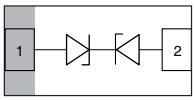
Bidirectional Symmetrical (BiSy) Single Line ESD-Protection Diode in LLP1006-2M



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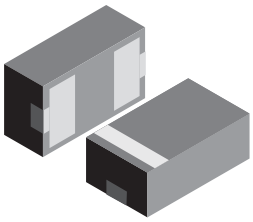


20855

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 µA
- Low load capacitance CD = 10 pF
- ESD-protection 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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e4

RoHS COMPLIANT

GREEN (5-2008)

MARKING (example only)

21121

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

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)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	3	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5; t_p = 8/20 µs; single shot	P_{PP}	38	W
ESD immunity	Contact discharge acc. IEC61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC61000-4-2; 10 pulses	V_{ESD}	± 30	
Operating temperature	Junction temperature	T_J	- 55 to + 145	°C
Storage temperature		T_{stg}	- 55 to + 150	°C

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
(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)

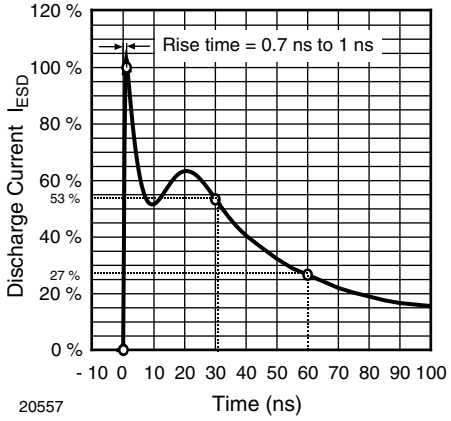


Fig. 1 - ESD Discharge Current Wave Form
acc. IEC 61000-4-2 (330 Ω/150 pF)

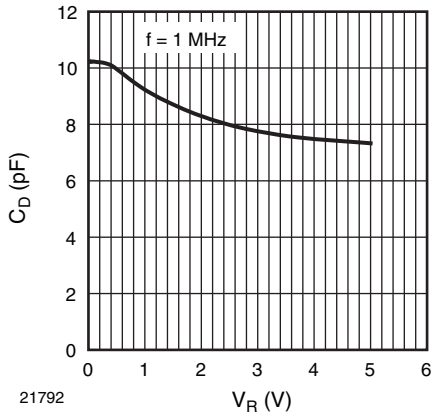


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

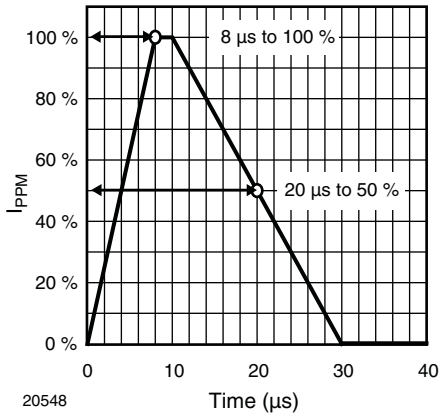


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form
acc. IEC 61000-4-5

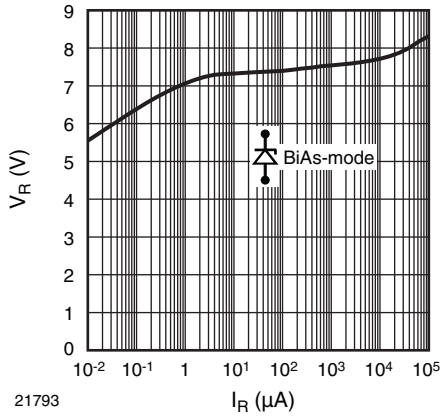


Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

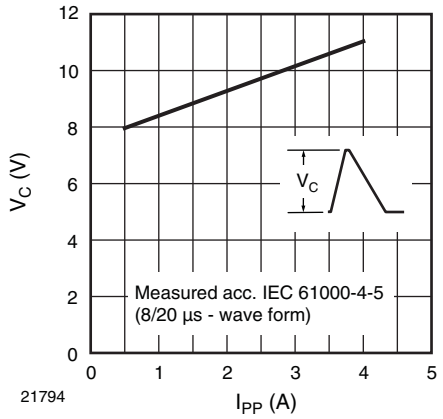


Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

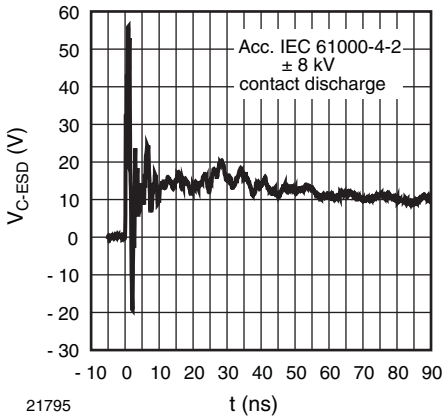


Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

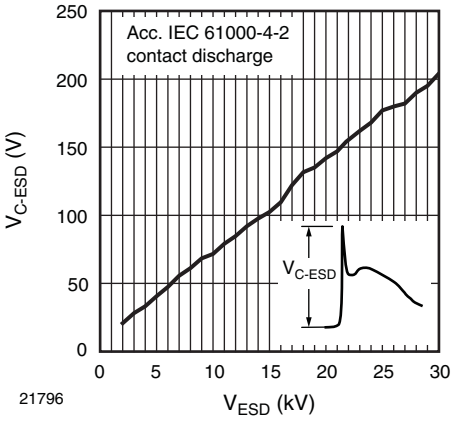
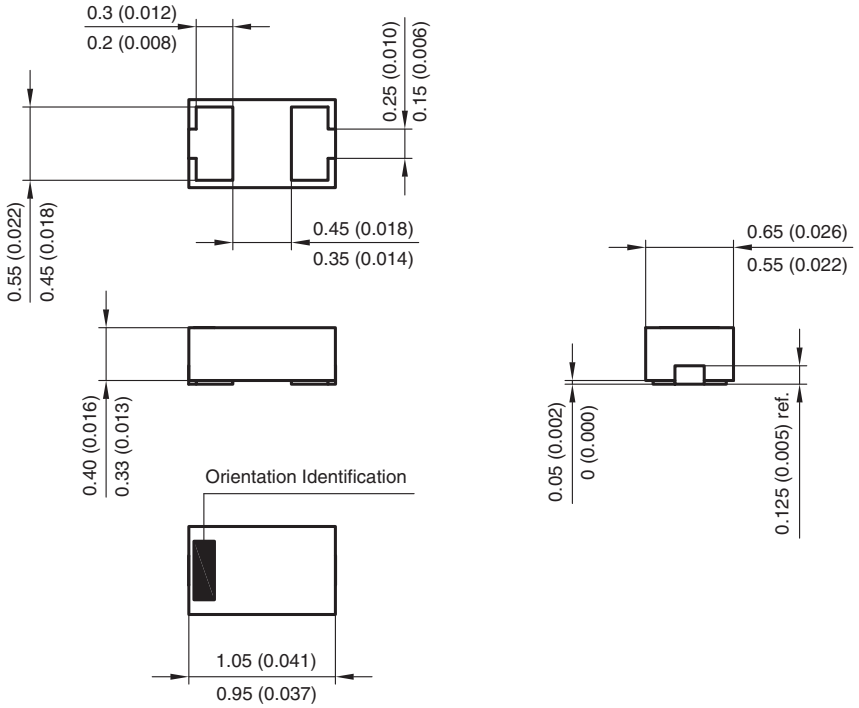
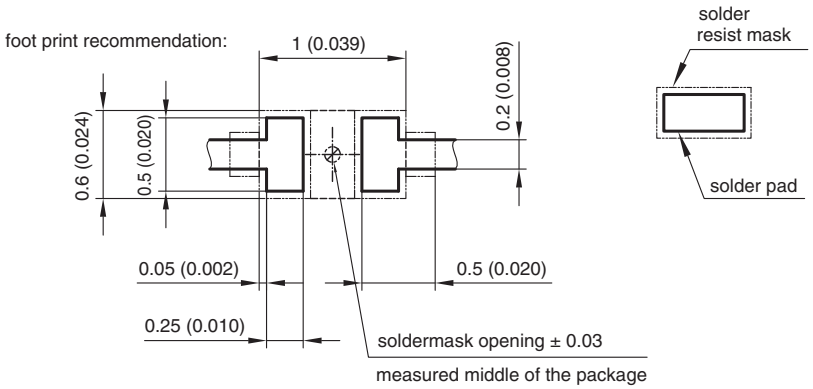


Fig. 7 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

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





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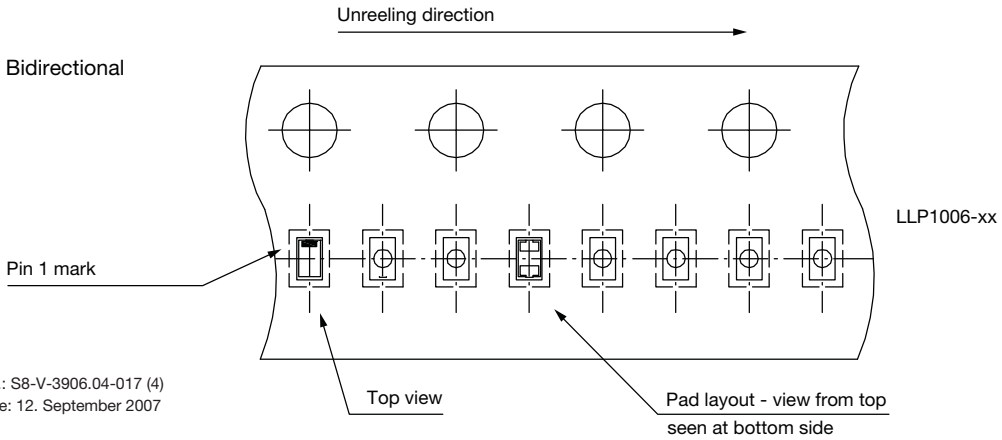

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Created - Date: 12. September 2007
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