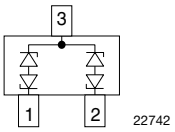
# Bidirectional Symmetrical (BiSy) Low Capacitance, Dual-Line ESD Protection Diode in SOT-323



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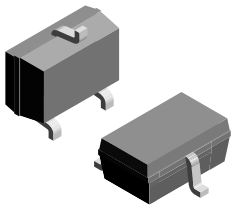

22743 SOT-323

## FEATURES

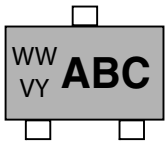
- For CAN FD and FLEX-bus applications
- Small SOT-323 package
- 2-line ESD protection
- Working range ± 33 V
- Low leakage current $I_R$ < 0.05 µA
- Low load capacitance $C_D$ < 5.2 pF at $V_R$ = 5 V
- ESD immunity acc. IEC 61000-4-2
  ± 30 kV contact discharge
  ± 30 kV air discharge
- ESD capability 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

Pb-free

e3

RoHS COMPLIANT

## MARKING (example only)



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ABC = type code (see table below)
WW = date code working week
VY = date code year

## LINKS TO ADDITIONAL RESOURCES

3D Models

## 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) 15K/BOX = MOQ | 10K PER 13" REEL (8 mm TAPE) 10K/BOX = MOQ | |
| | | STANDARD | GREEN | | | | |
| VCAN33C2-03G | - | E | | 3 | -08 | | VCAN33C2-03G-E3-08 |
| VCAN33C2-03G | H | E | | 3 | -08 | | VCAN33C2-03GHE3-08 |
| VCAN33C2-03G | - | E | | 3 | | -18 | VCAN33C2-03G-E3-18 |
| VCAN33C2-03G | H | E | | 3 | | -18 | VCAN33C2-03GHE3-18 |

## PACKAGE DATA

| DEVICE NAME | PACKAGE NAME | TYPE CODE | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
|---|---|---|---|---|---|---|
| VCAN33C2-03G | SOT-323 | 33C | 5.65 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 µs; single shot | $I_{PPM}$ | 2 | A |
| Peak pulse power | $T_A$ = 25 °C; pin 1 or 2 to pin 3; acc. IEC 61000-4-5; $t_p$ = 8/20 µs; single shot | $P_{PP}$ | 120 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses, $T_A$ = 25 °C | $V_{ESD}$ | ± 30 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses, $T_A$ = 25 °C | | ± 30 | kV |
| Operating temperature | Junction temperature | $T_J$ | -55 to +175 | °C |
| Storage temperature | | $T_{STG}$ | -55 to +175 | °C |

| **ELECTRICAL CHARACTERISTICS** (pin 1 to 3, 3 to 1, 2 to 3, or 3 to 2) ($T_{amb}$ = 25 °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 | $V_{RWM}$ | - | - | 33 | V |
| Reverse voltage | At $I_R$ = 0.05 µA | $V_R$ | 33 | - | - | V |
| Reverse current | At $V_{RWM}$ = 33 V | $I_R$ | - | - | 0.05 | µA |
| Reverse breakdown voltage | At $I_R$ = 1 mA | $V_{BR}$ | 36 | 38 | 40 | V |
| Reverse clamping voltage | At $I_{PP}$ 1 A; $t_p$ = 8/20 µs | $V_C$ | - | 43 | 47 | V |
| | At $I_{PP} = I_{PPM}$ = 2 A; $t_p$ = 8/20 µs | $V_C$ | - | 50 | 60 | V |
| Capacitance | At $V_R$ = 0 V, f = 1 MHz | $C_D$ | - | 6 | 8 | pF |
| | At $V_R$ = 5 V, f = 1 MHz | $C_D$ | - | 4.2 | 5.2 | pF |
| | Diode capacitance matching at $V_R$ = 5 V, $C_{D13}$ vs. $C_{D23}$ | $dC_D$ | - | - | 2 | % |

## TYPICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified)

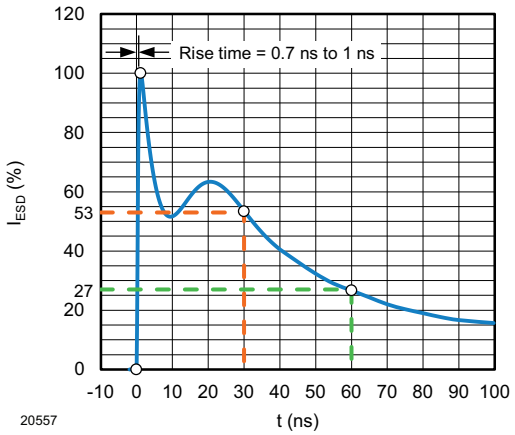



Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω / 150 pF)

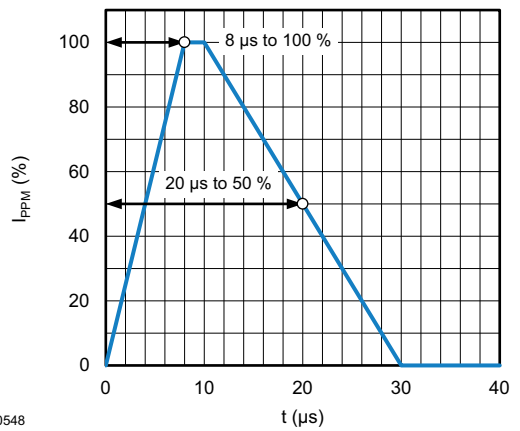



Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

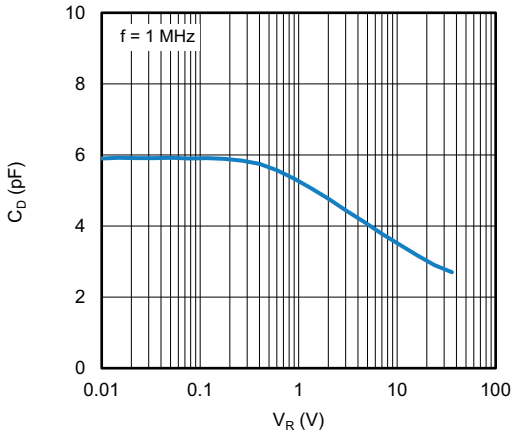



Fig. 3 - Typical Capacitance vs. Reverse Voltage

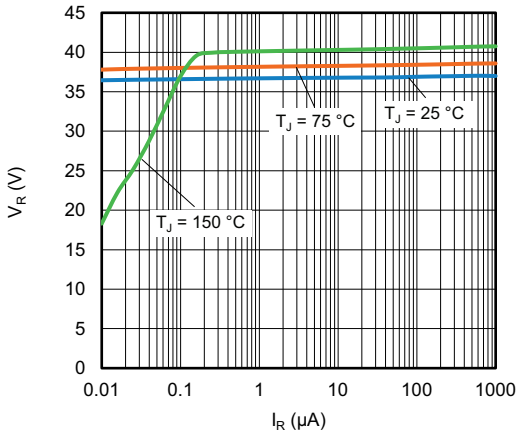



Fig. 4 - Typical Reverse Voltage vs. Reverse Current

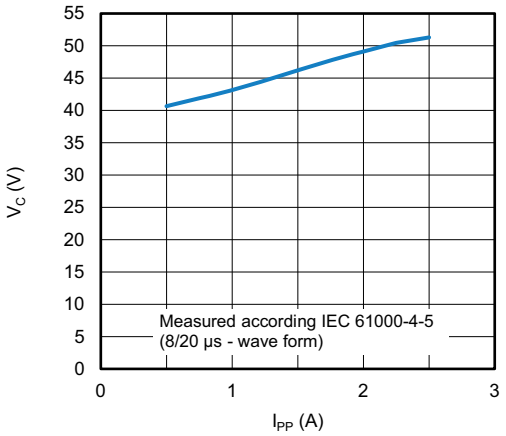



Fig. 5 - Typical Peak Clamping Voltage vs. Peak Pulse Current

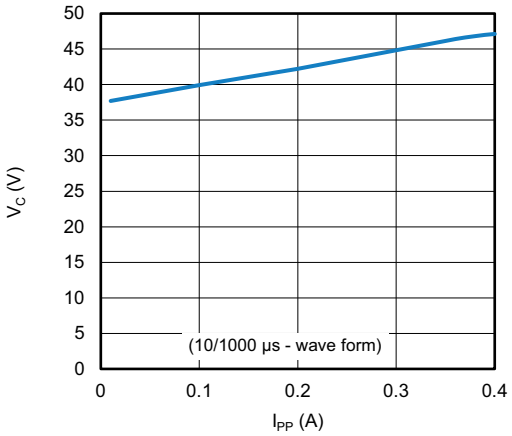



Fig. 6 - Typical Peak Clamping Voltage vs. Peak Pulse Current

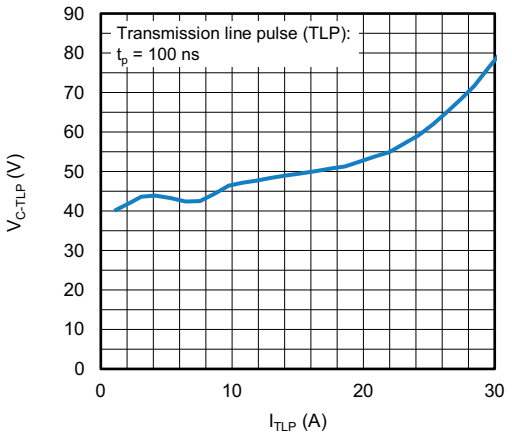
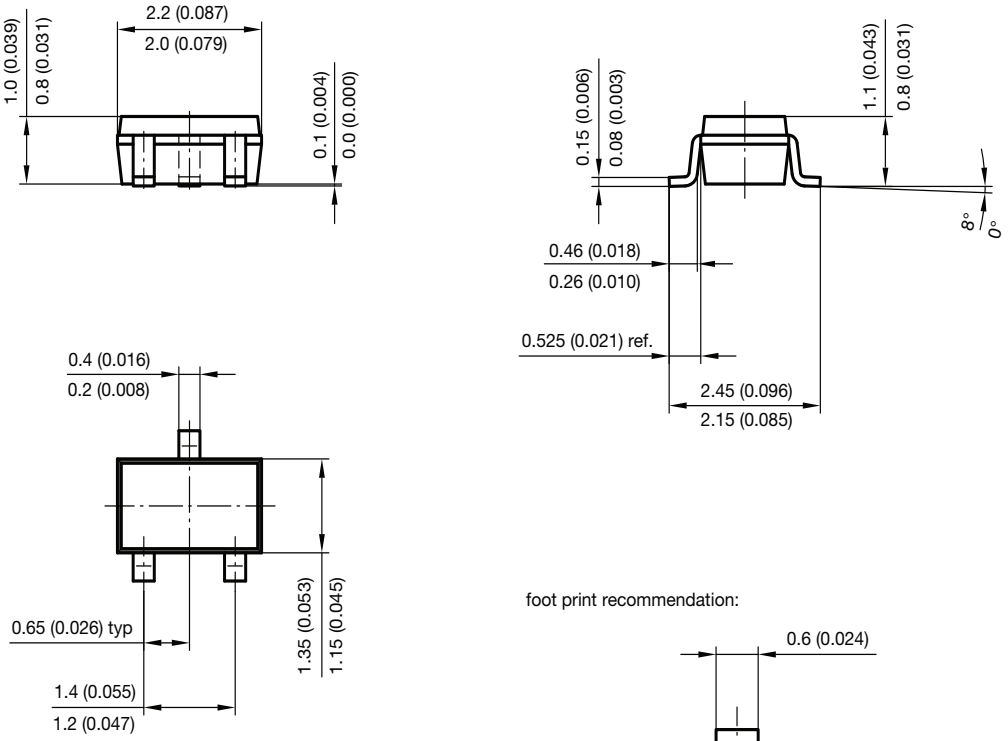
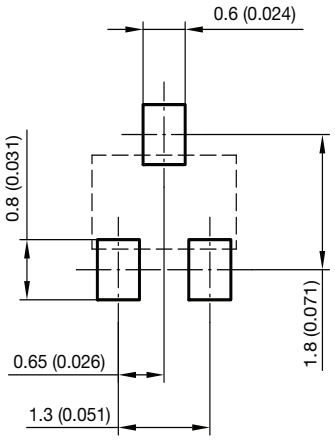



Fig. 7 - Typical Clamping Voltage vs. Peak Pulse Current

## PACKAGE DIMENSIONS in millimeters (inches) SOT-323




foot print recommendation:

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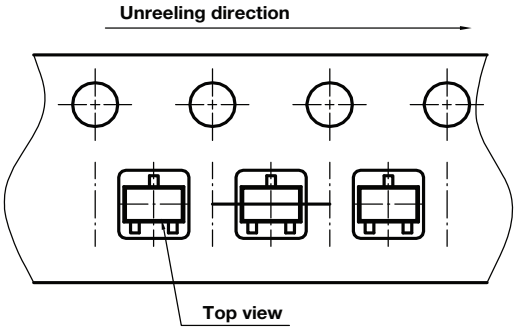
## ORIENTATION IN CARRIER TAPE SOT-323

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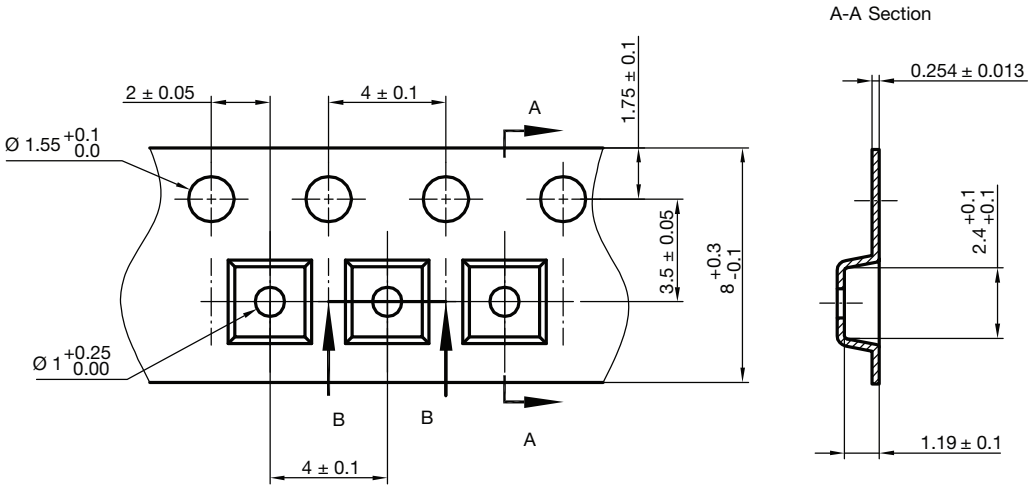
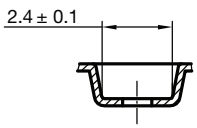
## CARRIER TAPE SOT-323




B-B Section

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