

### 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
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant



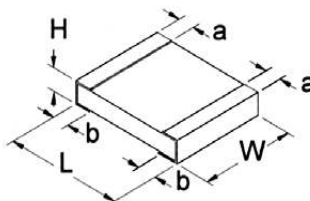
### Applications:

- 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 (VDC) (Max) | ESD Capability <sup>(1)</sup>                  | Trigger Voltage (V) (Typical) <sup>(2)</sup> | Clamping Voltage (V) (Typical) | Capacitance <sup>(3)</sup> | Leakage Current (Typical) | Response Time | ESD Pulse Withstand (Typical) <sup>(4)</sup> |
| ESD(U)02A3V3R17V          | 0402         | 3.3                                      | Direct Discharge: 8 kV<br>Air Discharge: 15 kV | 150  | 17                             | ESD Series<br>< 0.2 pF     | < 1 nA                    | < 1 nS        | > 1000 pulses                                |
| ESD(U)03A3V3R17V          | 0603         |  |  | 250  | 25                             |                            |                           |               |  |
| ESD(U)02A3V3R25V          | 0402         |  |  |  |                                |                            |                           |               |  |
| ESD(U)03A3V3R25V          | 0603         |  |  |  |                                |                            |                           |               |  |
| ESD(U)02A5V5R17V          | 0402         | 5.5                                      |  | 250  | 25                             | ESDU Series<br>< 0.05 pF   |                           |               |  |
| ESD(U)03A5V5R17V          | 0603         |  |  |  |                                |                            |                           |               |  |
| ESD(U)02A5V5R25V          | 0402         |  |  | 250  | 25                             |                            |                           |               |  |
| ESD(U)03A5V5R25V          | 0603         |  |  |  |                                |                            |                           |               |  |
| ESD(U)02A12VR25V          | 0402         | 12                                       | 250  | 25   |                                |                            |                           |               |  |
| ESD(U)03A12VR25V          | 0603         | 24                                       |  |  |                                |                            |                           |               |  |
| ESD(U)02A24VR25V          | 0402         |  | 24   | 250  | 25                             |                            |                           |               |  |
| 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<br>Body Length | W<br>Body Width | H<br>Body Height | a<br>Top Termination | b<br>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                 |

### 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**

