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SuperESD - RCIAMP0502B

1. Description

The RCIAMP0502B is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by Electrostatic Discharge.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±15kV Contact Discharge
  - ±15kV Air Discharge
- 60W Peak pulse Power (8/20us)
- Low clamping voltage

- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting two unidirectional lines

3. Applications

- USB 2.0 and USB 3.0
- HDMI 1.3 and HDMI 1.4
- SATA and eSATA

- IEEE 1394
- PCI Express
- Notebooks

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
RCIAMP0502B	SOT-523	P5	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1　Ordering information

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5. Pin Configuration and Functions
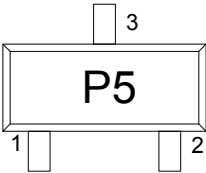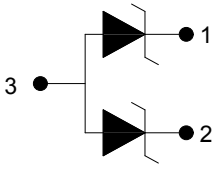
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO	P5	
3	GND	Connect to GND		

<div align="center">Table-2   Pin configuration</div>

6. Specification

6.1. Absolute Maximum rating

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

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	60	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		4	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±15	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±15	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

<div align="center">Table-3   Absolute Maximum rating</div>

6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V$_{RWM}$				5	V
Reverse Breakdown Voltage	V$_{BR}$	IT=1mA	6.0			V
Reverse Leakage Current	I$_R$	VRWM=5V			1	uA
Clamping Voltage	V$_C$	IPP=1A; tp=8/20us		10		V
Clamping Voltage	V$_C$	IPP=4A; tp=8/20us		15		V
Junction Capacitance	C$_J$	VR=0V; f=1MHz		0.6		pF

Table-4   Electrical Characteristics

Symbol	Parameters
V$_{RWM}$	Peak Reverse Working Voltage
I$_R$	Reverse Leakage Current @ V$_{RWM}$
V$_{BR}$	Breakdown Voltage @ I$_T$
I$_T$	Test Current
I$_{PP}$	Maximum Reverse Peak Pulse Current
V$_C$	Clamping Voltage @ I$_{PP}$
I$_F$	Forward Current
V$_F$	Forward Voltage @ I$_F$
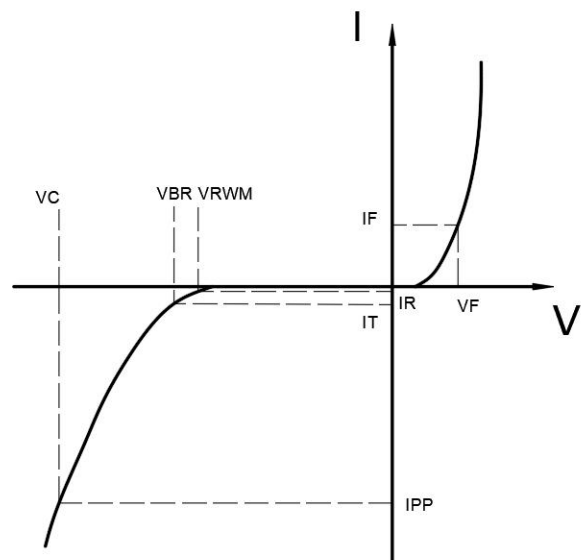
7. Typical Characteristic
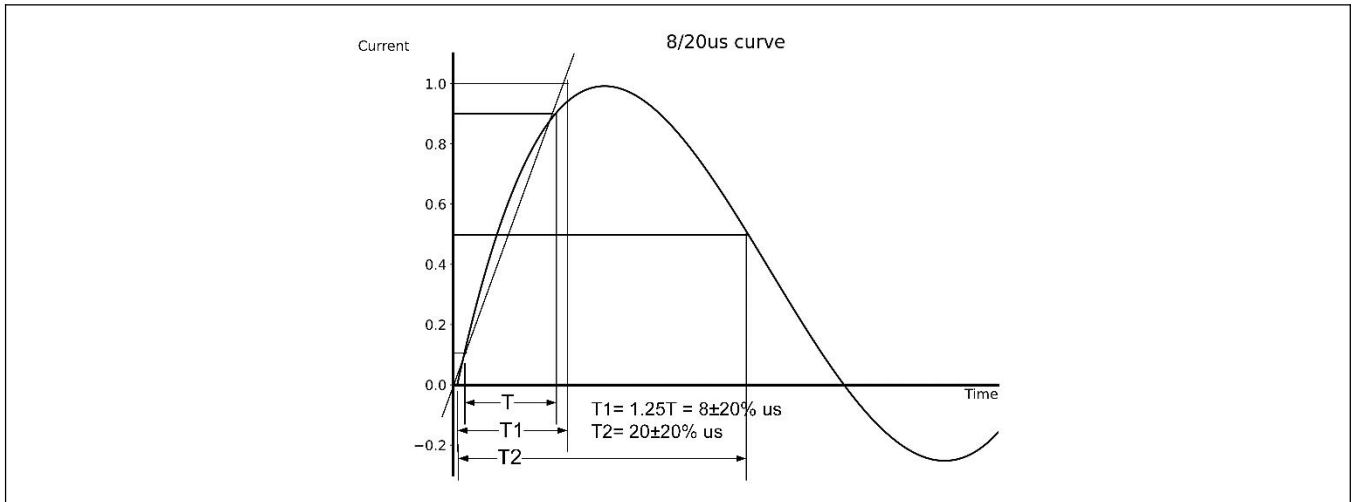
8. Typical Application
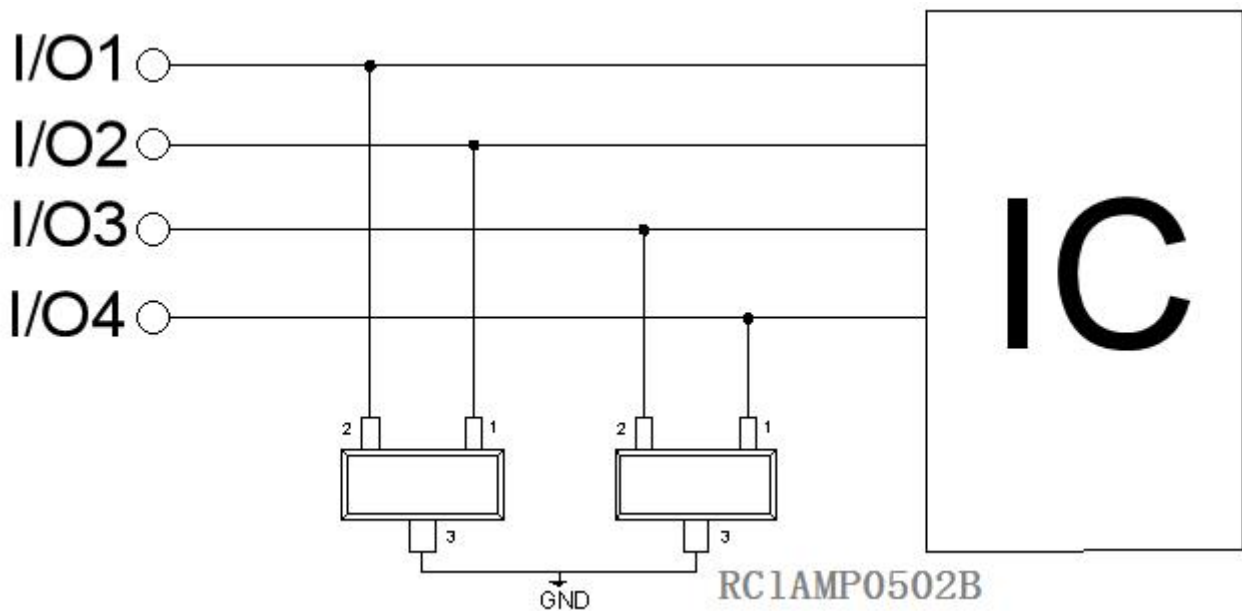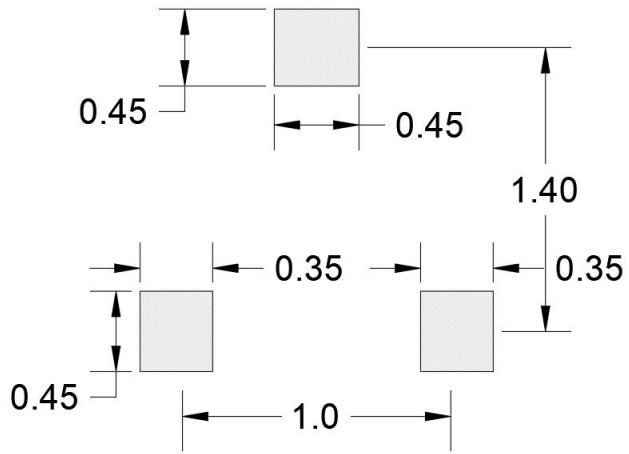

Typical Interface Application Protection

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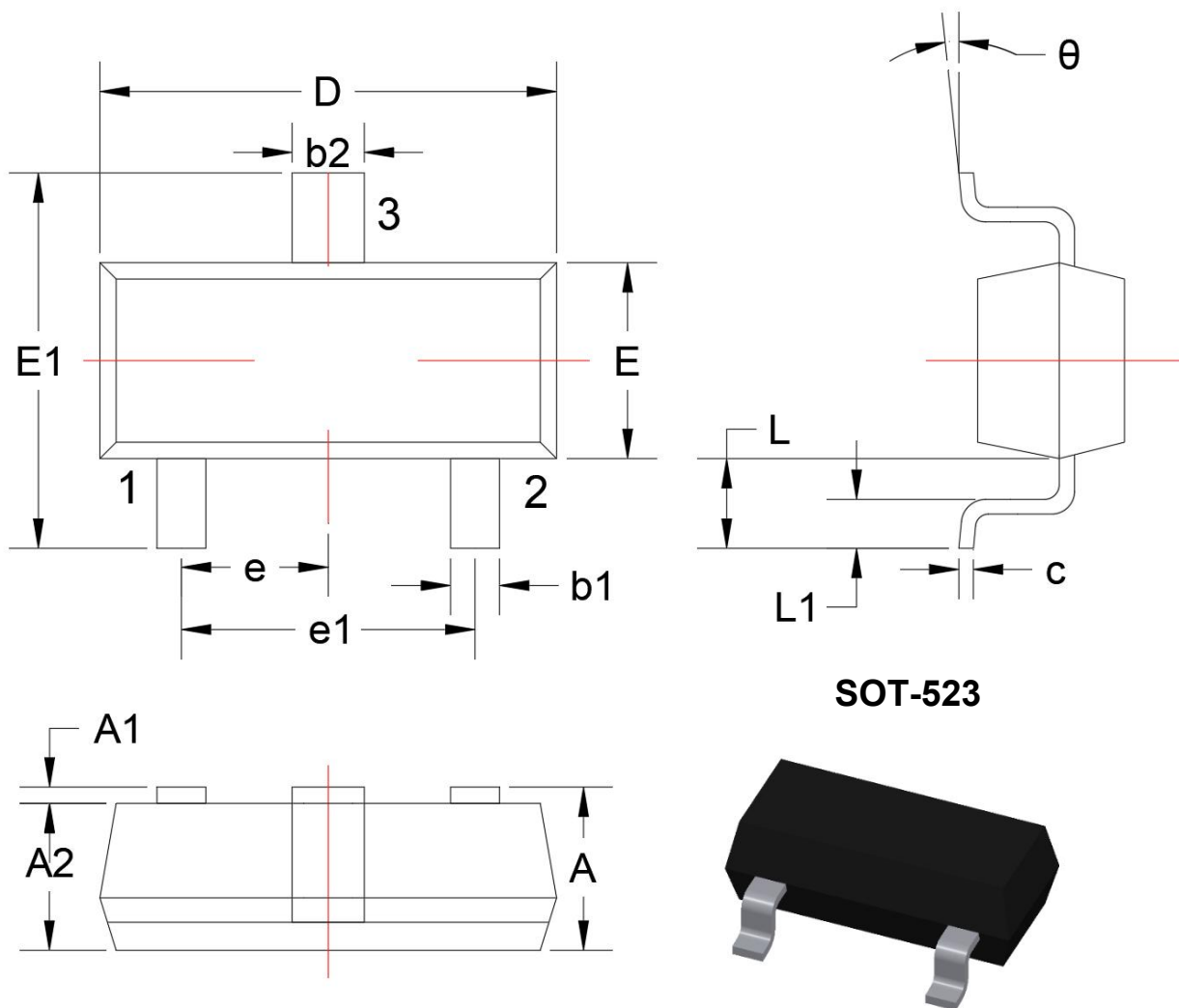
9. Dimension

SOT-523

Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.700	0.900	e1	0.900	1.100
A1	0.00	0.100	e	0.500TYP	
A2	0.700	0.800	L	0.400REF	
b1	0.150	0.250	L1	0.260	0.460
b2	0.250	0.350	θ	0°	8°
c	0.100	0.200			
D	1.500	1.700			
E	0.700	0.900			
E1	1.450	1.750			

Table-5　　Product dimensions

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10. Recommended Land Pattern

Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

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