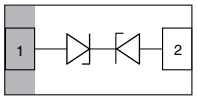
Bidirectional Symmetrical (BiSy) Single Line ESD Protection Diode in LLP1006-2L



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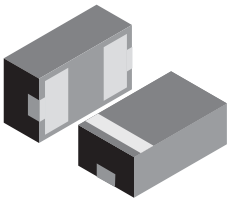
20855

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

3D Models Available

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 µA
- 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

Pb-free
e4
RoHS COMPLIANT
HALOGEN FREE
GREEN (5-2008)

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 µs; single shot	I_{PPM}	4	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5; t_p = 8/20 µs; 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.

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ELECTRICAL CHARACTERISTICS VCUT07B1-HD1 (pin 1 to pin 2 or pin 2 to pin1) (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}	-	-	7	V
Reverse voltage	At I_R = 0.1 µA	V_R	7	-	-	V
Reverse current	At V_{RWM} = 7 V	I_R	-	-	0.1	µA
Reverse breakdown voltage	At I_R = 1 mA	V_{BR}	7.3	-	-	V
Reverse clamping voltage	At I_{PP} = 1 A	V_C	-	9	12	V
	At I_{PP} = I_{PPM} = 4 A		-	-	15	V
Capacitance	At V_R = 0 V; f = 1 MHz	C_D	-	14	16	pF
	At V_R = 2.5 V; f = 1 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 °C, unless otherwise specified)

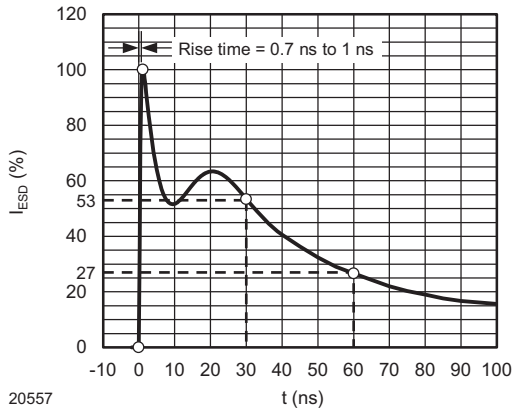

Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150 pF)

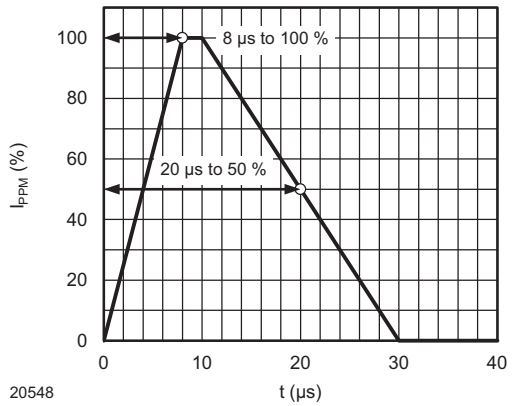

Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

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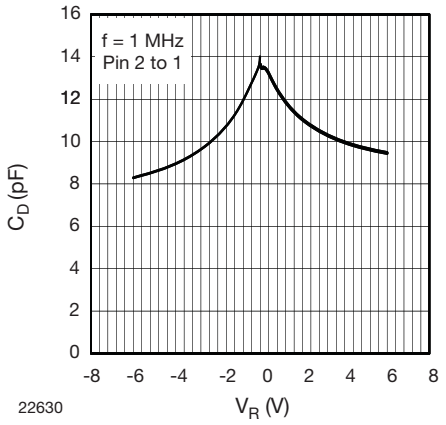

Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

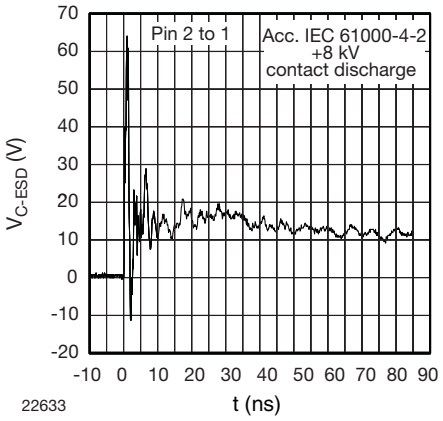

Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

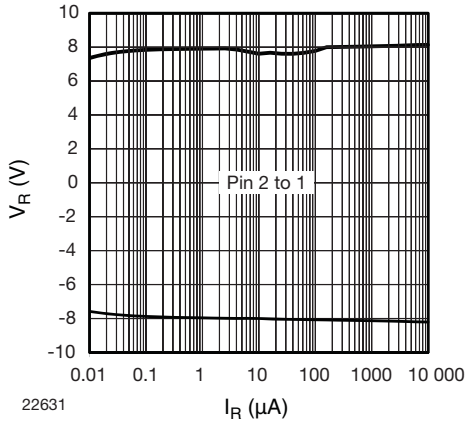

Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

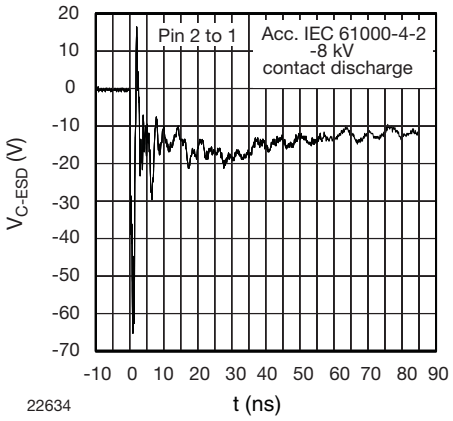

Fig. 7 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

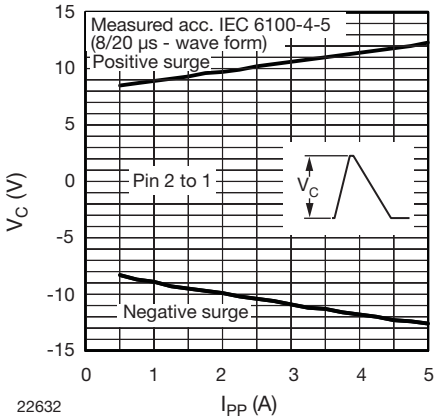

Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

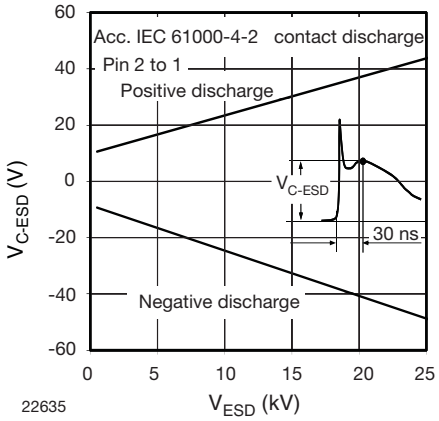

Fig. 8 - Typical Peak. Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

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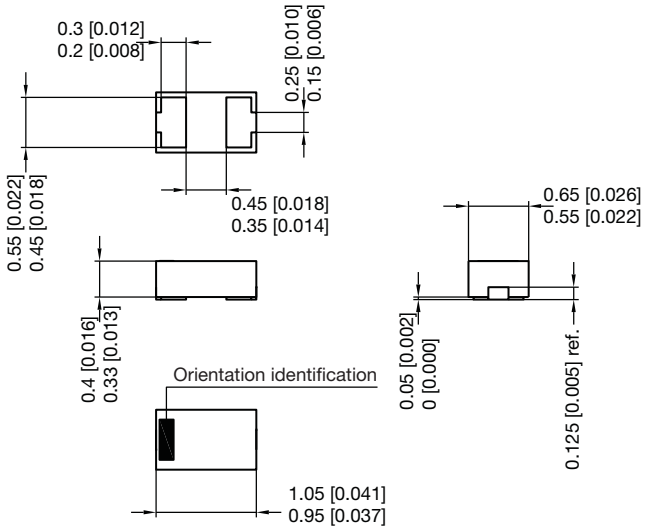
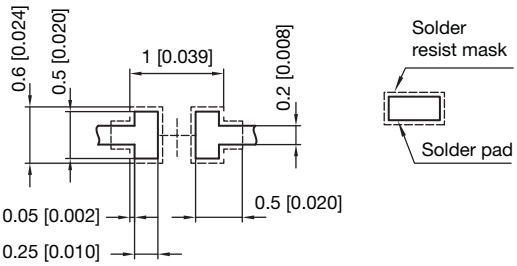
PACKAGE DIMENSIONS in millimeters (inches): **LLP1006-2L**



Foot print recommendation:



Pad Design Patented:
(Ⓟ US 9.018.537 B2)

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Rev. 7 - Date: 11.May 2016
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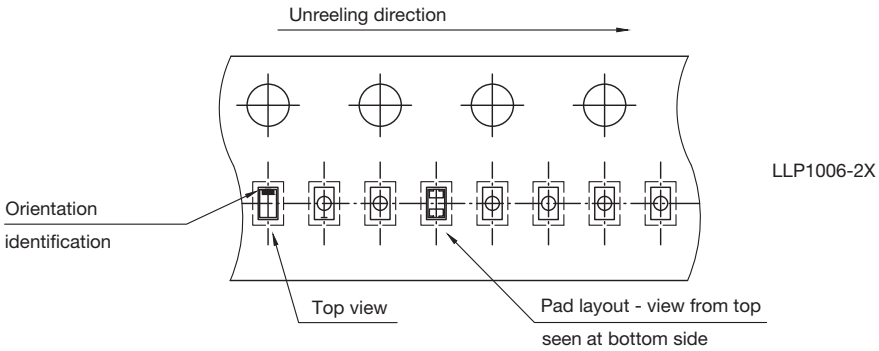

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