



# Steering Structure ESD Protection Array

RESDV65V0P

Crownpo Technology

## Features

Meet IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)

Meet IEC61000-4-4 (EFT) rating. 40A (5/5ns)

Meet IEC61000-4-5 (Lightning) rating. 24A (8/20 $\mu\text{s}$ )

Protects four high speed I/O lines

Working Voltage : 5V

Pb free version, RoHS compliant, and Halogen free

## Mechanical Data

Case : SOT-363 small outline plastic package

Terminal : Matte tin plated., solderable per MIL-STD-202, Method 208.

Molding Compound Flammability Rating, UL 94V-O

High temperature soldering guaranteed : 260°C/10s

Weight : 8mg (approximately)

## Applications

USB Power & Data Line

Protection Notebooks,

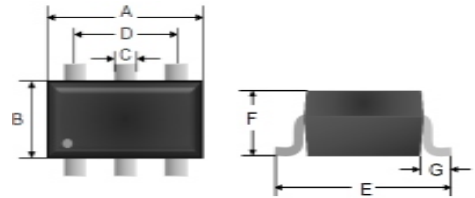
Desktops, and Servers

Monitors and Flat Panel

Displays Telecom equipment,

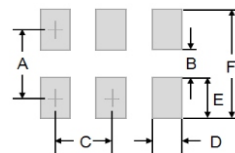
Ethernet port RJ45

## Outline Drawing SOT-363



Dimension	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.80	2.00	0.071	0.079
B	1.15	1.35	0.045	0.053
C	0.15	0.30	0.006	0.012
D	1.30 TYP		0.051 TYP	
E	2.10 TYP		0.083 TYP	
F	-	1.10	-	0.043
G	0.42		0.017	

## Suggested Pad Layout



Dim	A	B	C	D	E	F
Inch	0.07	0.04	0.03	0.02	0.03	0.11
mm	1.85	1.00	0.65	0.40	0.85	2.70

## Ordering Information

Package	Part No.	Packing	Marking	Configuration
SOT363	RESDV65V0P	3K/7" Reel	B54	

## Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified)

### Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20 $\mu\text{s}$ waveform)	P <sub>PP</sub>	150	W
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 16$	KV
ESD per IEC 61000-4-2 (Contact)		$\pm 8$	
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ 150	°C



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### Electrical Characteristics

Parameter		Symbol	Min	Max	Unit
Reverse Stand-Off Voltage		$V_{RWM}$	-	5	V
Reverse Breakdown Voltage	$I_R = 1\text{mA}$	$V_{BR}$	6	-	V
Reverse Leakage Current	$V_R = 5\text{V}$	$I_R$	-	1	$\mu\text{A}$
Clamping Voltage	$I_{PP} = 1\text{A}$	$V_C$	-	15	V
	$I_{PP} = 6\text{A}$		-	25	
Junction Capacitance	$V_R=0\text{V}, f=1\text{MHz}$	$C_J$	2 (Typ.)		pF

### Rating and Characteristic Curves

Fig 1 Non-Repetitive Peak Pulse Power vs. Pulse Time

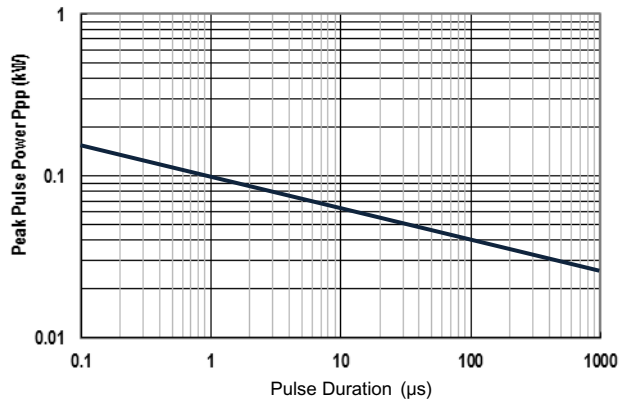


Fig 2 Clamping Voltage vs. Peak Pulse Current

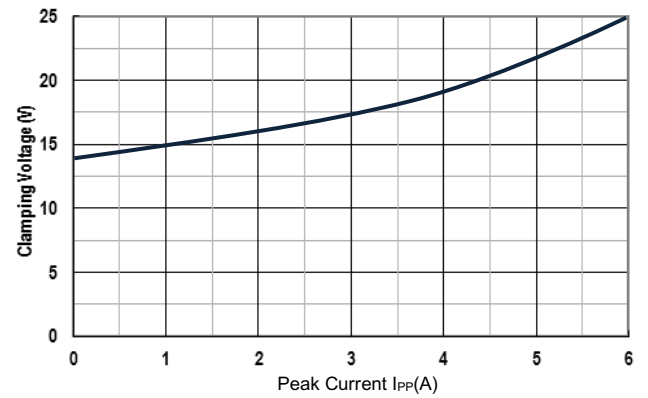


Fig 3 Admissible Power Dissipation Curve

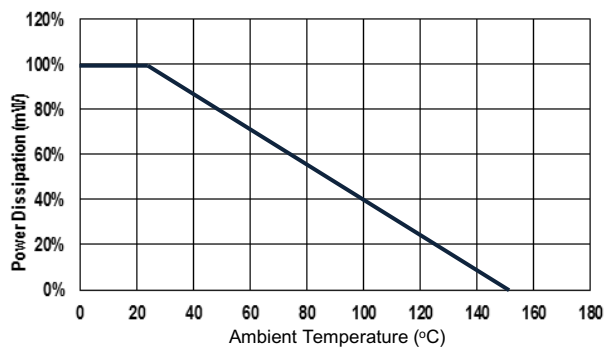


Fig 4 Typical Junction Capacitance

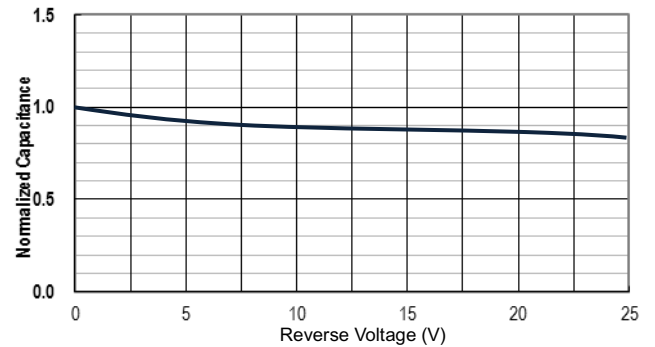


Fig 5 Pulse Waveform

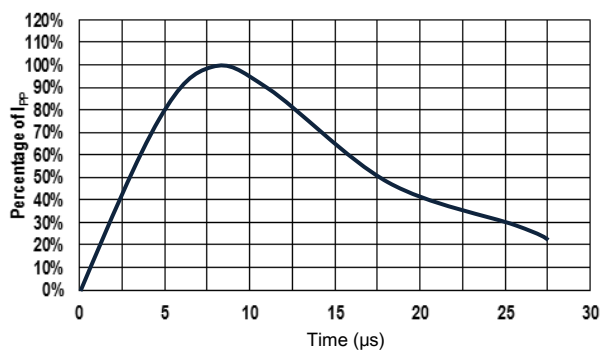
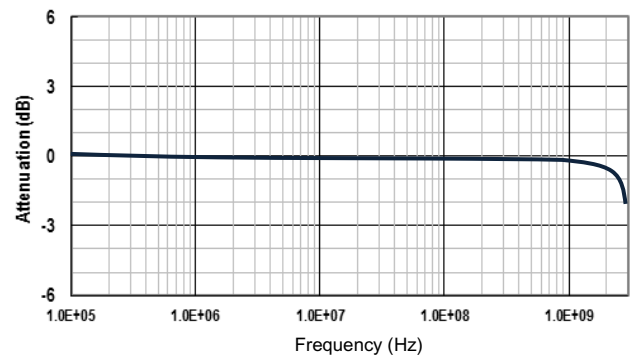


Fig 6 I/O to GND Insertion Loss vs. Frequency





### Applications Information

Designed for protection of high-speed interfaces

Designed to protect four data lines from transient over-voltages by clamping them to a fixed reference

Designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning

RESDV65V0P incorporates eight surge rated, low capacitance steering diodes and a TVS diode in a single package

During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground

The internal TVS diode prevents over-voltage on the power line, protecting any downstream components

### Circuit Board Layout Recommendations

To protect data lines and the power line, connect pin 5 directly to the VDD.

In this configuration the data lines are referenced to the supply voltage.

The internal TVS diode prevents over-voltage on the supply rail

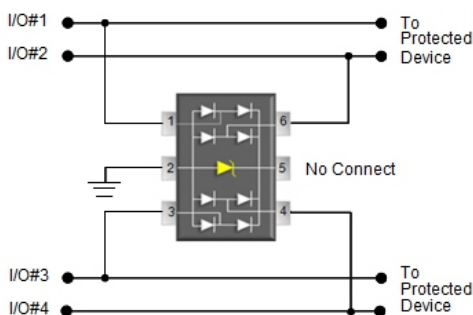
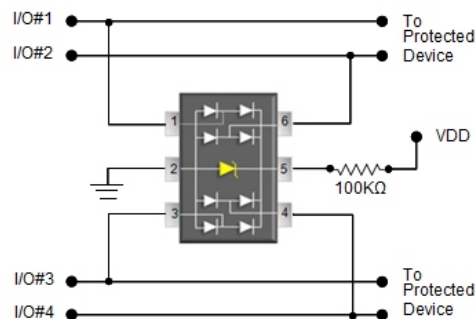
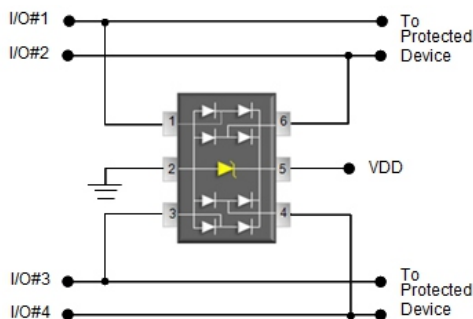
The RESDV65V0P can be isolated from the power supply by adding a series resistor between pin 5 and VDD.

A value of 100kΩ is recommended.

The internal TVS and steering diodes remain biased, providing the advantage of lower capacitance

In applications where no positive supply reference is available, or complete supply isolation is desired, the internal TVS may be used as the reference. In this case, pin 5 is not connected.

The steering diodes will begin to conduct when the voltage on the protected line exceeds the working voltage of the TVS (plus one diode drop).



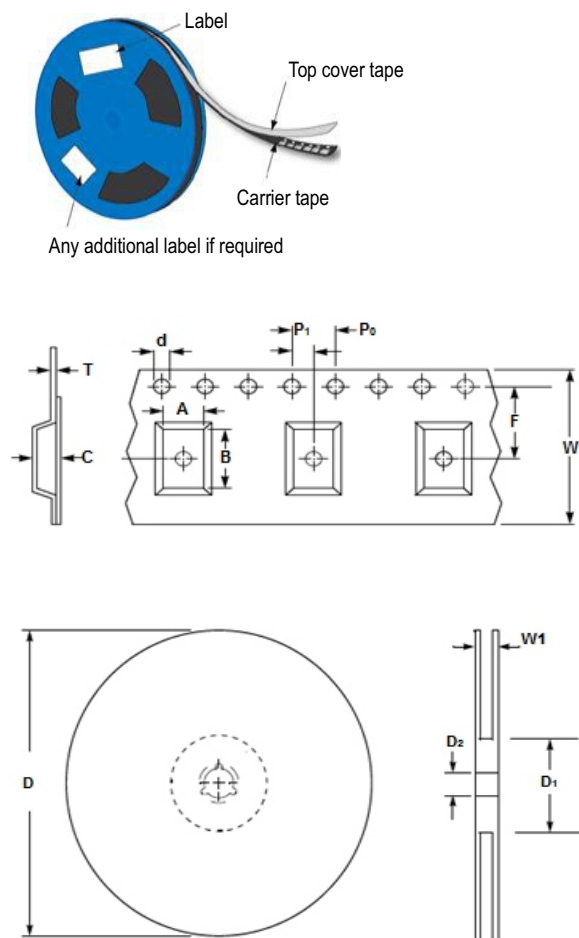


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## Tape & Reel specification



Item	Symbol	Dimension (mm)
Carrier width	A	$2.25 \pm 0.10$
Carrier length	B	$2.25 \pm 0.10$
Carrier depth	C	$1.22 \pm 0.10$
Sprocket hole	d	$1.50 \pm 0.10$
Reel outside diameter	D	$178 \pm 1$
Reel inner diameter	D1	$54.4 \pm 0.40$
Feed hole width	D2	$13.0 \pm 0.20$
Sprocket hole position	E	$1.75 \pm 0.10$
Punch hole position	F	$3.50 \pm 0.05$
Punch hole pitch	P	$4.00 \pm 0.10$
Sprocket hole pitch	P0	$4.00 \pm 0.10$
Embossment center	P1	$2.00 \pm 0.05$
Overall tape thickness	T	$0.23 \pm 0.05$
Tape width	W	$8.10 \pm 0.20$
Reel width	W1	$12.3 \pm 0.20$

