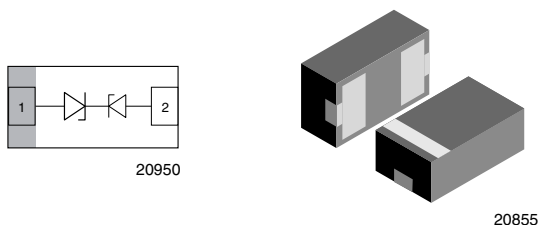




Bidirectional Asymmetrical (BiAs) Single Line ESD Protection Diode in LLP1006-2L



MARKING (example only)



Bar = pin 1 marking

Y = type code (see table below)

X = date code

DESIGN SUPPORT TOOLS click logo to get started



FEATURES

- Ultra compact LLP1006-2L
- Low package height < 0.4 mm
- 1-line ESD protection
- Working range -7 V up to +14 V or -14 V up to +7 V
- Low leakage current < 0.1 μ A
- Low load capacitance typical C_D = 8 pF
- ESD immunity acc. IEC 61000-4-2
± 25 kV contact discharge
± 30 kV air discharge
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- e3 - Sn
Tin plated exposed side wall of leadframe.
Soldering can be checked by standard vision inspection.
(AOI = Automated Outgoing Inspection)
No X-ray necessary
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

ORDERING INFORMATION

PIN PLATING	DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
e4	VCUT0714A-HD1	VCUT0714A-HD1-GS08	8000	8000
e3	VCUT0714AHD1	VCUT0714AHD1-G3-08	10 000	100 000

PACKAGE DATA

DEVICE NAME	PACKAGE NAME	PIN PLATING	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VCUT0714A-HD1	LLP1006-2L	e4	B	0.72 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
VCUT0714AHD1	LLP1006-2L	e3	7	0.72 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS VCUT0714A-HD1

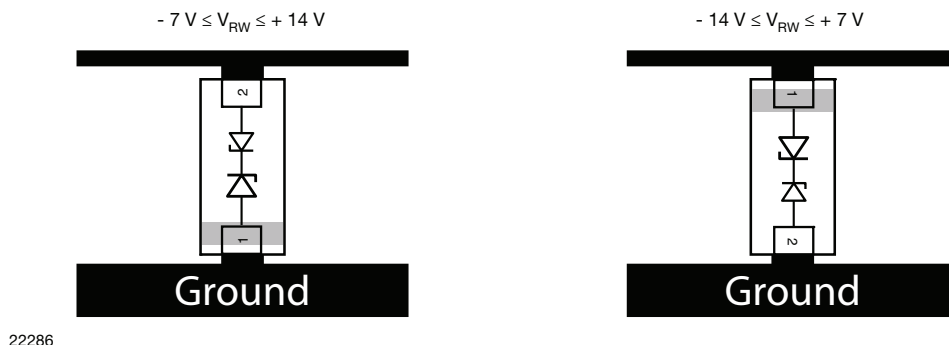
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Pin 1 to pin 2 acc. IEC 61000-4-5, 8/20 μ s/single shot	I_{PPM}	5	A
	Pin 2 to pin 1 acc. IEC 61000-4-5, 8/20 μ s/single shot		2	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5, 8/20 μ s/single shot	P_{PP}	63	W
	Pin 2 to pin 1 acc. IEC 61000-4-5, 8/20 μ s/single shot		54	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 25	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
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.

CUT THE SPIKES WITH VCUT0714A-HD1

The VCUT0714A-HD1 is a bidirectional but asymmetrical (BiAs) ESD protection device which clamps positive and negative overvoltage transients to ground. Connected between the signal or data line and the ground the VCUT0714A-HD1 offers a high isolation (low leakage current, small capacitance) within the specified working range of -7 V to +14 V or -14 V and +7 V. 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.



22286

ELECTRICAL CHARACTERISTICS VCUT0714A-HD1 (pin 2 to pin 1)

(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}	-	-	14	V
Reverse voltage	At I _R = 0.1 μA	V _R	14	-	-	V
Reverse current	At V _{RWM} = 14 V	I _R	-	-	0.1	μA
Reverse breakdown voltage	At I _R = 1 mA	V _{BR}	14.5	-	-	V
Reverse clamping voltage	At I _{PP} = 1 A	V _C	-	-	27	V
	At I _{PP} = I _{PPM} = 2 A	V _C	-	-	30	V
Capacitance	At V _R = 0 V; f = 1 MHz	C _D	-	8	8.5	pF
	At V _R = 7 V; f = 1 MHz	C _D	-	4	-	pF

ELECTRICAL CHARACTERISTICS (pin 1 to pin 2)

(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	μA
Reverse breakdown voltage	At I _R = 1 mA	V _{BR}	7.3	-	-	V
Reverse clamping voltage	At I _{PP} = 1 A	V _C	-	-	13	V
	At I _{PP} = I _{PPM} = 5 A	V _C	-	-	17	V
Capacitance	At V = 0 V; f = 1 MHz	C _D	-	8	8.5	pF
	At V = 3.5 V; f = 1 MHz	C _D	-	6.4	-	pF

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

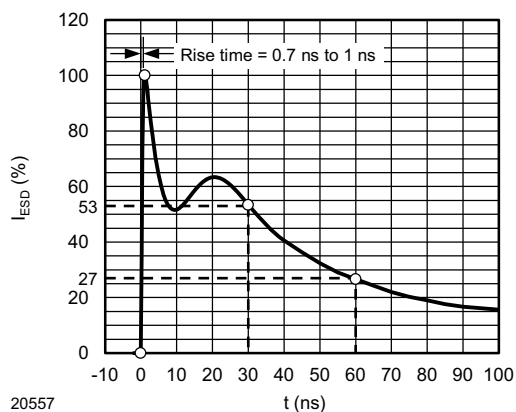


Fig. 1 - ESD Discharge Current Wave Form
acc. IEC 61000-4-2 (330 Ω /150 pF)

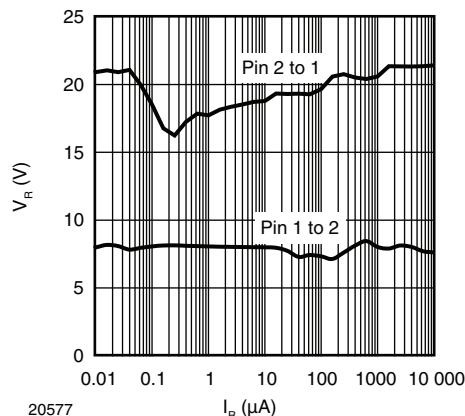


Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

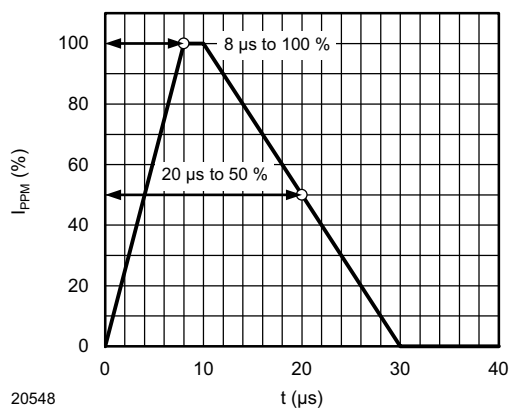


Fig. 2 - 8/20 μ s Peak Pulse Current Wave Form
acc. IEC 61000-4-5

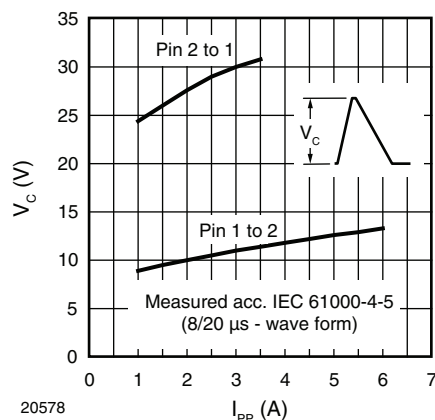


Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

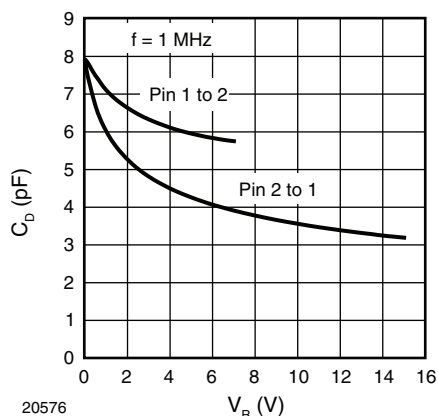


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

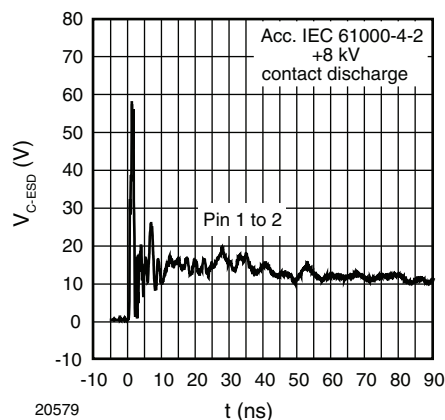


Fig. 6 - Typical Clamping Performance at + 8 kV
Contact Discharge (acc. IEC 61000-4-2)

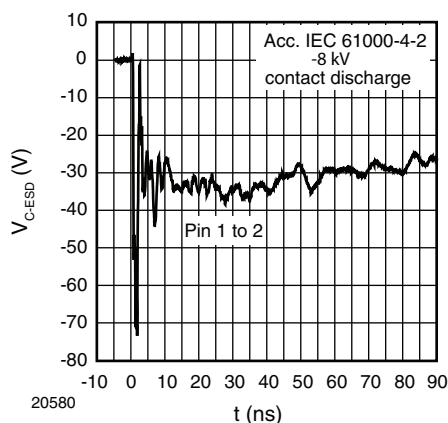


Fig. 7 - Typical Clamping Performance at - 8 kV Contact Discharge (acc. IEC 61000-4-2)

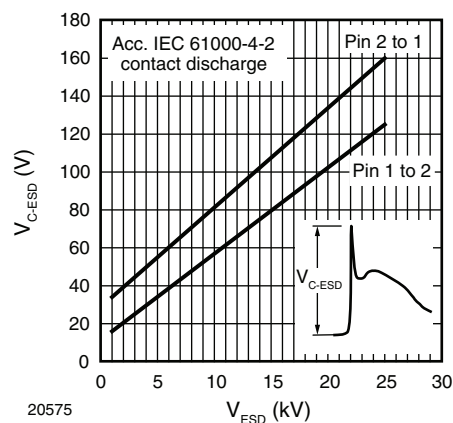
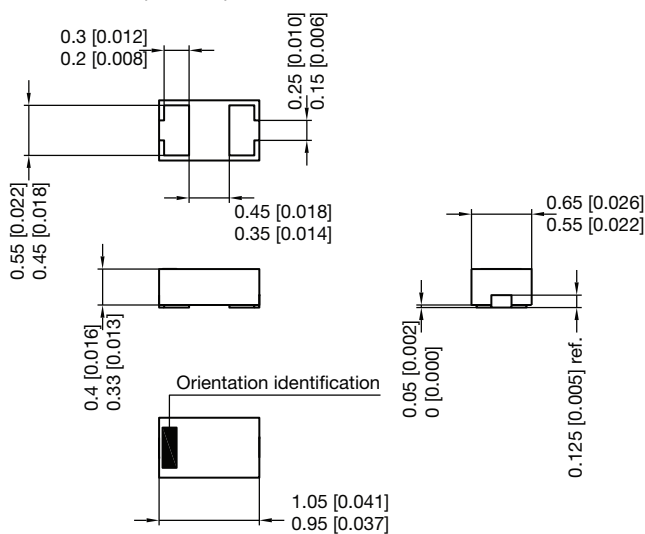
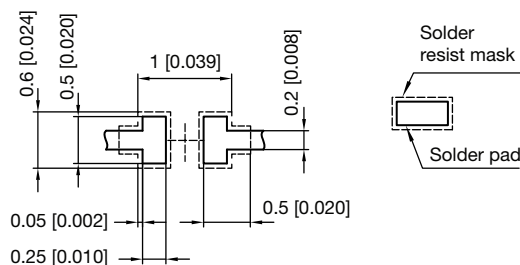


Fig. 8 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

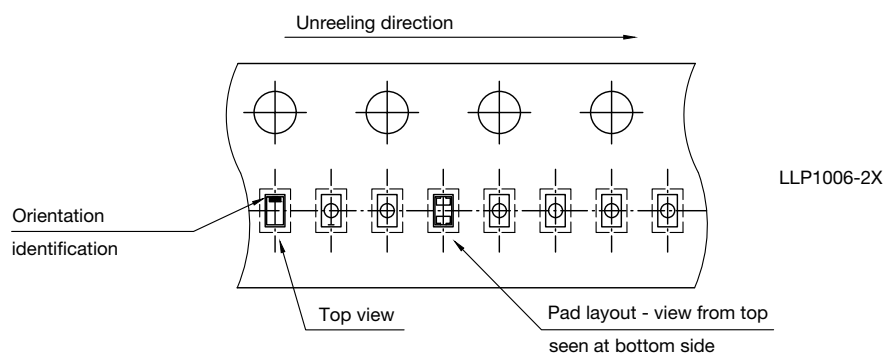
PACKAGE DIMENSIONS in millimeters (inches): LLP1006-2L



Foot print recommendation:



Pad Design Patented:
(©US 9.018.537 B2)



S8-V-3906.04-017 (4)
02.05.2017
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