ESDSRV05-4H

Features

- SOT23-6L package
- Protects four high-speed data lines and one power line
- Working voltage: 5V
- Low leakage current
- Low clamping voltage
- Response time is typically < 1ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 20A (8/20μs)

Description

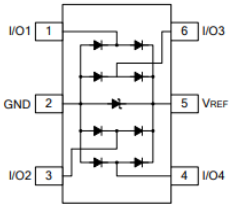
The ESDSRV05-4H integrates low capacitance rail-to-rail diodes with an additional zener diode to protect each I/O pin against ESD and high surge events.

This robust device can safely absorb 20A surge current per IEC 61000-4-5, 2nd Edition (t_P=8/20μs) without performance degradation and a minimum ±30kV ESD per IEC 61000-4-2. Their very low loading capacitance also makes them ideal for protecting high speed signal pins.

Applications

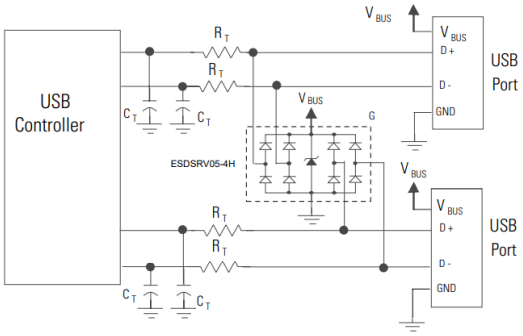
- USB 2.0 power and data line protection
- Digital video interface (DVI)
- 10/100/1000 ethernet
- SIM ports
- ATM interfaces
- Notebook computers
- Monitors and flat panel displays
- Video graphics cards

Circuit Diagram

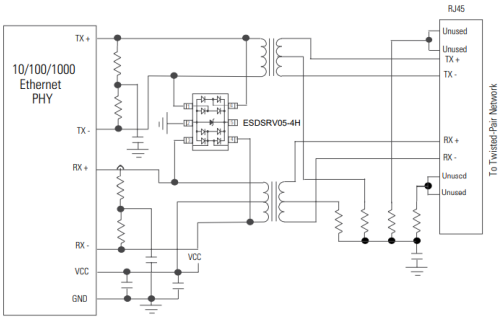


Application Examples

USB Dual Port Protection



10/100/1000 Ethernet Protection



Absolute Maximum Ratings

Tamb=25°C unless otherwise specified

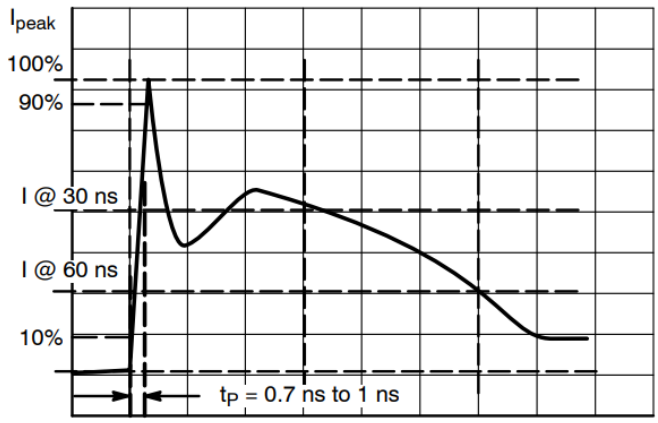
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	400	W
Maximum Reverse Peak Pulse Current	I_{PP} *1	20	A
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±30	KV
ESD per IEC 61000−4−2 (Contact)		±30	
Storage Temperature Range	T_{STJ}	-55 to +150	℃
Operating Temperature Range	T_J	-55 to +125	℃

Electrical Characteristics

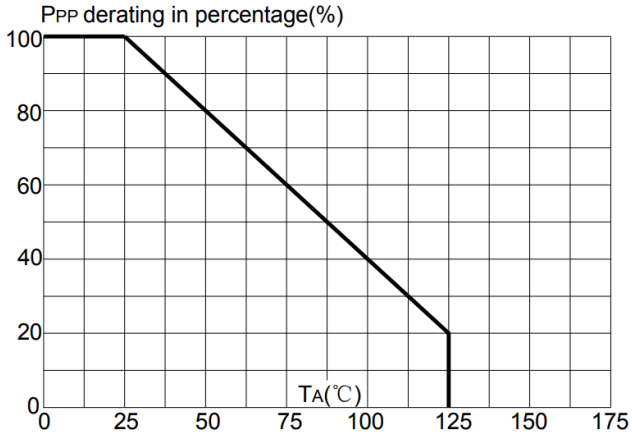
TA=25°C unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Standoff Voltage	I/O to GND			5	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA, I/O to GND	6			V
I_R	Reverse Leakage Current	V_{RWM} = 5V, I/O to GND			1	μA
V_C	Clamping Voltage I/O to GND	I_{PP}=20A, tP =8/20μs		19	20	V
V_C	Clamping Voltage GND to I/O	I_{PP}=20A, tP =8/20μs		9	10	V
C_{J1}	Diode Capacitance	V_R = 0V, f = 1MHz, I/O to I/O		1.6	2.5	pF
C_{J2}	Diode Capacitance	V_R = 0V, f = 1MHz, I/O to GND		3.2	5.0	pF

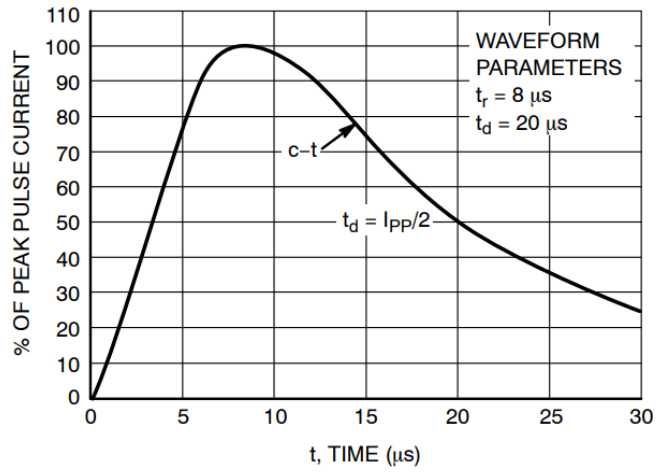
Characteristic Curves



IEC61000−4−2 Pulse Waveform

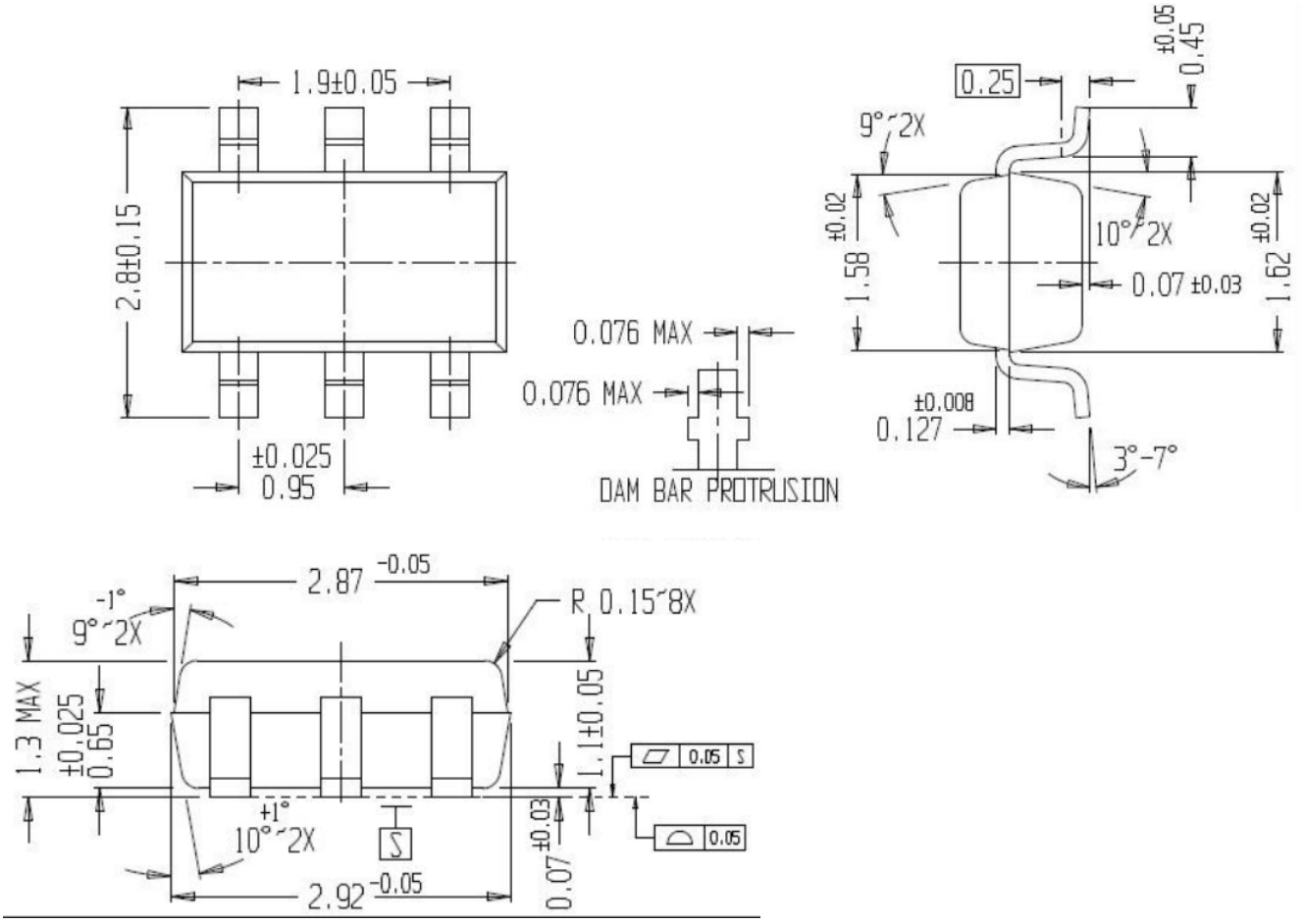


Power Derating Curve



8/20μs Pulse Waveform

SOT23-6L Dimensions(mm)



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.