

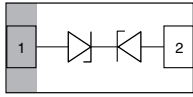


**THE DATASHEET OF
VCUT05B1-DD1-G-08**

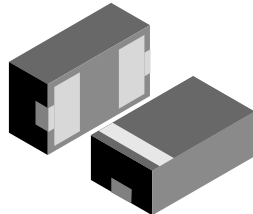




Bidirectional Symmetrical (BiSy) Single Line ESD Protection Diode in LLP1006-2M



21129



20855

MARKING (example only)



21121

Bar = pin 1 marking
X = date code
Y = type code (see table below)

FEATURES

- Ultra compact LLP1006-2M package
- Low package height < 0.4 mm
- 1-line ESD protection
- Working range ± 5.5 V
- Low leakage current < 0.1 μ A
- Low load capacitance $C_D = 10$ pF
- ESD immunity acc. IEC 61000-4-2 ± 30 kV contact discharge ± 30 kV air discharge
- Soldering can be checked by standard vision inspection, no X-ray necessary
- Pin plating NiPdAu (e4) no whisker growth
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

LINKS TO ADDITIONAL RESOURCES



ORDERING INFORMATION

| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL) | MINIMUM ORDER QUANTITY |
|--------------|-------------------|---|------------------------|
| VCUT05B1-DD1 | VCUT05B1-DD1-G-08 | 8000 | 8000 |

PACKAGE DATA

| DEVICE NAME | PACKAGE NAME | TYPE CODE | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
|--------------|--------------|-----------|---------|--------------------------------------|-----------------------------------|------------------------------|
| VCUT05B1-DD1 | LLP1006-2M | P | 0.72 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |

ABSOLUTE MAXIMUM RATINGS VCUT05B1-DD1

| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
|-----------------------|---|-----------|-------------|------|
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μ s/single shot | I_{PPM} | 3 | A |
| Peak pulse power | Pin 1 to pin 2 acc. IEC 61000-4-5; $t_p = 8/20$ μ s; single shot | P_{PP} | 38 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V_{ESD} | ± 30 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | V_{ESD} | ± 30 | |
| Operating temperature | Junction temperature | T_J | -55 to +145 | °C |
| Storage temperature | | T_{stg} | -55 to +150 | °C |

PATENT(S): www.vishay.com/patents

This Vishay product is protected by one or more United States and international patents.



CUT THE SPIKES WITH VCUT05B1-DD1

The VCUT05B1-DD1 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 VCUT05B1-DD1 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 LLP1006-2M 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 VCUT05B1-DD1 | | | | | | |
|--|---|----------------------|------|------|------|-------|
| (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} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 5.5 | V |
| Reverse voltage | At I = 0.1 μA | V _R | 5.5 | - | - | V |
| Reverse current | At V = 5.5 V | I _R | - | - | 0.1 | μA |
| Reverse breakdown voltage | At I = 1 mA | V _{BR} | 6 | 7.5 | 8.5 | V |
| Reverse clamping voltage | At I _{PP} = 1 A | V _C | - | 8.3 | 10.5 | V |
| | At I _{PP} = I _{PPM} = 3 A | V _C | - | 10.3 | 12.5 | V |
| Capacitance | At V = 0 V; f = 1 MHz | C _D | - | 10 | 13 | pF |
| | At V = 2.5 V; f = 1 MHz | C _D | - | 8 | - | pF |

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

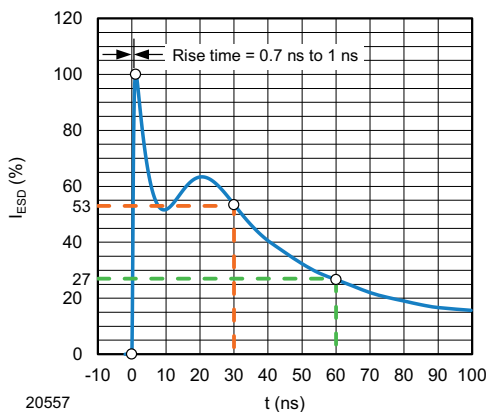


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150 pF)

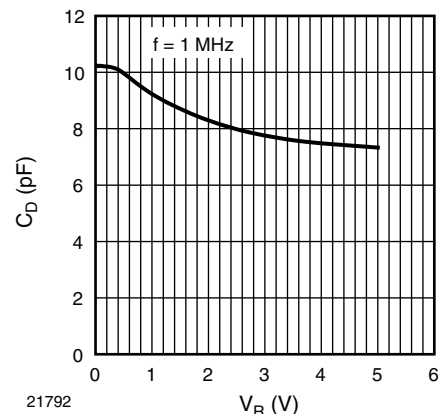


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

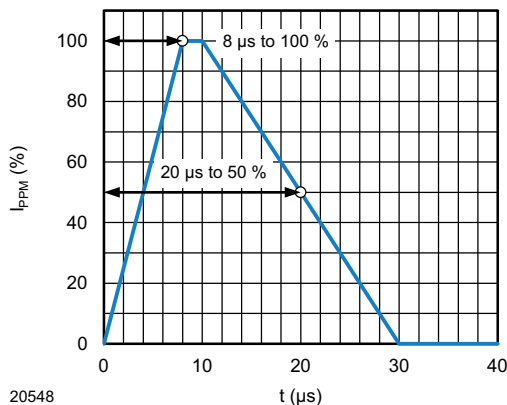


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

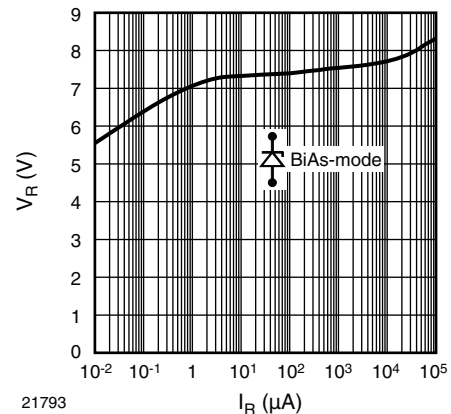


Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

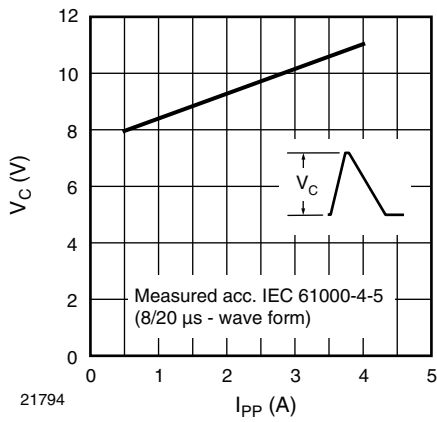


Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

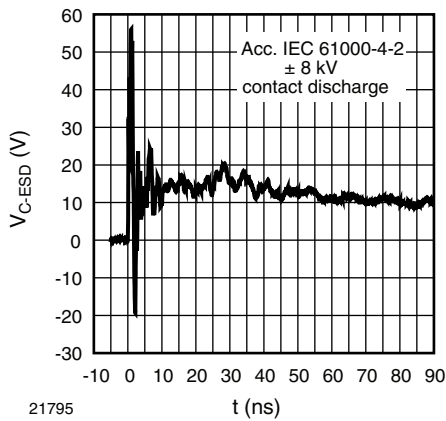


Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

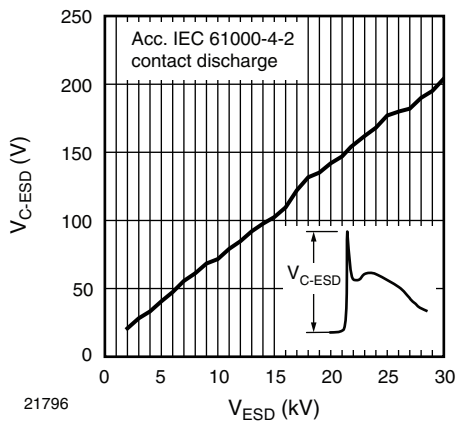
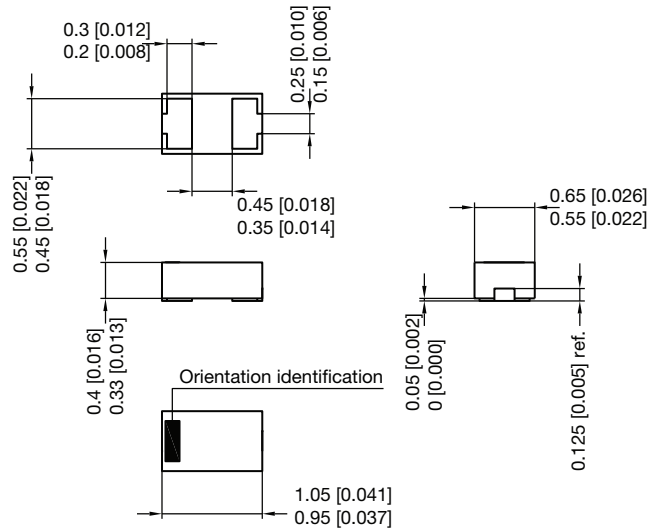


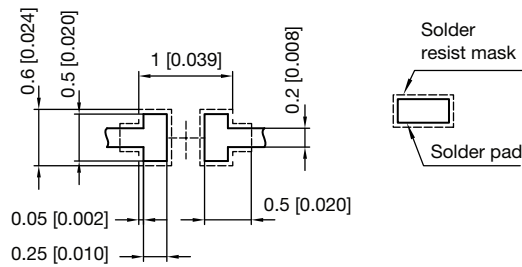
Fig. 7 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)



PACKAGE DIMENSIONS in millimeters (inches): **LLP1006-2M**

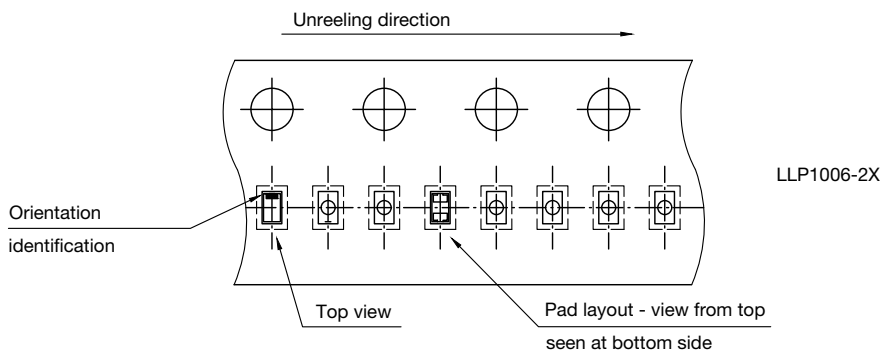


Foot print recommendation:



Pad Design Patented:
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02.05.2017
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