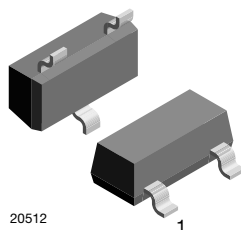
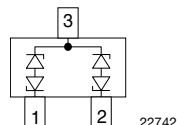
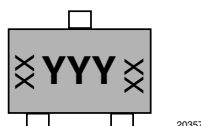


# Bidirectional Symmetrical (BiSy) Low Capacitance, Dual-Line ESD Protection Diode in SOT-23



## MARKING (example only)



YYY = type code (see table below)

XX = date code

## LINKS TO ADDITIONAL RESOURCES



## FEATURES

- For CAN applications
- Small SOT-23 package
- 2-line ESD protection
- Working range  $\pm 16$  V
- Low leakage current  $I_R < 0.05 \mu A$
- Low load capacitance  $C_D < 18.5$  pF
- ESD immunity 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<br>(EXAMPLE) | ENVIRONMENTAL AND QUALITY CODE |                                                    |               | REVISION | PACKAGING CODE                                 |                                                  | ORDERING CODE<br>(EXAMPLE) |
|                          | AEC-Q101<br>QUALIFIED          | RoHS-COMPLIANT<br>+ LEAD (Pb)-FREE<br>TERMINATIONS | TIN<br>PLATED |          | 3K PER 7" REEL<br>(8 mm TAPE)<br>15K/BOX = MOQ | 10K PER 13" REEL<br>(8 mm TAPE)<br>10K/BOX = MOQ |                            |
| VCAN16A2-03S             | -                              | E                                                  | 3             | -        | 08                                             |                                                  | VCAN16A2-03S-E3-08         |
| VCAN16A2-03S             | H                              | E                                                  | 3             | A        | 08                                             |                                                  | VCAN16A2-03SHE3A08         |
| VCAN16A2-03S             | -                              | E                                                  | 3             | -        |                                                | 18                                               | VCAN16A2-03S-E3-18         |
| VCAN16A2-03S             | H                              | E                                                  | 3             | A        |                                                | 18                                               | VCAN16A2-03SHE3A18         |

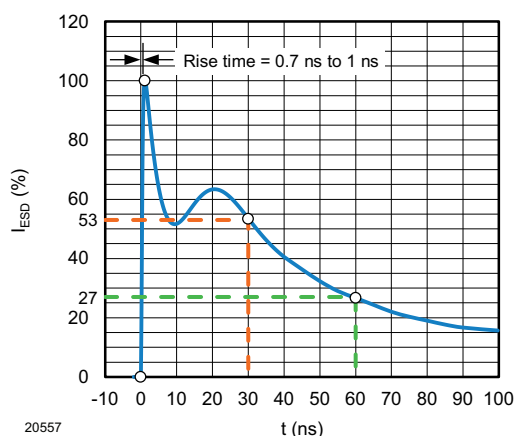
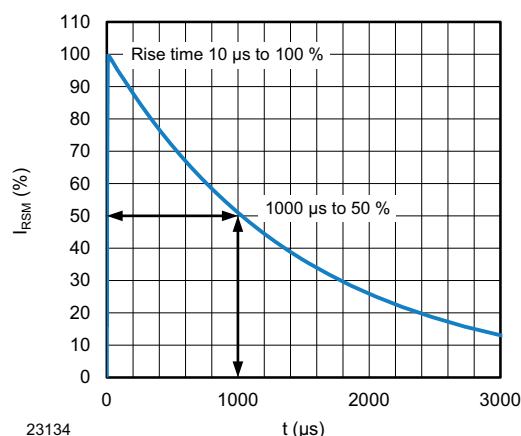
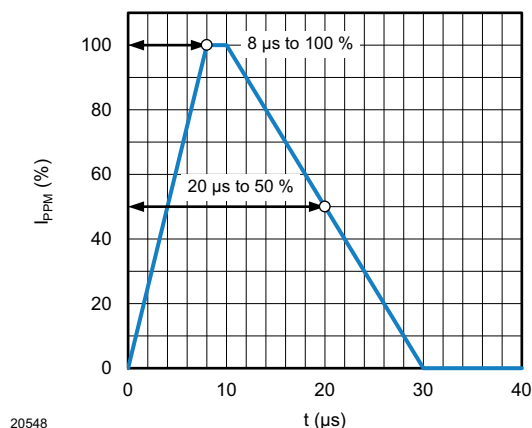
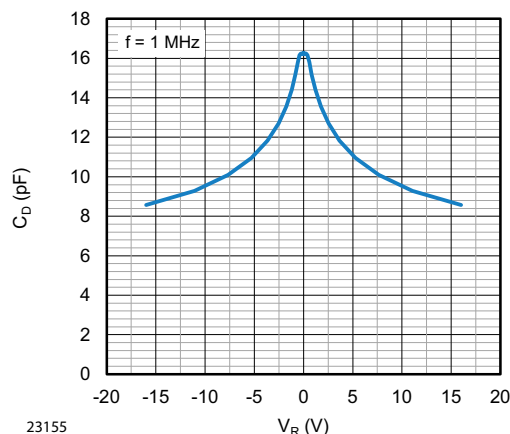
| PACKAGE DATA |              |           |        |                                         |                                      |                                 |
|--------------|--------------|-----------|--------|-----------------------------------------|--------------------------------------|---------------------------------|
| DEVICE NAME  | PACKAGE NAME | TYPE CODE | WEIGHT | MOLDING COMPOUND<br>FLAMMABILITY RATING | MOISTURE SENSITIVITY<br>LEVEL        | SOLDERING<br>CONDITIONS         |
| VCAN16A2-03S | SOT-23       | 16A       | 9.2 mg | UL 94 V-0                               | MSL level 1<br>(according J-STD-020) | Peak temperature max.<br>260 °C |

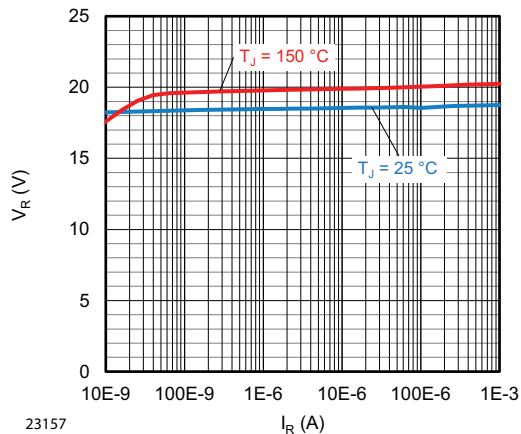
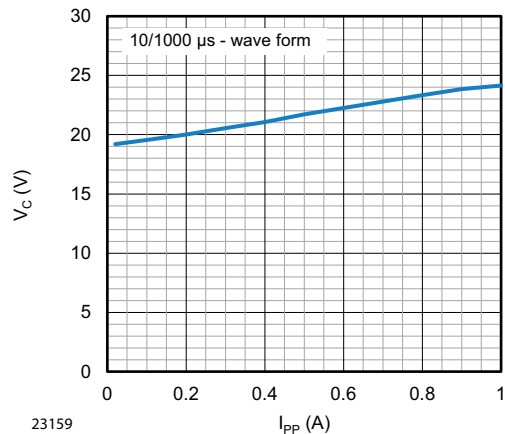
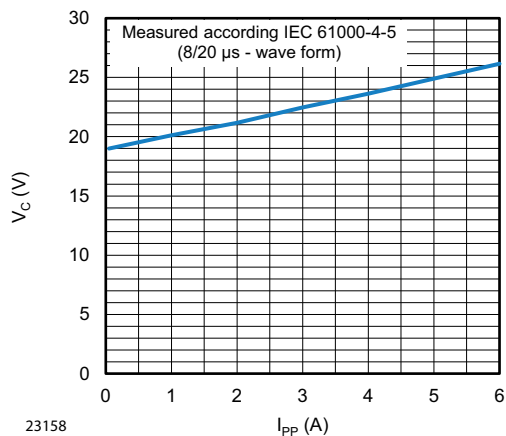
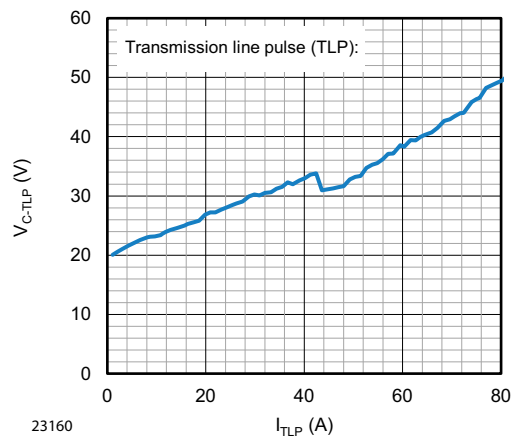
| ABSOLUTE MAXIMUM RATINGS |                                                                                            |           |             |      |
|--------------------------|--------------------------------------------------------------------------------------------|-----------|-------------|------|
| 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                      | $I_{PPM}$ | 5           | A    |
| Peak pulse power         | $T_A = 25$ °C; pin 1 or 2 to pin 3; acc. IEC 61000-4-5; $t_p = 8/20$ $\mu s$ ; single shot | $P_{PP}$  | 145         | 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** (pin 1 to 3, 3 to 1, 2 to 3, or 3 to 2)

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

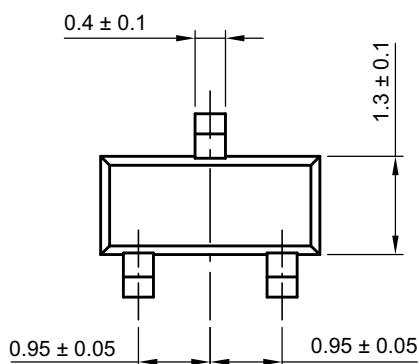
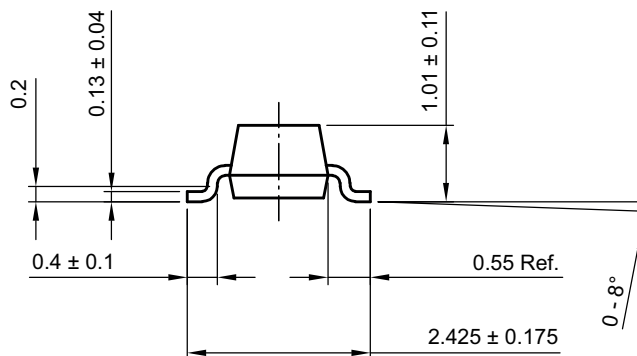
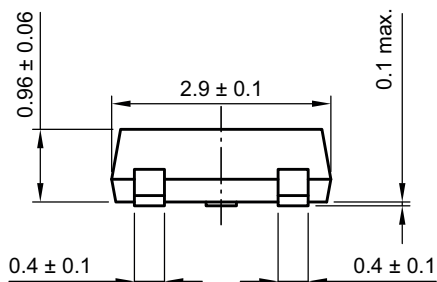
| PARAMETER                 | TEST CONDITIONS/REMARKS                                                    | SYMBOL        | MIN. | TYP. | MAX. | UNIT          |
|---------------------------|----------------------------------------------------------------------------|---------------|------|------|------|---------------|
| Protection paths          | Number of lines which can be protected                                     | $N_{channel}$ | -    | -    | 2    | 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 $I_{PP} = 1\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$                 | $V_C$         | -    | 20   | 23   | V             |
|                           | At $I_{PP} = I_{PPM} = 5.2\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$     | $V_C$         | -    | 25   | 28   | V             |
| Capacitance               | At $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                 | $C_D$         | 15   | 16.7 | 18.5 | pF            |
|                           | Diode capacitance matching at $V_R = 0\text{ V}$ , $C_{D13}$ vs. $C_{D23}$ | $C_D$         | -    | -    | 1    | 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  $V_R$

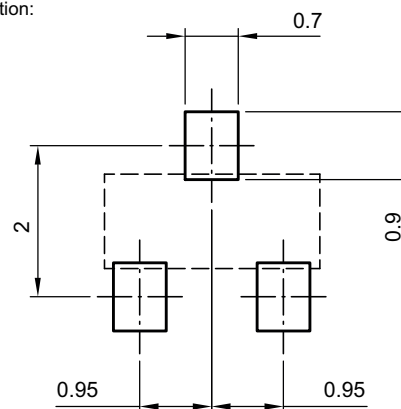

Fig. 5 - Typical Reverse Voltage  $V_R$  vs. Reverse Current  $I_R$ 

Fig. 7 - Typical Peak Clamping Voltage  $V_{C-TLP}$  vs. Peak Pulse Current  $I_{TLP}$ 

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

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



**PACKAGE DIMENSIONS** in millimeters (inches) **SOT-23**



footprint recommendation:



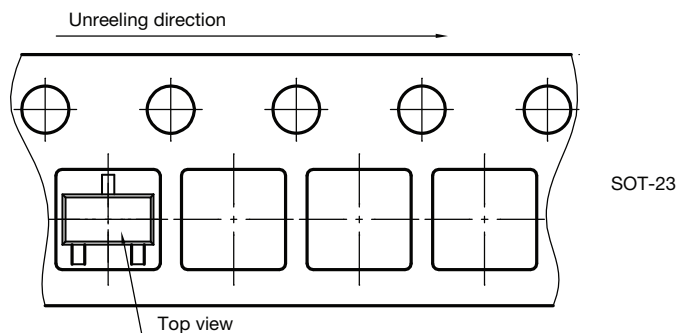
Document no.: S8-V-3929.01-009 (4)

Created - Date: 18 Oct. 2021

Rev. 01 - Date: 18 Jan. 2022

23193

**ORIENTATION IN CARRIER TAPE SOT-23**



Orientation in carrier tape  
SOT-23

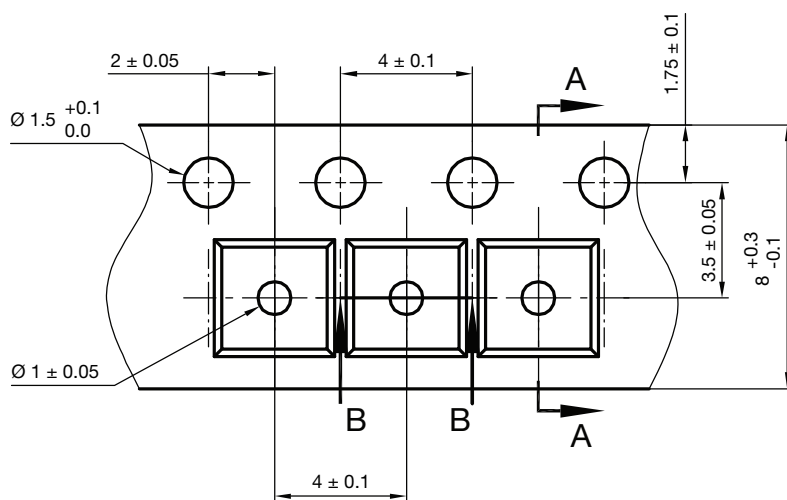
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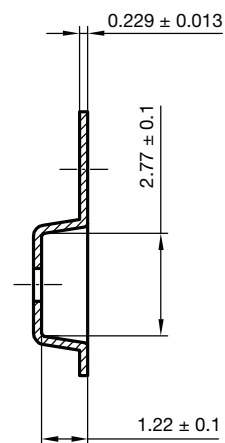
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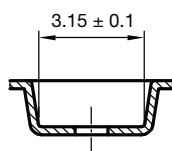
CARRIER TAPE SOT-23



A-A Section



B-B Section



Carrier tape SOT-23  
Document no.: S8-V-3929.01-005 (4)  
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22856



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