#### **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



- 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

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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		

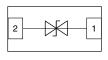
#### **Electrical Characteristics**

(T<sub>A</sub> = 25 °C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Тур	Max	Units
Rated Voltage	VR				25	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 <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.



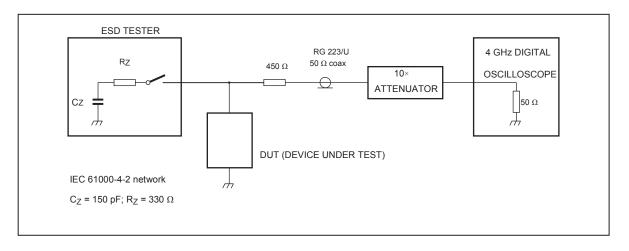
**Applications** 

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



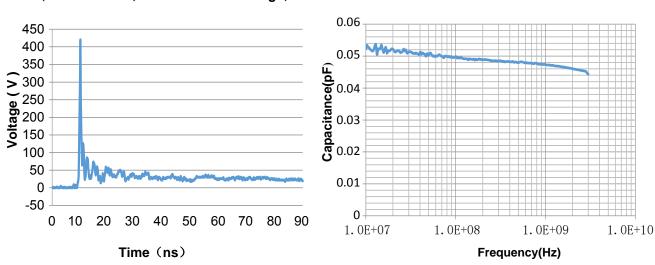
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## **ESD Clamping Test**



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

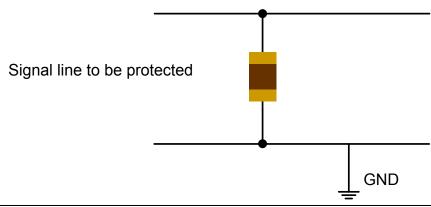
#### Typical Device Capacitance VS. Frequency



#### **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.

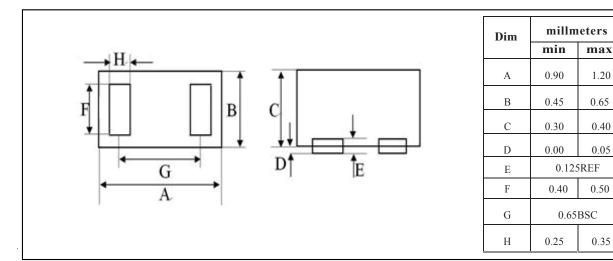


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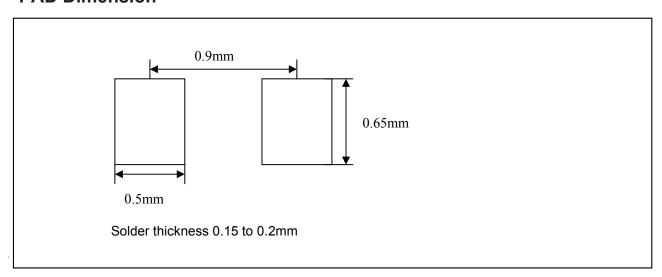


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### **Product Dimension**



### **PAD Dimension**



### **Ordering information**

Order code	Package	Packaging option	Base quantity	Packaging specification
CESDP0402UC25VB	0402	Tape and reel	10000pcs / reel	EIA STD RS-481

#### **Revision history**

Date	Revision	Changes
23-May-2016	1.0	Initial release

Rev. 1.0 www.crea-tek.com



# CESDP0402UC25VB

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