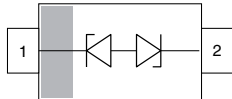
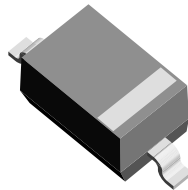


# Low Capacitance, Single-Line ESD Protection Diode in SOD-323



20503



22756 SOD-323

**MARKING** (example only)


XYZ = type code (see table below)  
bar = pin 1

**LINKS TO ADDITIONAL RESOURCES**

**FEATURES**

- For LIN-bus applications
- Small SOD-323 package
- 1-line ESD protection
- Working range:  $\pm 16$  V
- Low leakage current  $I_R < 0.05$   $\mu$ A
- Low load capacitance  $C_D < 24$  pF
- ESD protection acc. IEC 61000-4-2  
 $\pm 30$  kV contact discharge  
 $\pm 30$  kV air discharge
- ESD capability according to AEC-Q101:  
human body model: class H3B:  $> 8$  kV
- e3 - pins plated with tin (Sn)
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**ORDERING INFORMATION**

| PART NUMBER (EXAMPLE) | ENVIRONMENTAL AND QUALITY CODE |  |       |            | PACKAGING CODE             |                              | ORDERING CODE (EXAMPLE) |
|-----------------------|--------------------------------|--|-------|------------|----------------------------|------------------------------|-------------------------|
|                       | AEC-Q101 QUALIFIED             | RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS |       | TIN PLATED | 3K PER 7" REEL (8 mm TAPE) | 10K PER 13" REEL (8 mm TAPE) |                         |
|                       |                                | STANDARD                                     | GREEN |            | 15K/BOX = MOQ              | 10K/BOX = MOQ                |                         |
| VLIN1616-02G          | -                              | E  | -     | 3          | -08                        | -                            | VLIN1616-02G-E3-08      |
| VLIN1616-02G          | H                              | E  | -     | 3          | -08                        | -                            | VLIN1616-02GHE3-08      |
| VLIN1616-02G          | -                              | E  | -     | 3          | -                          | -18                          | VLIN1616-02G-E3-18      |
| VLIN1616-02G          | H                              | E  | -     | 3          | -                          | -18                          | VLIN1616-02GHE3-18      |

**PACKAGE DATA**

| DEVICE NAME  | PACKAGE NAME | TYPE CODE | WEIGHT  | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL        | SOLDERING CONDITIONS         |
|--------------|--------------|-----------|---------|--------------------------------------|-----------------------------------|------------------------------|
| VLIN1616-02G | SOD-323      | 161       | 4.30 mg | UL 94 V-0                            | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |

**ABSOLUTE MAXIMUM RATINGS**

| PARAMETER             | TEST CONDITIONS  | SYMBOL    | VALUE       | UNIT |
|-----------------------|--|-----------|-------------|------|
| Peak pulse current    | $T_A = 25$ °C; acc. IEC 61000-4-5; $t_p = 8/20$ $\mu$ s; single shot | $I_{PPM}$ | 6           | A    |
| Peak pulse power      | $T_A = 25$ °C; acc. IEC 61000-4-5; $t_p = 8/20$ $\mu$ s; single shot | $P_{PP}$  | 200         | W    |
| ESD immunity          | Contact discharge acc. IEC 61000-4-2; 10 pulses; $T_A = 25$ °C       | $V_{ESD}$ | $\pm 30$    | kV   |
|                       | Air discharge acc. IEC 61000-4-2; 10 pulses; $T_A = 25$ °C           |           | $\pm 30$    | kV   |
| Operating temperature | Junction temperature   | $T_J$     | -55 to +150 | °C   |
| Storage temperature   |  | $T_{STG}$ | -55 to +150 | °C   |



| 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   | $V_{RWM}$     | -    | -    | 16   | V             |
| Reverse voltage   | At $I_R = 0.05\text{ }\mu\text{A}$                                   | $V_R$         | 16   | -    | -    | V             |
| Reverse current   | At $V_{RWM} = 16\text{ V}$   | $I_R$         | -    | -    | 0.05 | $\mu\text{A}$ |
| Reverse breakdown voltage   | At $I_R = 1\text{ mA}$   | $V_{BR}$      | 17.1 | 18.6 | 20   | V             |
| Reverse clamping voltage  | At $I_{PP} = 1\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$           | $V_C$         | -    | 22   | 25   | V             |
|   | At $I_{PP} = I_{PPM} = 6\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$ | $V_C$         | -    | 29   | 33   | V             |
| Capacitance   | At $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                           | $C_D$         | -    | 18   | 24   | pF            |

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

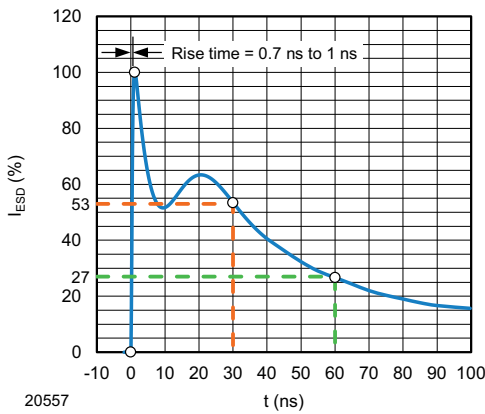


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330  $\Omega$  / 150 pF)

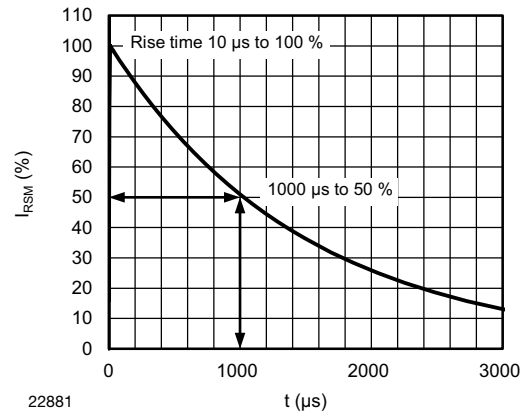


Fig. 3 - 10/1000  $\mu\text{s}$  Peak Pulse Current Wave Form

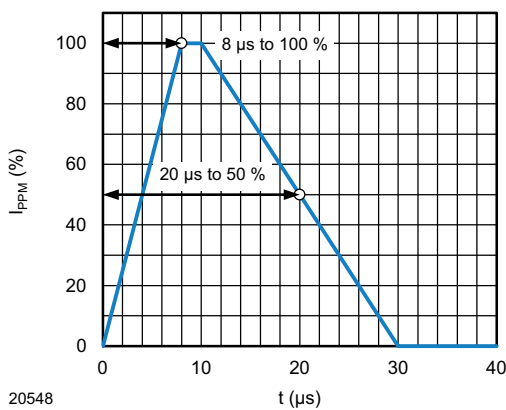


Fig. 2 - 8/20  $\mu\text{s}$  Peak Pulse Current Wave Form acc. IEC 61000-4-5

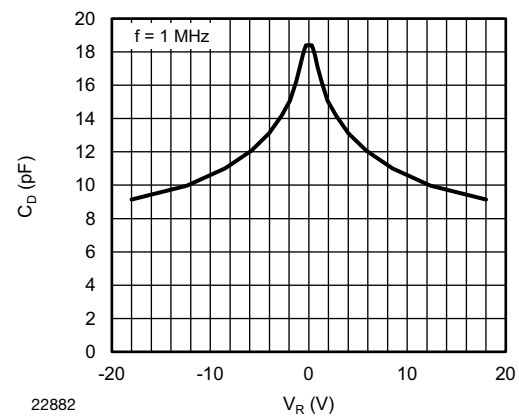


Fig. 4 - Typical Capacitance  $C_D$  vs. Reverse Voltage  $V_R$

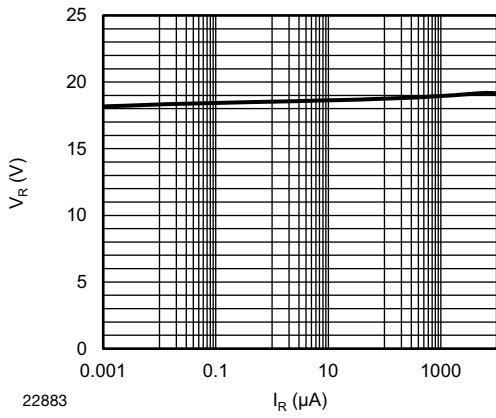


Fig. 5 - Typical Reverse Voltage  $V_R$  vs. Reverse Current  $I_R$

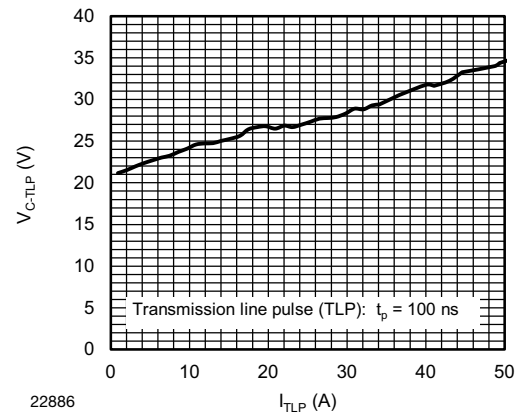


Fig. 8 - Typical Clamping Voltage  $V_{C-TLP}$  vs. Pulse Current  $I_{TLP}$

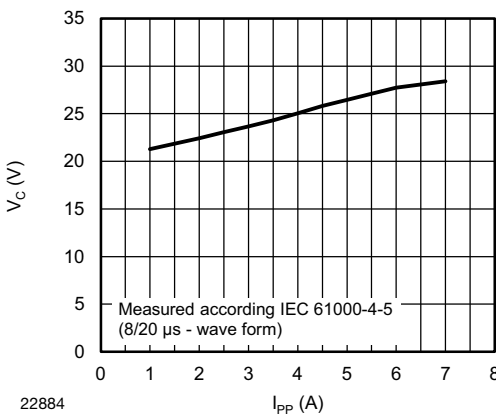


Fig. 6 - Typical Peak Clamping Voltage  $V_C$  vs. Peak Pulse Current  $I_{PP}$

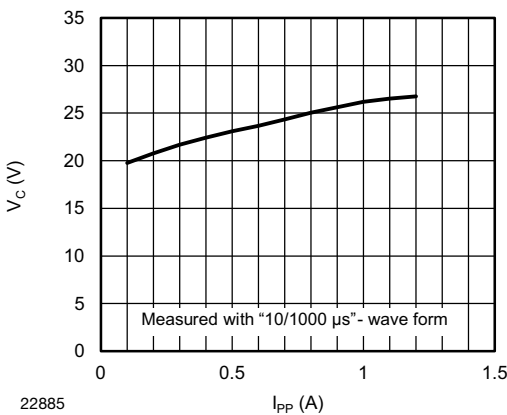
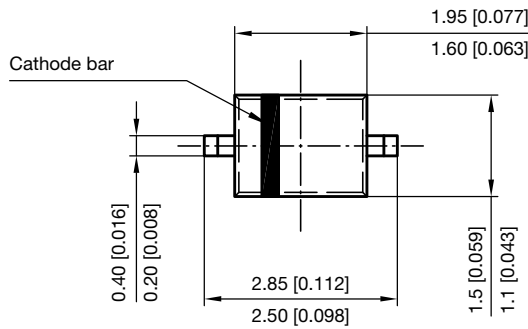
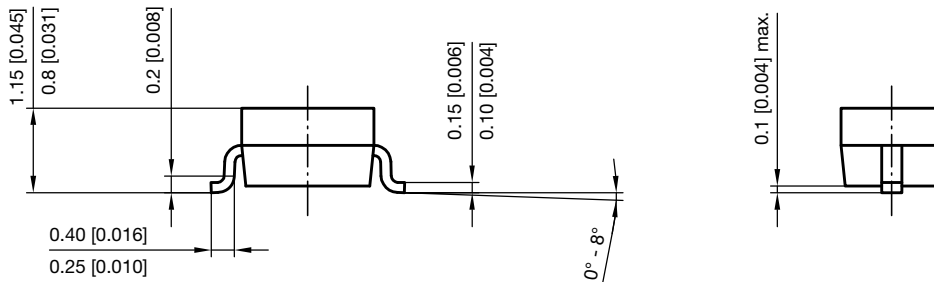


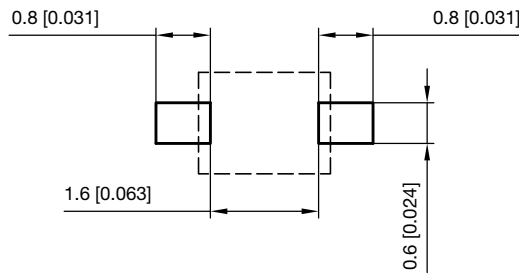
Fig. 7 - Typical Peak Clamping Voltage vs. Peak Pulse Current (10/1000  $\mu\text{s}$ )



**PACKAGE DIMENSIONS** in millimeters (inches) **SOD-323**



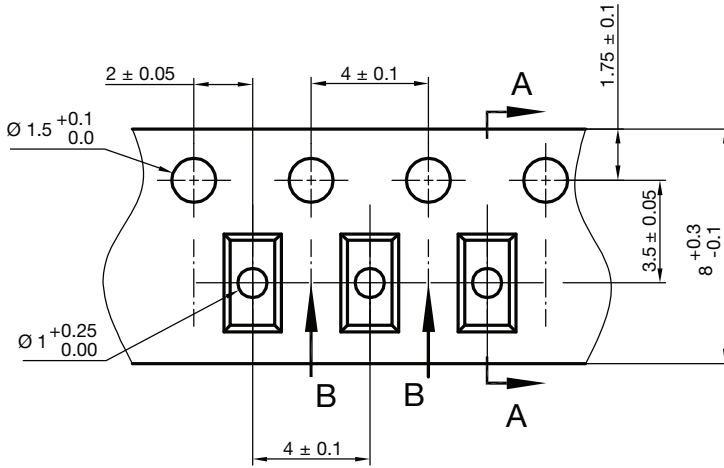
Footprint recommendation:



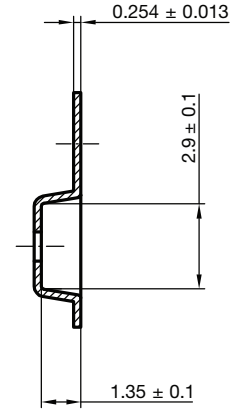
Document no.: S8-V-3910.02-001 (4)  
Created - Date: 24.August.2004  
Rev. 6 - Date: 23.Sept.2016  
22771



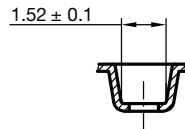
CARRIER TAPE SOD-323



A-A Section

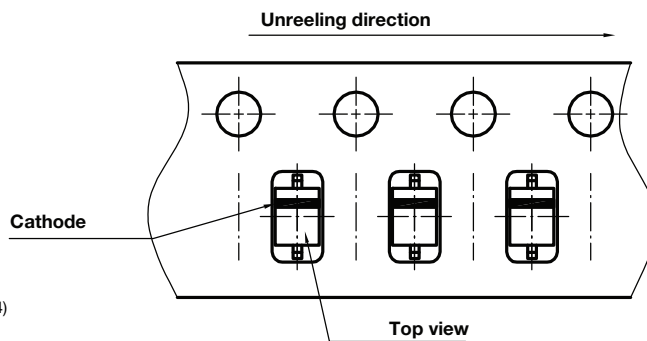


B-B Section



Document no.: S8-V-3717.07-002 (4)  
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22824

ORIENTATION IN CARRIER TAPE SOD-323



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