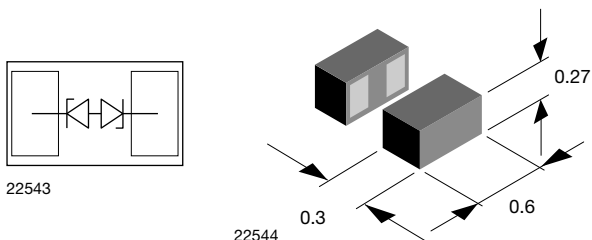




Bidirectional Symmetrical (BiSy) Single Line ESD-Protection Diode in Silicon Package



FEATURES

- Ultra compact CLP0603 package
- Low package height < 0.3 mm
- 1-line ESD-protection
- Working range ± 15 V
- Low leakage current < 0.1 μ A
- Low load capacitance $C_D = 5.5$ pF (typ.)
- ESD-protection acc. IEC 61000-4-2
 ± 15 kV contact discharge
 ± 15 kV air discharge
- Lead plating: Au (e4)
- Lead material: Ni
- Topside coating
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



MARKING (example only)



1 = year code
 Open circle = month code and pin 1
 XY = type code

LINKS TO ADDITIONAL RESOURCES



| ORDERING INFORMATION | | | | |
|-----------------------|--|-------------|--|-------------------------|
| PART NUMBER (EXAMPLE) | ENVIRONMENTAL AND QUALITY CODE | | PACKAGING CODE | ORDERING CODE (EXAMPLE) |
| | RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS | GOLD PLATED | 15K PER 7" REEL (8 mm TAPE) 15K/BOX = MOQ | |
| | GREEN | | | |
| VCUT15A1-SD0- | G | 4 | -08 | VCUT15A1-SD0-G4-08 |

| PACKAGE DATA | | | | |
|--------------|--------------|-----------|---------|---|
| DEVICE NAME | PACKAGE NAME | TYPE CODE | WEIGHT | SOLDERING CONDITIONS |
| VCUT15A1-SD0 | CLP0603-2L | 15 | 0.12 mg | Peak temperature max. 260 °C Reflow soldering according JEDEC® STD-020 |

| ABSOLUTE MAXIMUM RATINGS | | | | |
|--------------------------|---|-----------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | acc. IEC 61000-4-5, 8/20 μ s/single shot | I_{PPM} | 2.5 | A |
| Peak pulse power | Pin 1 to pin 2 acc. IEC 61000-4-5; $t_p = 8/20$ μ s; single shot | P_{PP} | 65 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V_{ESD} | ± 15 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | |
| Operating temperature | Junction temperature | T_J | -55 to +150 | °C |
| Storage temperature | | T_{stg} | -55 to +150 | °C |

**CUT THE SPIKES WITH VCUT15A1-SD0**

The VCUT15A1-SD0 is a Bidirectional and Symmetrical (BiSy) ESD-protection device which clamps positive and negative overvoltage transients to ground. Connected between the signal or data line and the ground the VCUT15A1-SD0 offers a high isolation (low leakage current, low capacitance) within the specified working range. Due to the short leads and small package size of the tiny CLP0603 package the line inductance is very low, so that fast transients like and ESD-strike can be clamped with minimal over- or undershoots.

| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|--|---|---------------|------|------|------|----------|
| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Protection paths | Number of lines which can be protected | $N_{channel}$ | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V_{RWM} | - | - | 15 | V |
| Reverse voltage | At $I_R = 0.05\text{ }\mu\text{A}$ | V_R | 15 | - | - | V |
| Reverse current | At $V_{RWM} = 15\text{ V}$ | I_R | - | - | 50 | nA |
| Reverse breakdown voltage | At $I_R = 1\text{ mA}$ | V_{BR} | 15.8 | 16.8 | 17.8 | V |
| Reverse clamping voltage | At $I_{PP} = 1\text{ A}$; $t_p = 8/20\text{ }\mu\text{s}$ | V_C | - | 18 | 20 | V |
| | At $I_{PP} = I_{PPM} = 2.5\text{ A}$; $t_p = 8/20\text{ }\mu\text{s}$ | V_C | - | 21 | 26 | V |
| Capacitance | At $V_R = 0\text{ V}$; $f = 1\text{ MHz}$ | C_D | - | 5.5 | 6.5 | pF |
| | At $V_R = 5\text{ V}$; $f = 1\text{ MHz}$ | C_D | - | 4 | - | pF |
| Clamping voltage | Transmission Line Pulse (TLP); $t_p = 100\text{ ns}$ $I_{TLP} = 8\text{ A}$ | V_{C-TLP} | - | 22 | - | V |
| Clamping voltage | Transmission Line Pulse (TLP); $t_p = 100\text{ ns}$ $I_{TLP} = 16\text{ A}$ | V_{C-TLP} | - | 26 | - | V |
| Dynamic resistance | Transmission Line Pulse (TLP); $t_p = 100\text{ ns}$ | R_{DYN} | - | 0.52 | - | Ω |



TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

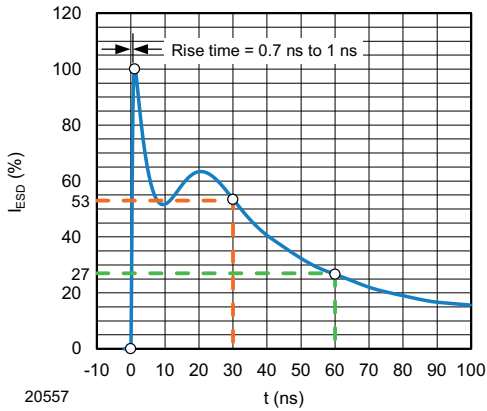


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150 pF)

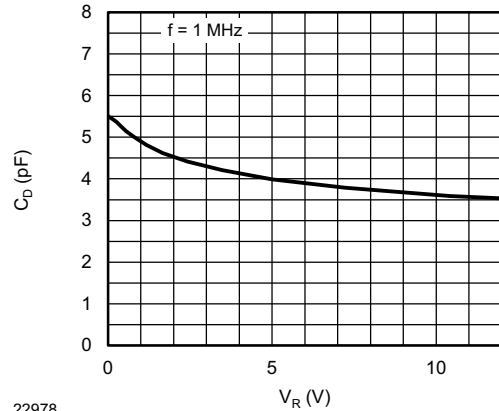


Fig. 4 - Typical Capacitance vs. Reverse Voltage

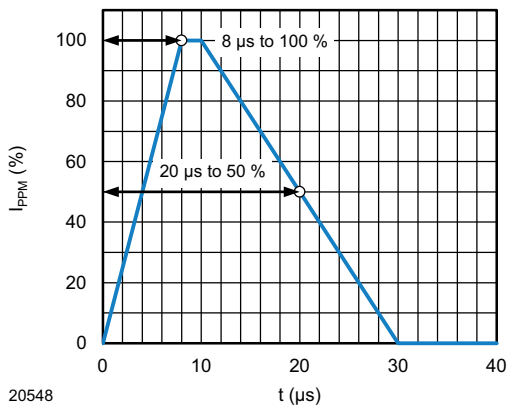


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

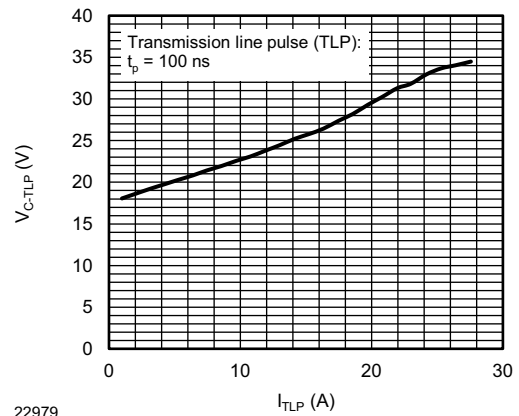


Fig. 5 - Typical Clamping Voltage vs. Peak Pulse Current

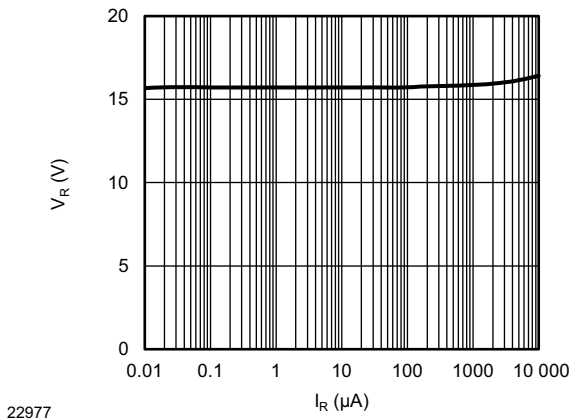


Fig. 3 - Typical Reverse Voltage vs. Reverse Current

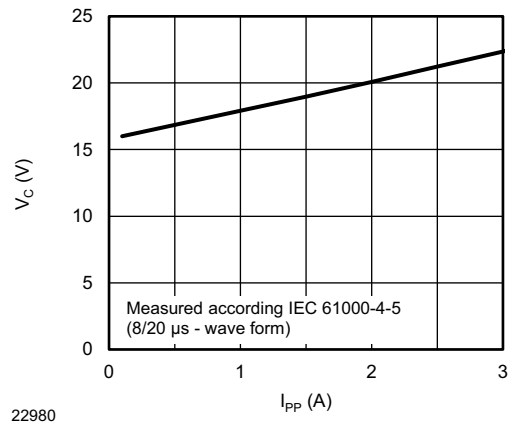
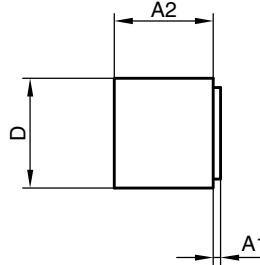
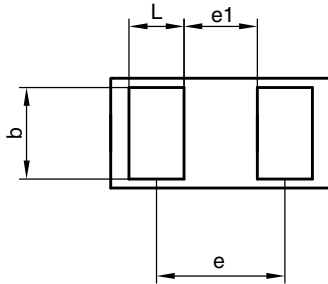


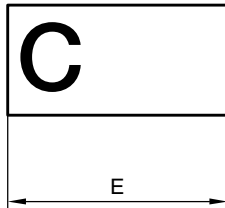
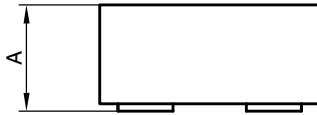
Fig. 6 - Typical Peak Clamping Voltage vs. Peak Pulse Current



PACKAGE DIMENSIONS in millimeters (mils): **CLP0603-2L**



Package = chip dimensions in mm [mils]



| | Millimeters | | | mils | | |
|----|-------------|------|------|-------|-------|-------|
| | min. | nom. | max. | min. | nom. | max. |
| A | 0.25 | 0.28 | 0.30 | 9.84 | 11.02 | 11.81 |
| A1 | 0.01 | 0.01 | 0.02 | 0.39 | 0.39 | 0.79 |
| A2 | 0.24 | 0.27 | 0.28 | 9.45 | 10.63 | 11.02 |
| b | 0.22 | 0.25 | 0.28 | 8.66 | 9.84 | 11.02 |
| D | 0.27 | 0.30 | 0.33 | 10.62 | 11.81 | 12.99 |
| E | 0.57 | 0.60 | 0.63 | 22.44 | 23.62 | 24.80 |
| e | | 0.40 | | | 15.75 | |
| e1 | | 0.25 | | | 9.84 | |
| L | 0.12 | 0.15 | 0.18 | 4.72 | 5.91 | 7.09 |

22941

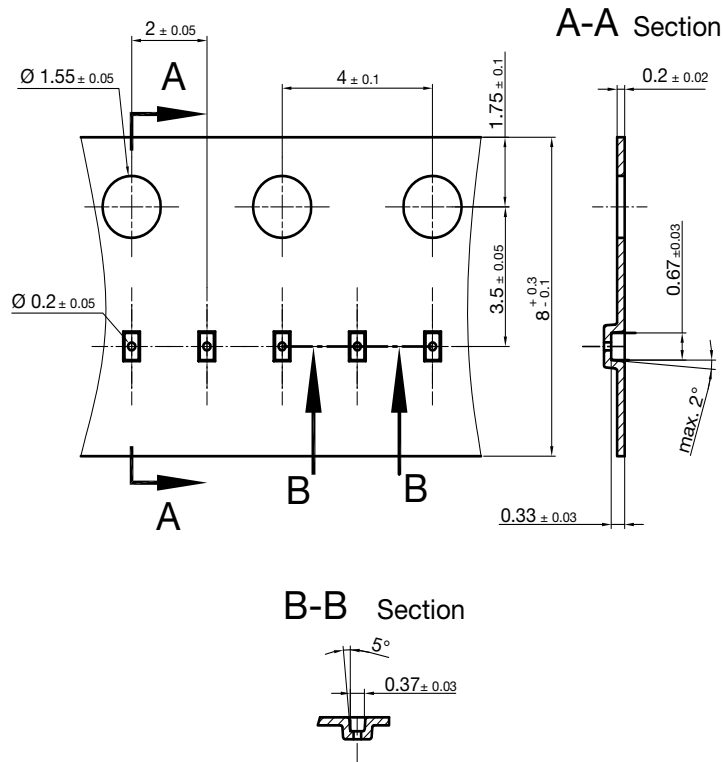
2 terminal leadless package (CLP)
 Document no.: S8-V-3906.04-023 (4)
 Created - Date: 22. Nov. 2010
 Rev.8 - Date: 11. Nov. 2016

Footprint and soldering recommendation:

please see Application Note: www.vishay.com/doc?85917



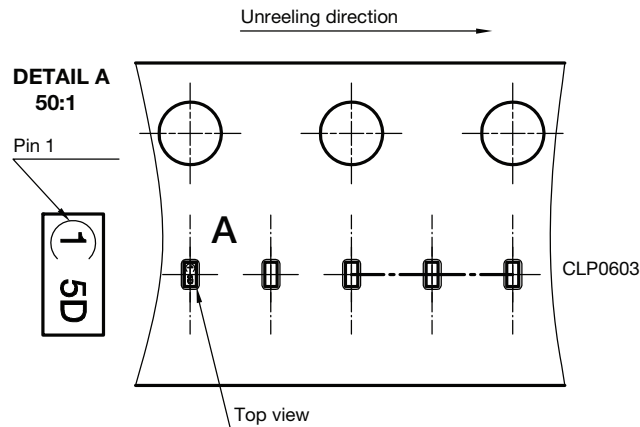
CARRIER TAPE in millimeters: **CLP0603-2L**



Cummulative tolerances of 10 sprocket holes is ± 0.2 mm

22591
Document no. S8-V-3906.04-0025 (4)
Created - Date: 22. Nov. 2010

ORIENTATION IN CARRIER CLP0603-2L



22936
Orientation in Carrier Tape (CLP0603)
S8-V-3906.04-026 (4)
22.10.2010



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.