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Ultra Low Capacitance ESD Protection Diode in 0402

Features

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Surface mount
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications



- Case: 0402 (plastic package). Lead free; RoHS compliant
- Molding Compound Flammability Rating: UL 94 V-0
- **Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

Applications

- USB3.0, Firewire, DVI, HDMI, S-ATA
- Thunderbolt, Display Port
- Mobile HDMI Link, MDDI, MIPI, SWP / NFC

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	Value	Unit
Maximum Contact discharge voltage Per IEC61000-4-2		15KV	V
Maximum Air discharge voltage Per IEC61000-4-2		25KV	V
Maximum Operating temperature	Toper	-40 to +90	°C
Maximum Storage temperature	Тѕтс	-55 to +125	°C
Maximum lead temperature for soldering during 10s	T∟	260	°C

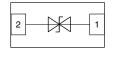
Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Тур	Max	Units
Rated Voltage	VR			24		V
Trigger voltage	VT	IEC61000-4-2 8KV contact discharge		300		V
Clamping voltage	Vc	IEC61000-4-2 8KV contact discharge		35		V
Leakage current	lι	DC 12V shall be applied on component			0.10	uA
Capacitance	СР	V _R = 0V, f = 1MHz		0.05		pF

Note: 1 Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

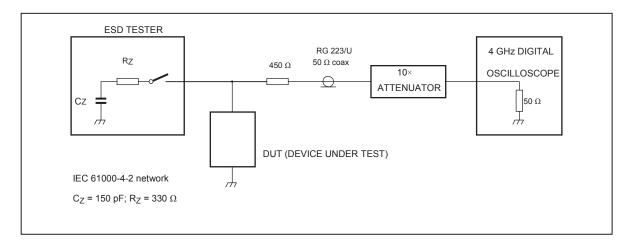
2 After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.



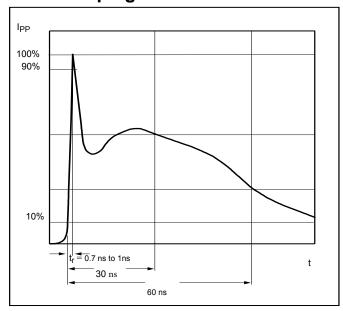


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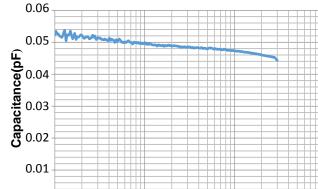
ESD Clamping Test



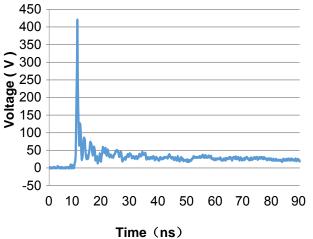
ESD Clamping Test Waveforms



Typical ESD Response (IEC 61000-4-2, 8KV contact discharge)



Typical Device Capacitance VS. Frequency



Rev. 1.0, 23-May-2016

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1.0E+08

0

1. 0E+07

1.0E+09

Frequency(Hz)

1.0E+10

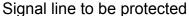


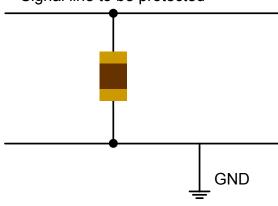
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ESD Protection for Signal Line

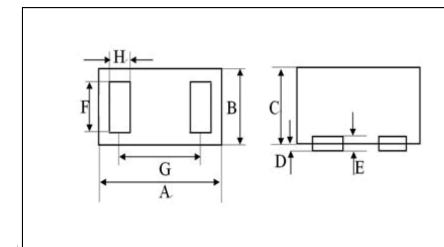
The CESD is designed for the protection of one bidirectional data line from ESD damage.

- Place the CESD as close to the input terminal or connector as possible.
- Minimize the path length between the CESD and the protected signal line.
- Use ground planes whenever possible.





Product Dimension



Dim	millmeters		
	min	max	
A	0.90	1.20	
В	0.45	0.65	
С	0.30	0.40	
D	0.00	0.05	
Е	0.125REF		
F	0.40	0.50	
G	0.65BSC		
Н	0.25	0.35	

Ordering inormation

Order code	Package	Packaging option	Base quantity	Packaging specification
CESD0402UC24VB	0402	Tape and reel	10000pcs / reel	EIA STD RS-481

Reision history

Date	Revision	Changes
23-May-2016	1.0	Initial release

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CESDP0402UC24VB

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