

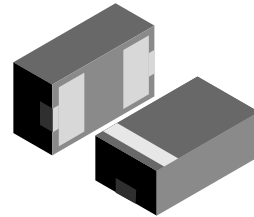
Bidirectional Symmetrical (BiSy) Single Line ESD-Protection Diode in LLP1006-2M

Features

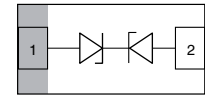
- Ultra compact LLP1006-2M package
- Low package height < 0.4 mm
- 1-line ESD-protection
- Working range ± 5.5 V
- Low leakage current < 0.1 μ A
- Low load capacitance $C_D = 10$ pF
- ESD-protection acc. IEC 61000-4-2
 - ± 30 kV contact discharge
 - ± 30 kV air discharge
- Soldering can be checked by standard vision inspection. No X-ray necessary
- Pin plating NiPdAu (e4) no whisker growth
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
(5-2008)**



20855



21129

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
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 μ s/single shot	I_{PPM}	3	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5, 8/20 μ s/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		± 30	
Operating temperature	Junction temperature	T_j	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

** Please see document "Vishay Material Category Policy": <http://www.vishay.com/doc?99902>

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

Electrical Characteristics

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

VCUT05B1-DD1

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand-off voltage	at $I = 0.1\text{ }\mu\text{A}$	V_{RWM}	5.5			V
Reverse current	at $V = 5.5\text{ V}$	I_R			0.1	μA
Reverse breakdown voltage	at $I = 1\text{ mA}$	V_{BR}	6	7.5	8.5	V
Reverse clamping voltage	at $I_{PP} = 1\text{ A}$	V_C		8.3	10.5	V
	at $I_{PP} = I_{PPM} = 3\text{ A}$	V_C		10.3	12.5	V
Capacitance	at $V = 0\text{ V}$; $f = 1\text{ MHz}$	C_D		10	13	pF
	at $V = 2.5\text{ V}$; $f = 1\text{ MHz}$	C_D		8		pF

Typical Characteristics

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

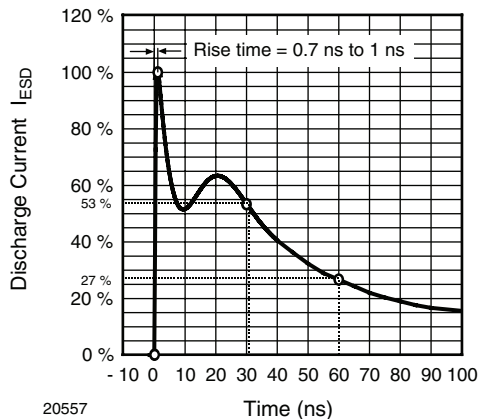


Figure 1. ESD Discharge Current Wave Form
acc. IEC 61000-4-2 (330 Ω /150 pF)

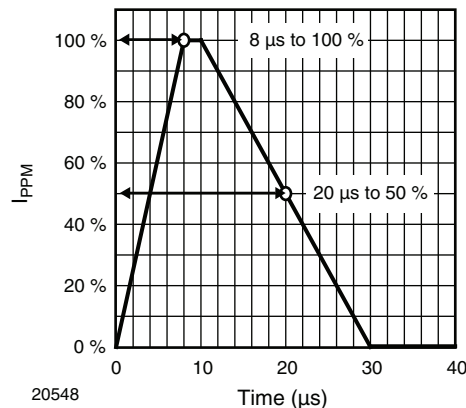


Figure 2. 8/20 μs Peak Pulse Current Wave Form
acc. IEC 61000-4-5

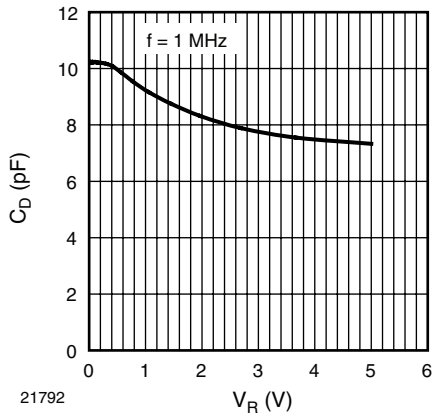


Figure 3. Typical Capacitance C_D vs. Reverse Voltage V_R

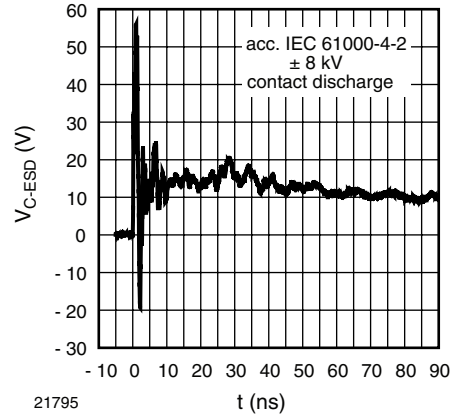


Figure 6. Typical Clamping Performance at ± 8 kV Contact Discharge (acc. IEC 61000-4-2)

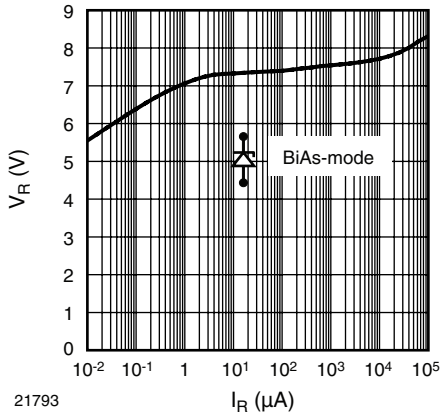


Figure 4. Typical Reverse Voltage V_R vs. Reverse Current I_R

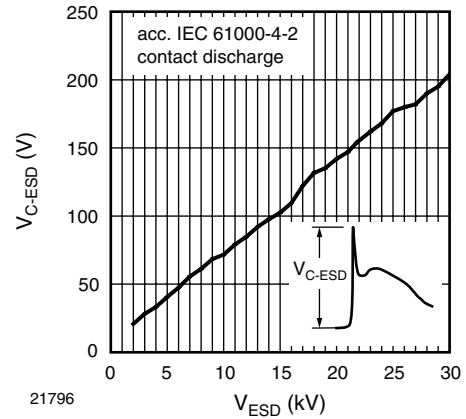


Figure 7. Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

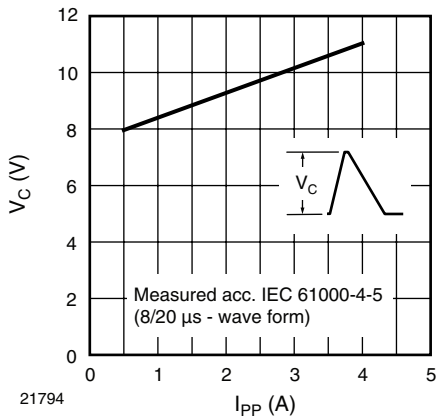


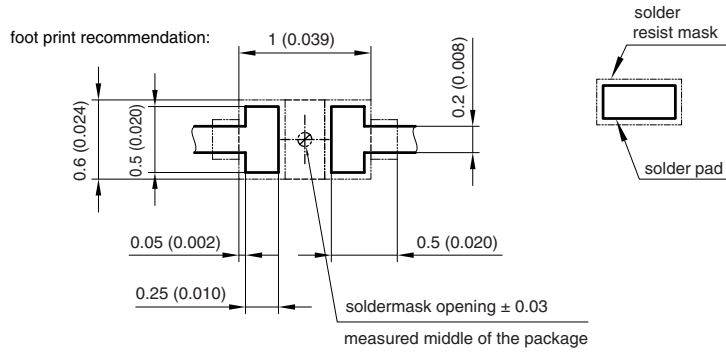
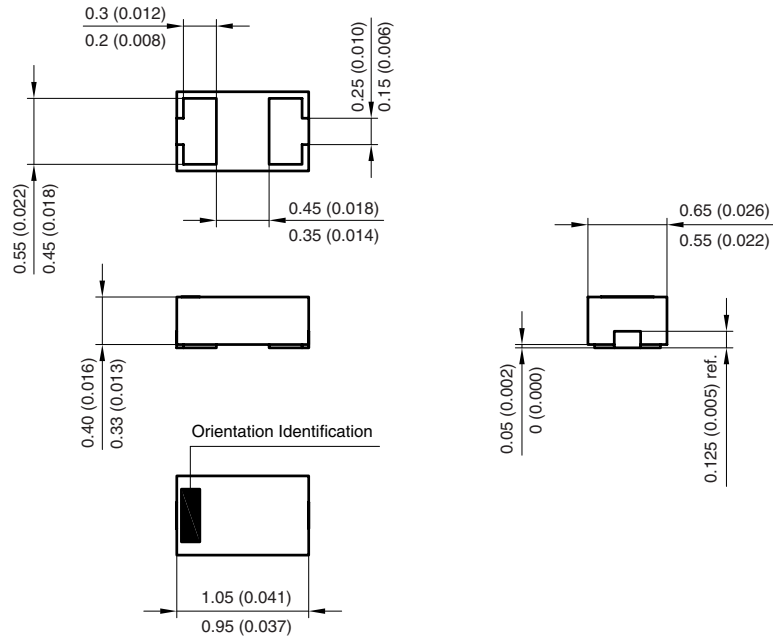
Figure 5. Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

VCUT05B1-DD1



Vishay Semiconductors

Package Dimensions in millimeters (inches): LLP1006-2M



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