BiSy Single-Line ESD Protection Diodes Feature
Low Working Range of 3.3 V

KEY BENEFITS
- Low working range of 3.3 V
- Ultra-compact CLP0603 silicon package
  - 0.6 mm x 0.3 mm footprint
  - Extremely low height of 0.27 mm
- Ultra-low load capacitance down to 0.29 pF typical
- Low maximum leakage current of < 0.1 µA
- Breakdown voltage of 8.5 V typical at 1 mA
- Maximum clamping voltage of 18 V at 2.5 A
- Transient protection for one data line as per IEC 61000-4-2:
  - VBUS03B1-SD0: ± 16 kV (air and contact discharge)
  - VCUT03E1-SD0: ± 30 kV (air and contact discharge)
- Supports reflow soldering to +260 °C for 10 s per JEDEC STD-020
- RoHS-compliant, halogen-free and Vishay GREEN

APPLICATIONS
- ESD protection of high-speed data ports like HDMI, USB 3.1, and Thunderbolt in smartphones, mobile phones, digital cameras, MP3 players, and portable gaming systems

RESOURCES
- Datasheet: VBUS03B1-SD0 please visit www.vishay.com/ppg?85908
  VCUT03E1-SD0 please visit www.vishay.com/ppg?85909
- For technical questions contact ESDprotection@vishay.com
- Material categorization: For definitions of compliance, please see http://www.vishay.com/doc?99912
BiSy Single-Line ESD Protection Diodes Feature
Low Working Range of 3.3 V

**VCUT03E1-SD0**

- Ultra compact CLP0603 package
- Low package height < 0.3 mm
- Low leakage current < 0.1 μA
- Low load capacitance $C_D < 14 \text{ pF}$
- ESD-protection acc. IEC 61000-4-2
- ± 30 kV contact discharge
- ± 30 kV air discharge
- Lead plating: Au (e4)
- Lead material: Ni
- Topside coating
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

**FEATURES**

- ESD-protection acc. IEC 61000-4-2
- Material categorization: for definitions of compliance
- Low load capacitance $CD < 14 \text{ pF}$
- Ultra compact CLP0603 package
- Ultra low load capacitance $CD = 0.29 \text{ pF}$ typ.
- 1-line ESD-protection
- Low leakage current < 0.1 μA
- Working range ± 3.3 V
- Low leakage current < 0.1 μA
- Ultra low load capacitance $CD = 0.29 \text{ pF}$ typ.
- ESD-protection acc. IEC 61000-4-2
- ± 16 kV contact discharge
- ± 16 kV air discharge
- Lead plating: Au (e4)
- Lead material: Ni
- Backside coating
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>DEVICE NAME</th>
<th>ORDERING CODE</th>
<th>TAPPED UNITS PER REEL</th>
<th>MINIMUM ORDER QUANTITY</th>
</tr>
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<tbody>
<tr>
<td>VBUS03B1-SD0</td>
<td>VBUS03B1-SD0-G4-08</td>
<td>15 000</td>
<td>15 000</td>
</tr>
<tr>
<td>VVCUT03E1-SD0</td>
<td>VVCUT03E1-SD0-G4-08</td>
<td>15 000</td>
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</tbody>
</table>

**PACKAGE DATA**

<table>
<thead>
<tr>
<th>DEVICE NAME</th>
<th>PACKAGE NAME</th>
<th>TYPE CODE</th>
<th>WEIGHT</th>
<th>SOLDERING CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBUS03B1-SD0</td>
<td>CLP0603</td>
<td>3B</td>
<td>0.12 mg</td>
<td>260 °C/10 s at terminals</td>
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<td></td>
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<td>Reflow soldering</td>
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<td></td>
<td>according JEDEC®</td>
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<td>STD-020</td>
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<td>VVCUT03E1-SD0</td>
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**ABSOLUTE MAXIMUM RATINGS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITIONS</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>UNIT</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>VBUS03B1-SD0</td>
<td>VVCUT03E1-SD0</td>
<td></td>
</tr>
<tr>
<td>Peak pulse current</td>
<td>acc. IEC 61000-4-5, 8/20 μs/single shot</td>
<td>$I_{PPM}$</td>
<td>2.5</td>
<td>6 A</td>
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<tr>
<td>Peak pulse power</td>
<td>Pin 1 to pin 2, acc. IEC 61000-4-5; $t_p = 8/20 \mu s$; single shot</td>
<td>$P_{PP}$</td>
<td>45</td>
<td>78 W</td>
</tr>
<tr>
<td>ESD immunity</td>
<td>Contact discharge acc. IEC 61000-4-2; 10 pulses</td>
<td>$V_{ESD}$</td>
<td>± 16</td>
<td>± 30 kV</td>
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<tr>
<td></td>
<td>Air discharge acc. IEC 61000-4-2; 10 pulses</td>
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<td>± 16</td>
<td>± 30 kV</td>
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<tr>
<td>Operating temperature</td>
<td>Junction temperature</td>
<td>$T_J$</td>
<td>-55 to +150</td>
<td>-55 to +150 °C</td>
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<tr>
<td>Storage temperature</td>
<td></td>
<td>$T_{stg}$</td>
<td>-55 to +150</td>
<td>-55 to +150 °C</td>
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