RoHS

COMPLIANT

HALOGEN

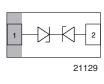
FREE

GREEN



Vishay Semiconductors

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





MARKING (example only)



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 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 <u>www.vishay.com/doc?99912</u>

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	Α		
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	± 30	kV		
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV		
Operating temperature	Junction temperature	TJ	-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	μΑ	
Reverse breakdown voltage	At I _R = 1 mA	V _{BR}	7.3	-	-	V	
Reverse clamping voltage	At I _{PP} = 1 A	\/	-	9	12	V	
	At I _{PP} = I _{PPM} = 4 A	V _C	-	-	15	V	
Capacitance	At V _R = 0 V; f = 1 MHz		-	14	16	pF	
	At V _B = 2.5 V; f = 1 MHz	- C _D	-	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)

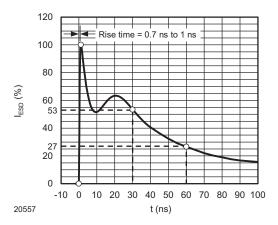


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150 pF)

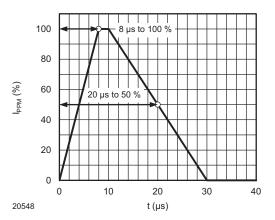


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

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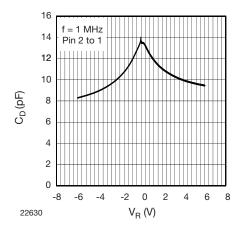


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

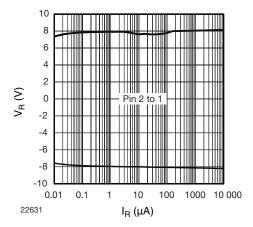


Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

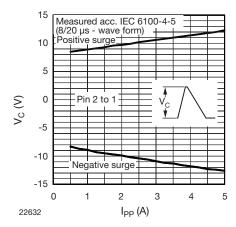


Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

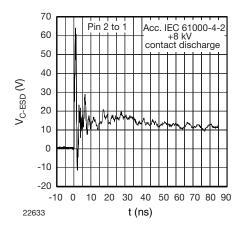


Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

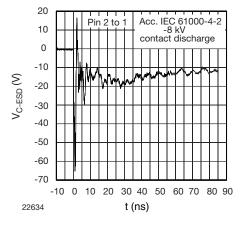


Fig. 7 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

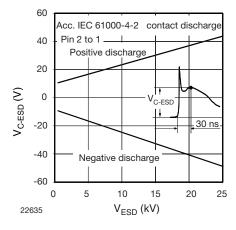
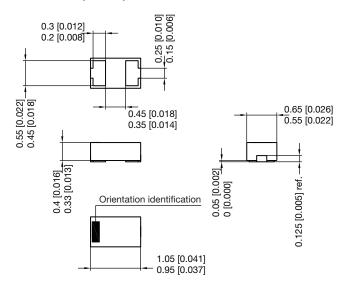


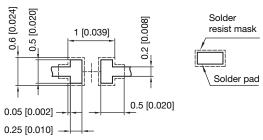
Fig. 8 - Typical Peak. Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

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



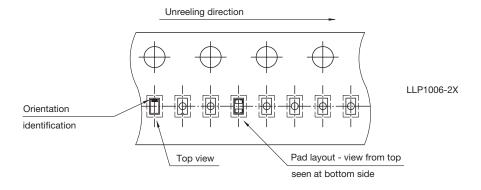
Foot print recommendation:



Pad Design Patented: (PUS 9.018.537 B2)

Document no.: S8-V-3906.04-005 (4) Rev. 7 - Date: 11.May 2016

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