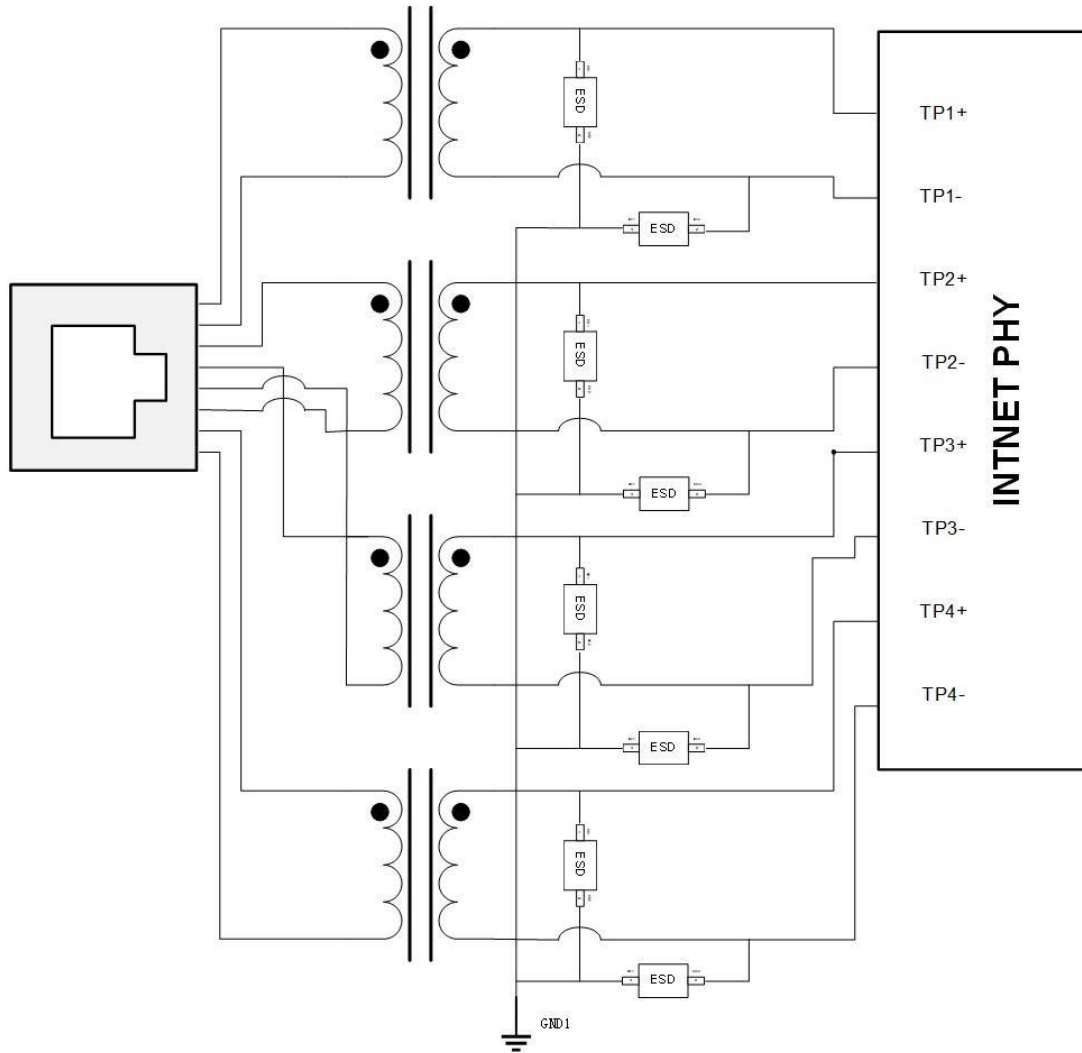
 At  $T_A = 25^\circ\text{C}$  unless otherwise noted

Part Number	$V_{RWM}$ (max.)	$V_{BR}$ (min.)	$V_{CL}@I=1\text{A}$ (max.)	$I_{PP}$ (max.)	$V_{CL}@I=I_{PP}$ (max.)	$I_R$ (max.)	$C_J$ (typ.)
	(V)	(V)	(V)	(A)	(V)	( $\mu\text{A}$ )	(pF)
ALD03CU	3.3	4.0	8.5	17.0	20	1.0	0.8
ALD05CU	5.0	6.0	9.5	15.0	21	1.0	0.8
ALD08CU	8.0	8.5	12.0	12.0	25	1.0	0.8
ALD12CU	12.0	13.3	19.0	7.0	35	1.0	0.8
ALD15CU	15.0	16.5	24.0	5.0	45	1.0	0.8
ALD24CU	24.0	26.0	34.0	4.0	55	1.0	0.8

Table-5 Electrical Characteristics for All Series

## Typical Application

Typical Internet 1G Interface Application



## Ratings and Characteristic Curves (TA =25°C unless otherwise noted)

Figure 1. Pulse rating curve

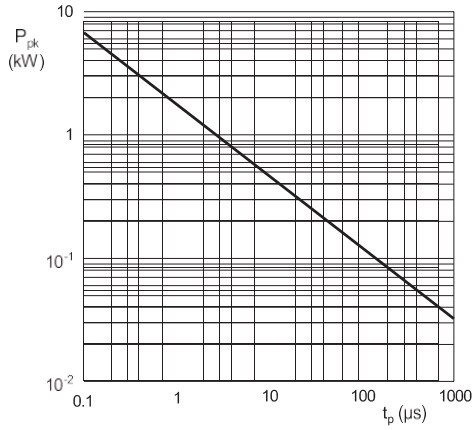


Figure 2 Peak pulse power derating curve

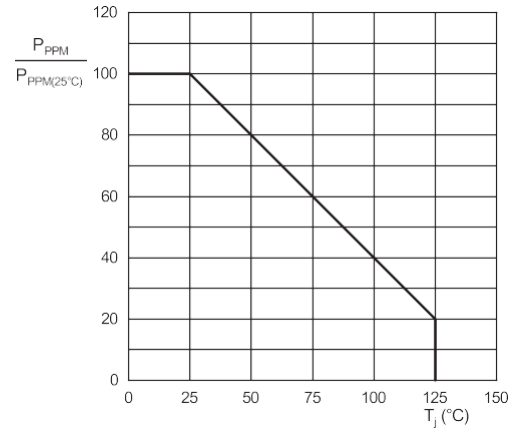


Figure 3 Pulse waveform

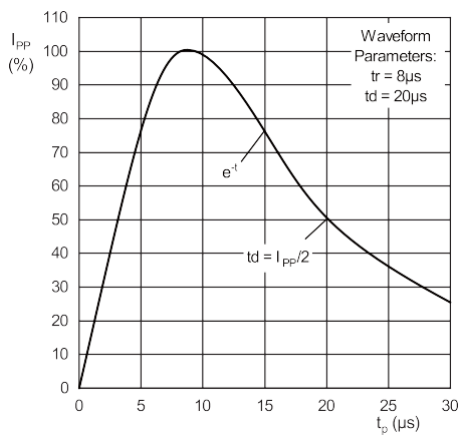
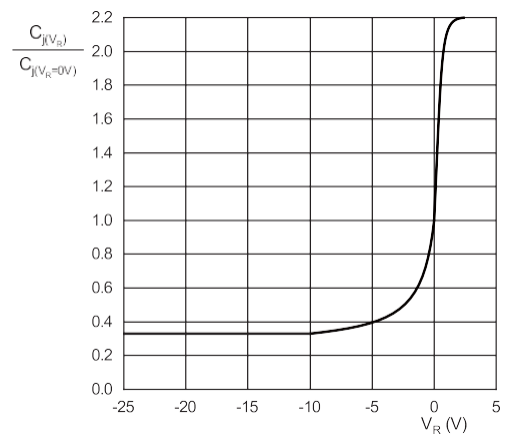
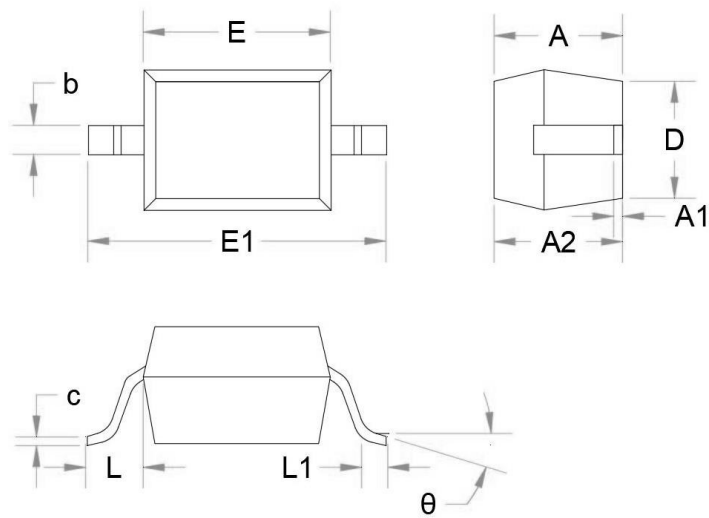


Figure 4 Capacitance vs reverse voltage



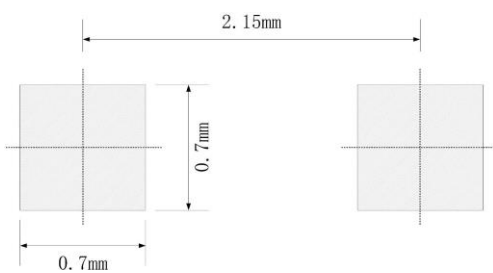
### Dimension



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.950	0.031	0.037
b	0.250	0.350	0.010	0.014
C	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.400	2.750	0.094	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

Table-6 product dimensions

### Recommended Land Pattern



**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference only