

### Features:

- Very quick response time (< 1 nS)
- ESDU series has ultra-low capacitance < 0.05 pF
- Lower cost ESD series has capacitance < 0.2 pF
- Ultra-low leakage current (< 1 nA)
- No signal distortion
- RoHS compliant, lead free and halogen free



### Applications:

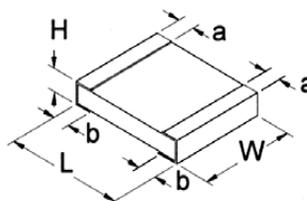
- High speed data ports (USB 2.0, IEEE1394)
- Notebook PC's, cell phones, PDA's
- Digital cameras, printers, scanners
- Plasma display panels, LCD TVs, HDTV's

### Electrical Specifications

Type	Package Size	Continuous Operating Voltage (Max)	ESD Capability <sup>(1)</sup>	Trigger Voltage (Typical) <sup>(2)</sup>	Clamping Voltage (Typical)	Capacitance <sup>(3)</sup>	Leakage Current (Typical)	Response Time	ESD Pulse Withstand (Typical) <sup>(4)</sup>
ESD(U)02A3V3R17V	0402	3.3 VDC	Direct Discharge: 8 kV Air Discharge: 15 kV	150 V	17 V	ESD Series < 0.2 pF	< 1 nA	< 1 nS	> 1000 pulses
ESD(U)03A3V3R17V	0603			250 V	25 V				
ESD(U)02A3V3R25V	0402								
ESD(U)03A3V3R25V	0603								
ESD(U)02A5V5R17V	0402	5.5 VDC		250 V	25 V	ESDU Series < 0.05 pF			
ESD(U)03A5V5R17V	0603								
ESD(U)02A5V5R25V	0402			250 V	25 V				
ESD(U)03A5V5R25V	0603								
ESD(U)02A12VR25V	0402	12 VDC	250 V	25 V					
ESD(U)03A12VR25V	0603	24 VDC							
ESD(U)02A24VR25V	0402								
ESD(U)03A24VR25V	0603								

1. ESD capability meets the requirements of IEC 61000-4-2.
2. Trigger measurement made using Transmission Line Pulse Method.
3. Capacitance measured from 1 MHz - 1.8 GHz.
4. Under IEC 61000-4-2 level 4 (8 kV contact discharge, 15 kV air discharge).

### Mechanical Specifications



Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
ESD(U)02 (0402)	0.039 ± 0.004	0.020 ± 0.002	0.014 ± 0.002	0.008 ± 0.004	0.010 ± 0.004	inches
	1.00 ± 0.10	0.50 ± 0.05	0.35 ± 0.05	0.20 ± 0.10	0.25 ± 0.10	mm
ESD(U)03 (0603)	0.061 ± 0.004	0.031 ± 0.004	0.018 ± 0.004	0.012 ± 0.008	0.012 ± 0.008	inches
	1.55 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	mm

Performance Characteristics			
Test	Test Method	Test Specification	Test Condition
Operating Temperature		Leakage Current < 1 uA	-55 to 125 °C
Full Load Voltage			1000 hours at 25 °C
Bending			3 mm deflection
Resistance to Solder Heat	MIL-STD-202 Method 210		260 ± 5 °C for 10 ± 1 seconds
Moisture Resistance	MIL-STD-883 Method 1004.7		85% RH, 85 °C for 1000 hours
Thermal Shock	MIL-STD-202 Method 107		5 cycles from -55 to 125 °C
Solderability	MIL-STD-202 Method 208	95% coverage	245 ± 5 °C, 2 ± 0.5 seconds dwell, Sn96.5 / Ag3.0 / Cu0.5 solder

### RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union’s directive regarding “Restrictions on Hazardous Substances” (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status						
Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
ESD(U)	Low and Ultra-Low Capacitance ESD Suppressor	SMD	YES	100% Matte Sn over Ni	Always	Always

### “Conflict Metals” Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

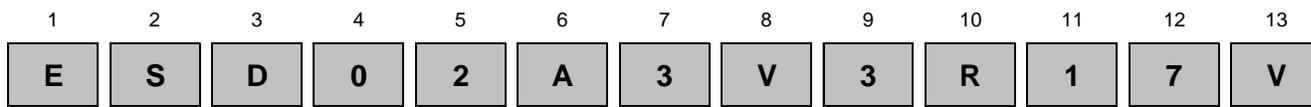
### Compliance to “REACH”

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

**Environmental Policy**

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

**How to Order**



Product Series	
Code	Description
ESD	Low Capacitance < 0.2 pF
ESDU	Ultra Low Capacitance < 0.05 pF

Size	
Code	Size
02	0402
03	0603

Tolerance	
Code	Description
A	Suitable for IEC 61000-4-2

Operating Voltage	
Code	Voltage
3V3	3.3 V
5V5	5.5 V
12V	12 V
24V	24 V

Packaging			
Code	Description	Sizes	Quantity
R	Tape & Reel	0402	10000
		0603	5000

Clamping Voltage	
Code	Voltage
17 V	17 V
25 V	25 V