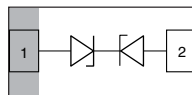
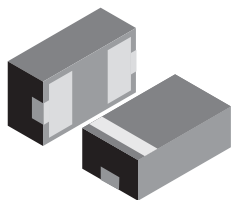


Bidirectional Symmetrical (BiSy) Single Line ESD Protection Diode in LLP1006-2L



21129



20855

MARKING (example only)



21121

Bar = pin 1 marking

X = date code

Y = type code (see table below)

DESIGN SUPPORT TOOLS

[click logo to get started](#)


FEATURES

- Ultra compact LLP1006-2L package
- Low package profile < 0.4 mm
- 1-line ESD protection
- Working range ± 7 V
- Low leakage current $I_R < 0.1 \mu A$
- Low load capacitance $C_D = 14$ 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
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



ORDERING INFORMATION

| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL) | MINIMUM ORDER QUANTITY |
|--------------|--------------------|--|------------------------|
| VCUT07B1-HD1 | VCUT07B1-HD1-G4-08 | 8000 | 8000 |

PACKAGE DATA

| DEVICE NAME | PACKAGE NAME | TYPE CODE | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
|--------------|--------------|-----------|---------|---|--------------------------------------|------------------------------|
| VCUT07B1-HD1 | LLP1006-2L | U | 0.72 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |

ABSOLUTE MAXIMUM RATINGS VCUT07B1-HD1

| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
|-----------------------|--|-----------|-------------|------|
| Peak pulse current | Acc. IEC 61000-4-5; $t_p = 8/20 \mu s$; single shot | I_{PPM} | 4 | A |
| Peak pulse power | Pin 1 to pin 2 acc. IEC 61000-4-5; $t_p = 8/20 \mu s$; single shot | P_{PP} | 60 | 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 | | ± 30 | kV |
| Operating temperature | Junction temperature | T_J | -40 to +125 | °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.

ELECTRICAL CHARACTERISTICS VCUT07B1-HD1 (pin 1 to pin 2 or pin 2 to pin1)

($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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} | - | - | 7 | V |
| Reverse voltage | At $I_R = 0.1\text{ }\mu\text{A}$ | V_R | 7 | - | - | V |
| Reverse current | At $V_{RWM} = 7\text{ V}$ | I_R | - | - | 0.1 | μA |
| Reverse breakdown voltage | At $I_R = 1\text{ mA}$ | V_{BR} | 7.3 | - | - | V |
| Reverse clamping voltage | At $I_{PP} = 1\text{ A}$ | V_C | - | 9 | 12 | V |
| | At $I_{PP} = I_{PPM} = 4\text{ A}$ | | - | - | 15 | V |
| Capacitance | At $V_R = 0\text{ V}$; $f = 1\text{ MHz}$ | C_D | - | 14 | 16 | pF |
| | At $V_R = 2.5\text{ V}$; $f = 1\text{ MHz}$ | | - | 11 | - | pF |

CUT THE SPIKES WITH VCUT07B1-HD1:

The VCUT07B1-HD1 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 VCUT07B1-HD1 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 LLP1006-2L package the line inductance is very low, so that fast transients like an ESD strike can be clamped with minimal over- or undershoots.

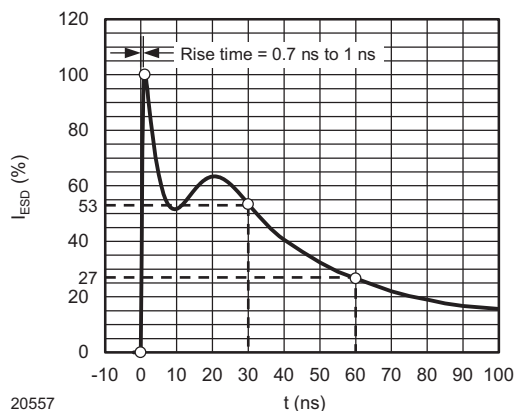
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


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

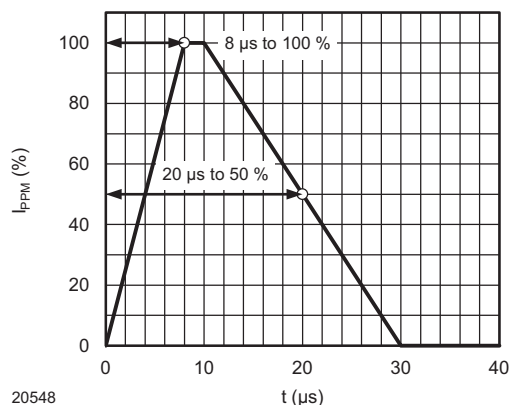


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form
acc. IEC 61000-4-5

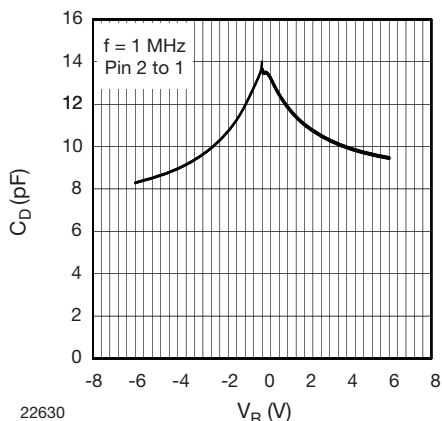
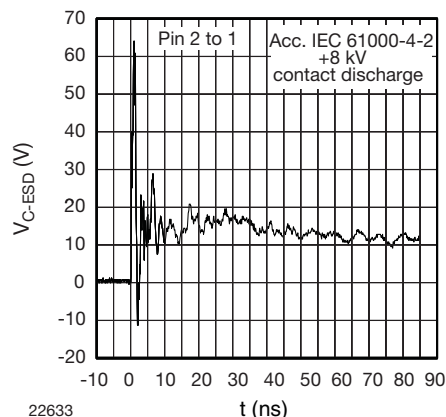

Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R


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

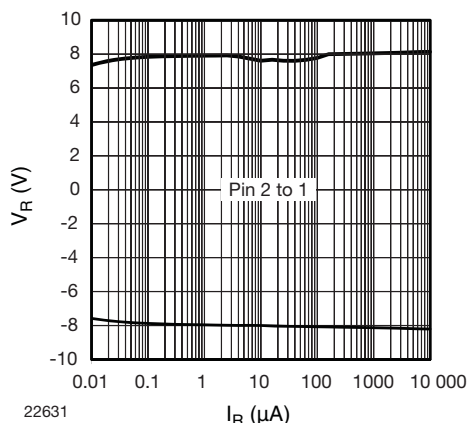
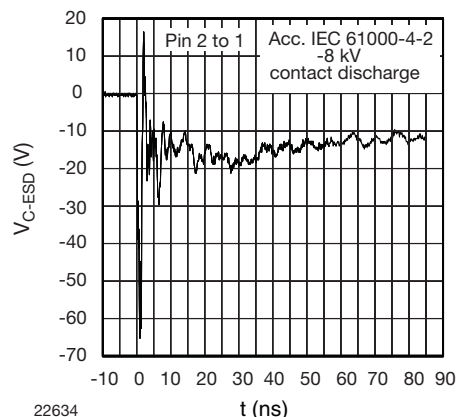

Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R


Fig. 7 - Typical Clamping Performance at +8 kV Contact Discharge (acc. IEC 61000-4-2)

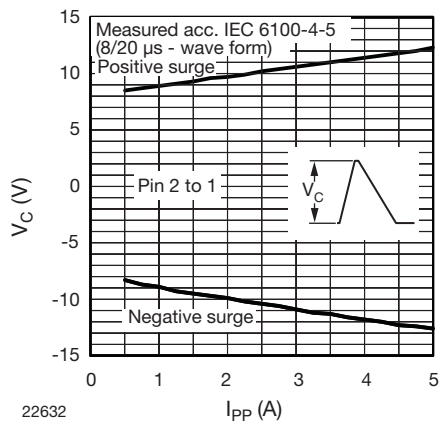
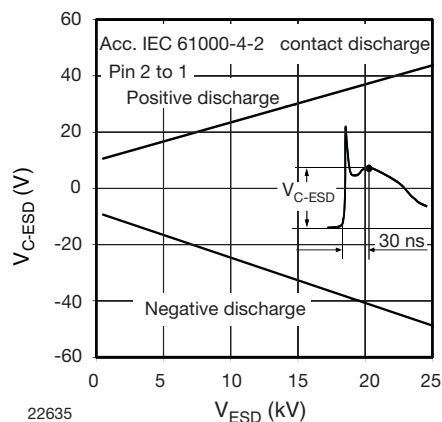
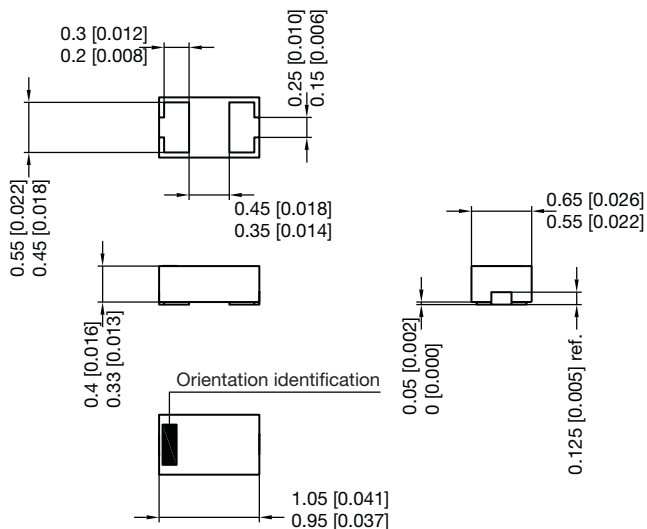
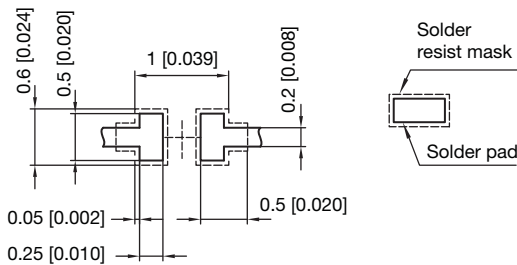
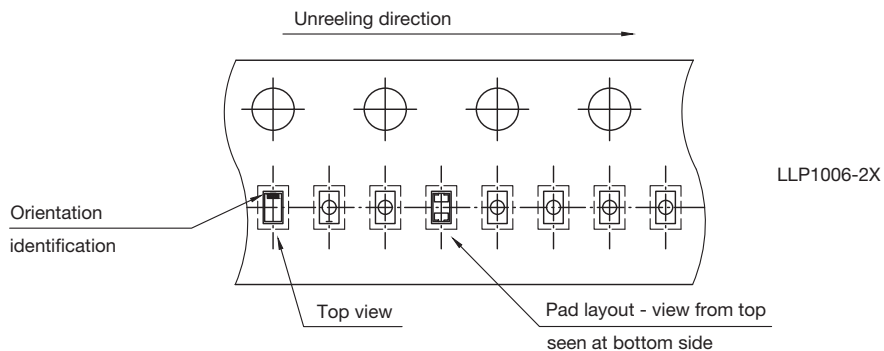

Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}


Fig. 8 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

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

Foot print recommendation:


Pad Design Patented:
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Rev. 7 - Date: 11.May 2016
20812



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