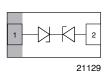
GREEN

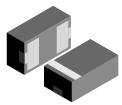


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Bidirectional Symmetrical (BiSy) Low Capacitance, Single-Line ESD-Protection Diode in LLP1006-2M





20855

MARKING (example only)



Bar = pin 1 marking X = date code

Y = type code (see table below)

FEATURES

- Ultra compact LLP1006-2M package
- Low package height < 0.4 mm
- 1-line ESD-protection
- Working range ± 5.5 V
- Low leakage current $I_R < 0.1 \ \mu A$
- Very low load capacitance C_D = 0.3 pF
- ESD-protection acc. IEC 61000-4-2
 - ± 15 kV contact discharge
 - ± 16 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)
- Material categorization: For definitions of compliance please see <u>www.vishav.com/doc?99912</u>

ORDERING INFORMATION							
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY				
VBUS05L1-DD1	VBUS05L1-DD1-G-08	8000	8000				

PACKAGE DATA								
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS		
VBUS05L1-DD1	LLP1006-2M	R	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; t _p = 8/20 μs; single shot	I _{PPM}	2	Α				
Peak pulse power	Pin 1 to pin 2, acc. IEC 61000-4-5; t _p = 8/20 μs; single shot	P _{PP}	34	W				
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V	± 15	kV				
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 16	kV				
Operating temperature	Junction temperature	TJ	- 40 to + 125	°C				
Storage temperature		T _{STG}	- 40 to + 150	°C				

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} lines Max. reverse working voltage 5.5 Reverse stand-off voltage V_{RWM} Reverse voltage at $I_R = 0.05 \, \mu A$ V_R 5.5 _ _ V Reverse current at $V_{RWM} = 5.5 V$ I_{R} 0.05 μΑ Reverse breakdown voltage at $I_R = 1 \text{ mA}$ 8.4 9.5 ٧ V_{BR} at Ipp 1 A 11.5 14 ٧ V_C Reverse clamping voltage at $I_{PP} = I_{PPM} = 2 A$ V_C 14 17 at $V_R = 0 V$, f = 1 MHz0.33 0.4 C_D рF Capacitance at $V_R = 2.5 V$, f = 1 MHz C_D 0.34 рF

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VBUS05L1-DD1: ESD PROTECTION WITH LOWEST LOAD CAPACITANCE

The **VBUS05L1-DD1** is a **Bi**directional and **Sy**mmetrical (**BiSy**) ESD-protection device which clamps positive and negative overvoltage transients to ground. Connected between the signal or data line and the ground the **VBUS05L1-DD1** offers a high isolation (low leakage current, lowest 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.

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

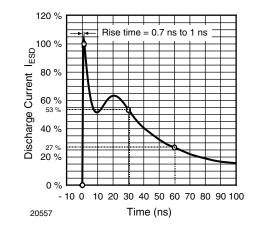


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150 pF)

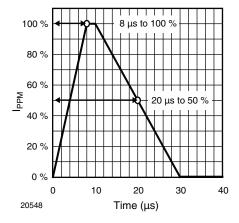


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

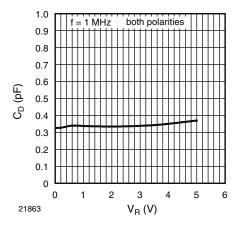


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

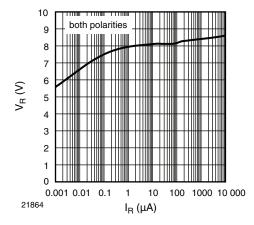


Fig. 4 - Typical Reverse Voltage V_{R} vs. Reverse Current I_{R}

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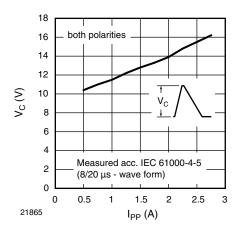


Fig. 5 - Typical Peak Clamping Voltage $V_{\rm C}$ vs. Peak Pulse Current I_{\rm PP}

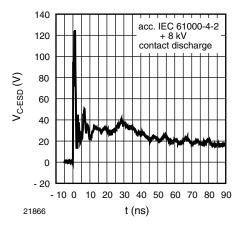


Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

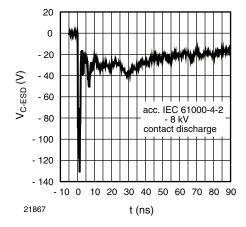


Fig. 7 - Typical Clamping Performance at - 8 kV Contact Discharge (acc. IEC 61000-4-2)

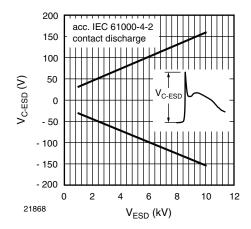
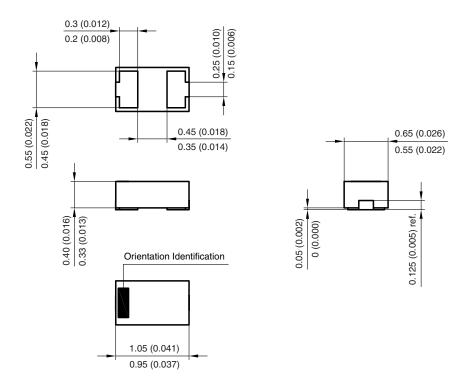
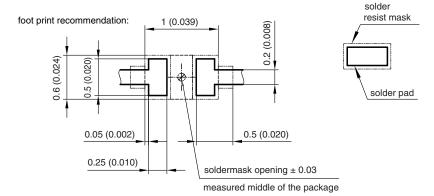


Fig. 8 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

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





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