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[Vishay Semiconductor/Diodes Division](#)
[VCUT03B1-DD1-G-08](#)

For any questions, you can email us directly:

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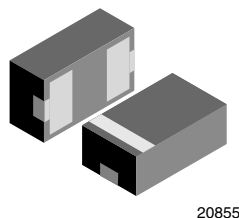
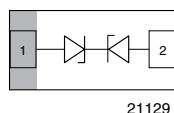


www.vishay.com

VCUT03B1-DD1

Vishay Semiconductors

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



FEATURES

- Ultra compact LLP1006-2M package
- Low package height < 0.4 mm
- 1-line ESD-protection
- Working range ± 3.5 V
- Low leakage current < 0.1 μ A
- Low load capacitance $C_D = 12.5$ pF
- ESD-protection acc. IEC 61000-4-2 ± 18 kV contact discharge ± 20 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



RoHS
 COMPLIANT
 HALOGEN
FREE
GREEN
 (5-2008)

MARKING (example only)



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
VCUT03B1-DD1	VCUT03B1-DD1-G-08	8000	8000

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VCUT03B1-DD1	LLP1006-2M	N	0.72 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS VCUT03B1-DD1					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Peak pulse current	Acc. IEC 61000-4-5; $t_p = 8/20 \mu$ s; single shot	I_{PPM}	3.5	A	
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5; $t_p = 8/20 \mu$ s; single shot	P_{PP}	40	W	
ESD immunity	Contact discharge acc. IEC61000-4-2; 10 pulses	V_{ESD}	± 18	kV	
	Air discharge acc. IEC61000-4-2; 10 pulses		± 20		
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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CUT THE SPIKES WITH VCUT03B1-DD1

The VCUT03B1-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 VCUT03B1-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 an ESD-strike can be clamped with minimal over- or undershoots.

ELECTRICAL CHARACTERISTICS VCUT03B1-DD1 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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}	-	-	3.5	V
Reverse voltage	at $I_R = 0.1\text{ }\mu\text{A}$	V_R	3.5	-	-	V
Reverse current	at $V = 3.5$	I_R	-	-	0.1	μA
Reverse breakdown voltage	at $I = 1\text{ mA}$	V_{BR}	5.8	6.7	7.5	V
Reverse clamping voltage	at $I_{PP} = 1\text{ A}$	V_C	-	7.8	9	V
	at $I_{PP} = I_{PPM} = 3.5\text{ A}$	V_C	-	9.5	11.5	V
Capacitance	at $V = 0\text{ V}$; $f = 1\text{ MHz}$	C_D	-	12.5	15	pF
	at $V = 2.5\text{ V}$; $f = 1\text{ MHz}$	C_D	-	11.5	-	pF

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

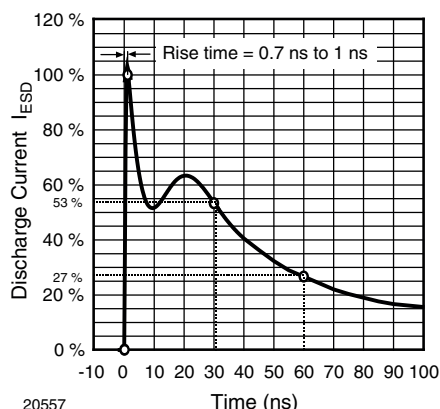


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150 pF)

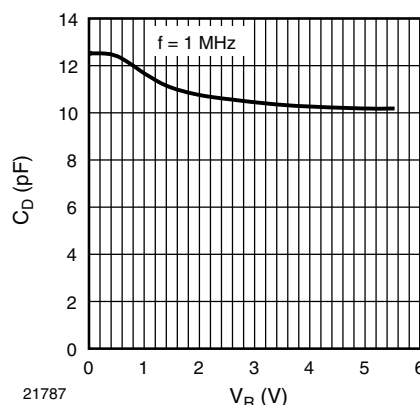


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

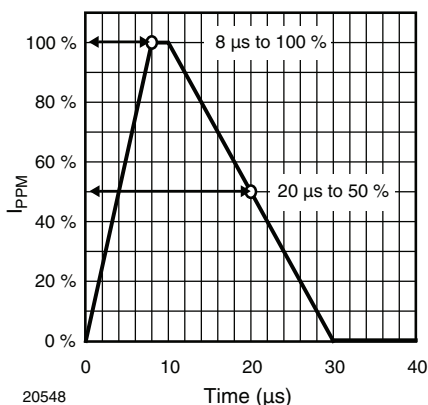


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

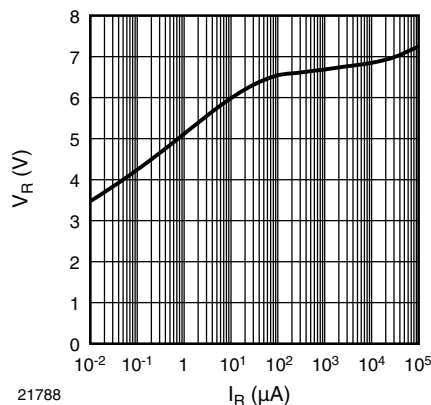


Fig. 4 - Typical Forward Current I_F vs. Forward Voltage V_F



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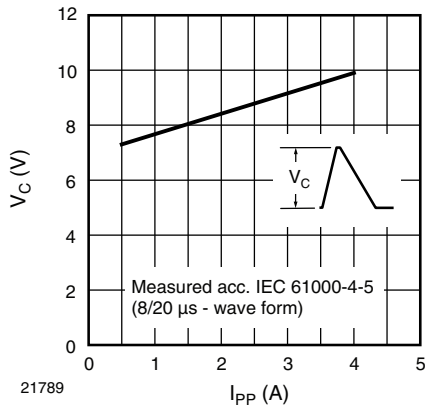


Fig. 5 - Typical Reverse Voltage V_R vs. Reverse Current I_R

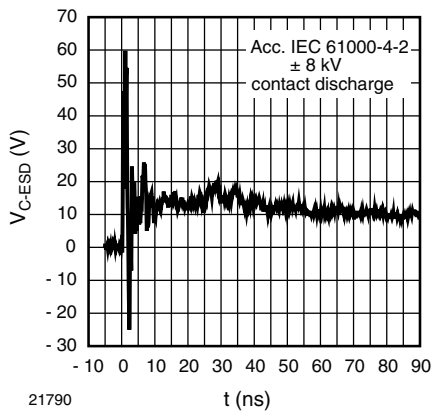


Fig. 6 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

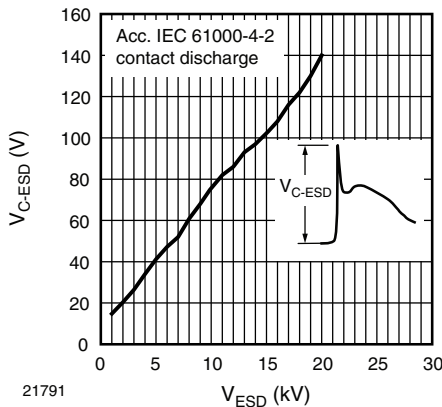


Fig. 7 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

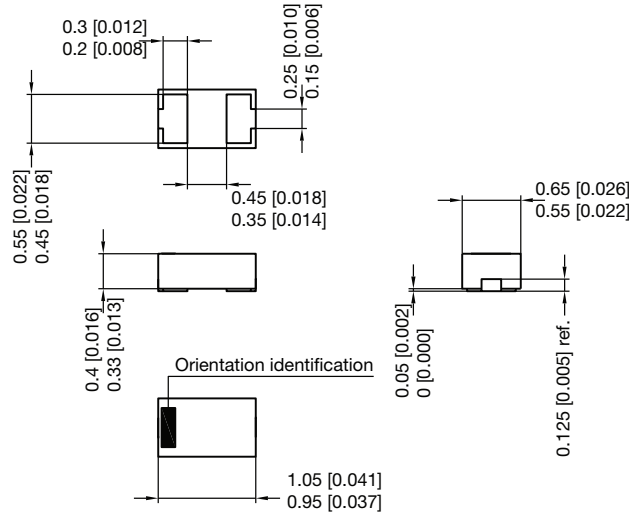


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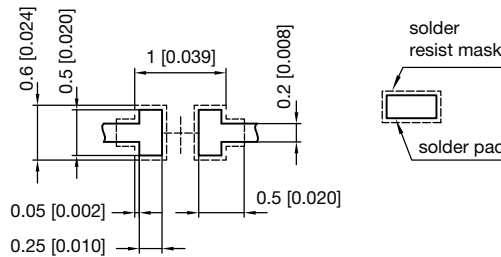
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PACKAGE DIMENSIONS in millimeters (Inches): **LLP1006-2M**

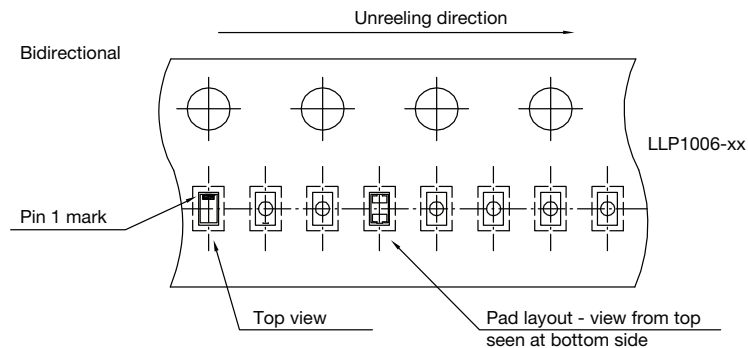


Foot print recommendation:



Pad Design Patented:
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