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## CESDP0402UC14VB

**CREATEK Microelectronics** 

### **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

### **Mechanical Data**

- **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

### **Absolute Maximum Ratings**

Ratings at 25 °C, ambient temperature unless otherwise specified

2 1

### **Applications**

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

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 +125	°C	
Maximum Storage temperature	Тѕтс	-55 to +125	°C	
Maximum lead temperature for soldering during 10s	Τι	260	°C	

### **Electrical Characteristics**

 $(T_A = 25 \ ^{\circ}C \text{ unless otherwise specified})$ 

Parameter	Symbol	Test Conditions	Min	Тур	Мах	Units
Rated Voltage	VR			14		V
Trigger voltage	Vτ	IEC61000-4-2 8KV contact discharge		300		V
Clamping voltage	Vc	IEC61000-4-2 8KV contact discharge		35		V
Leakage current	IL.	DC 12V shall be applied on component			0.10	uA
Capacitance	Ср	V <sub>R</sub> = 0V, f = 1MHz		0.05		pF

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

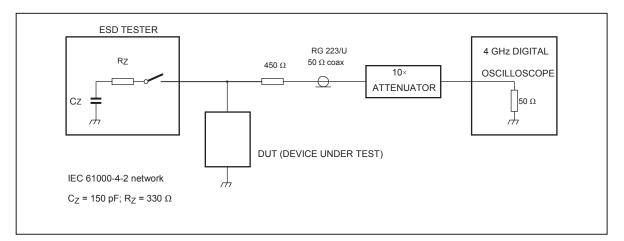
2 After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.



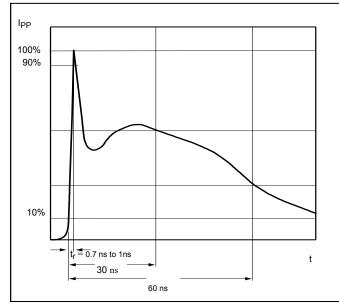
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### **ESD Clamping Test**

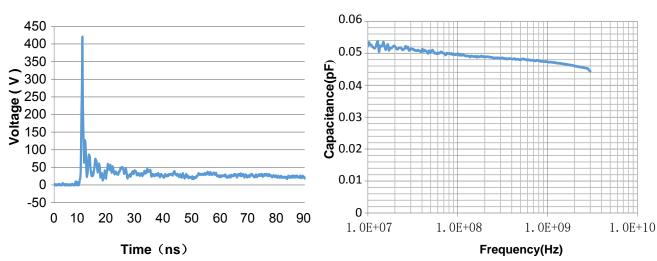


### **ESD Clamping Test Waveforms**



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

Typical Device Capacitance VS. Frequency





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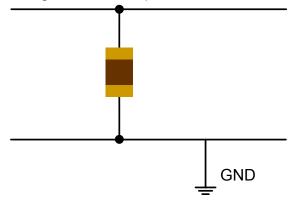
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### **ESD Protection for Signal Line**

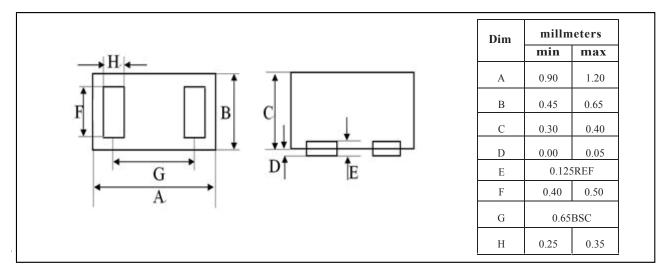
The CESD is designed for the protection of one bidirectional data line from ESD damage.

- 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.

#### Signal line to be protected



### **Product Dimension**



### **Ordering inormation**

Order code	Package	Packaging option	Base quantity	Packaging specification
CESD0402UC14VB	0402	Tape and reel	10000pcs / reel	EIA STD RS-481

#### **Revision history**

Date	Revision	Changes
23-May-2016	1.0	Initial release

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