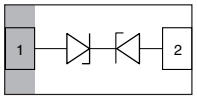
Bidirectional Symmetrical (BiSy) Single Line ESD-Protection Diode in LLP0603-2L



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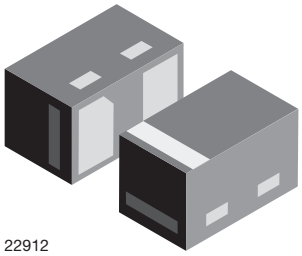

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FEATURES

- Ultra compact LLP0603-2L package
- Low package profile < 0.4 mm
- 1-line ESD-protection
- Working range ± 3.3 V
- Low leakage current I_R < 0.1 µA
- Low load capacitance C_D = 14 pF
- ESD-protection acc. IEC 61000-4-2
  ± 30 kV contact discharge
  ± 30 kV air discharge
- 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 www.vishay.com/doc?99912

Pb-free

e4

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

MARKING (example only)

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Bar = pin 1 marking
X = date code
Y = type code (see table below)

DESIGN SUPPORT TOOLS click logo to get started

3D Models Available

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VCUT03F1-HD0	VCUT03F1-HD0-G4-08	15 000	150 000

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VCUT03F1-HD0	LLP0603-2L	B	0.22 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS VCUT03F1-HD0				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5; t_p = 8/20 µs; single shot	I_{PPM}	4	A
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_{ESD}	± 30	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

ELECTRICAL CHARACTERISTICS VCUT03F1-HD0 (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}	-	-	3.3	V
Reverse voltage	at I_R = 0.1 µA	V_R	3.3	-	-	V
Reverse current	at V_{RWM} = 3.3 V	I_R	-	-	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	7	-	9	V
Reverse clamping voltage	at I_{PP} = 1 A	V_C	-	9	12	V
	at I_{PP} = I_{PPM} = 4 A		-	10.8	14	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	-	14	16	pF
	at V_R = 2.5 V; f = 1 MHz		-	11	-	pF

CUT THE SPIKES WITH VCUT03F1-HD0:

The VCUT03F1-HD0 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 VCUT03F1-HD0 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 LLP0603-2L 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)

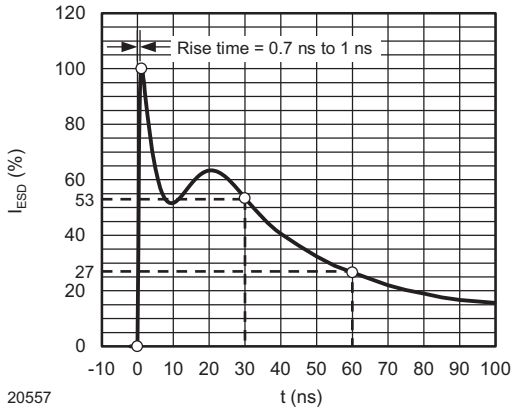


Fig. 1 - ESD Discharge Current Wave Form
acc. IEC 61000-4-2 (330 Ω/150 pF)

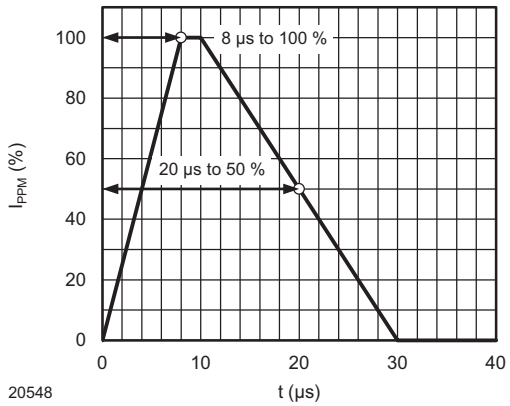


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form
acc. IEC 61000-4-5

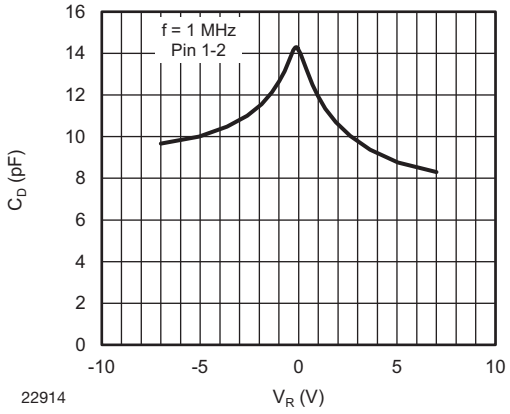


Fig. 3 - Typical Capacitance vs. Reverse Voltage

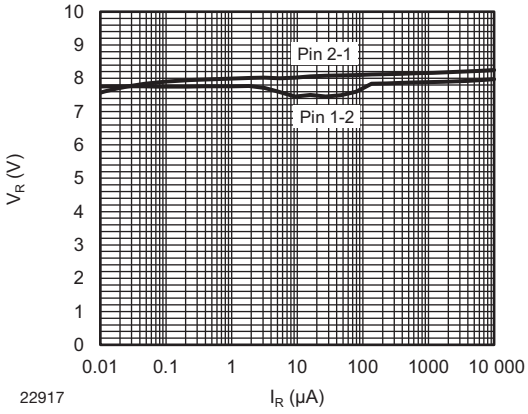


Fig. 6 - Typical Reverse Voltage vs. Reverse Current

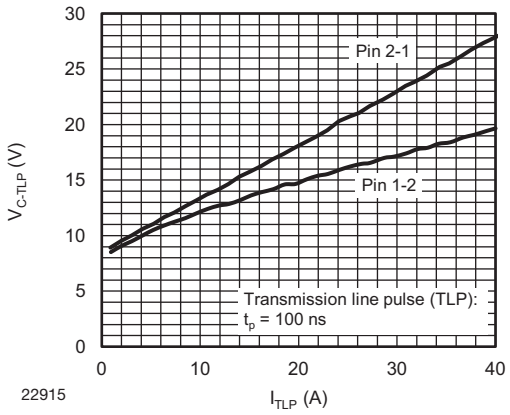


Fig. 4 - Typical Camping Voltage vs. Peak Pulse Current

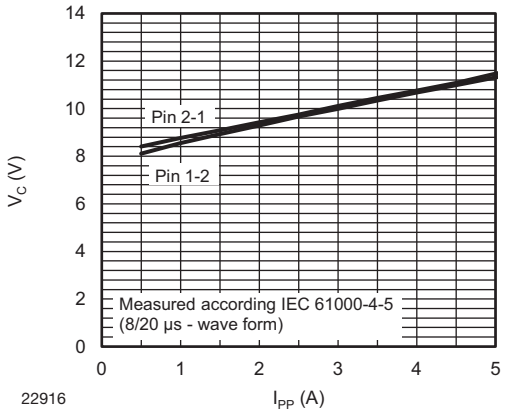
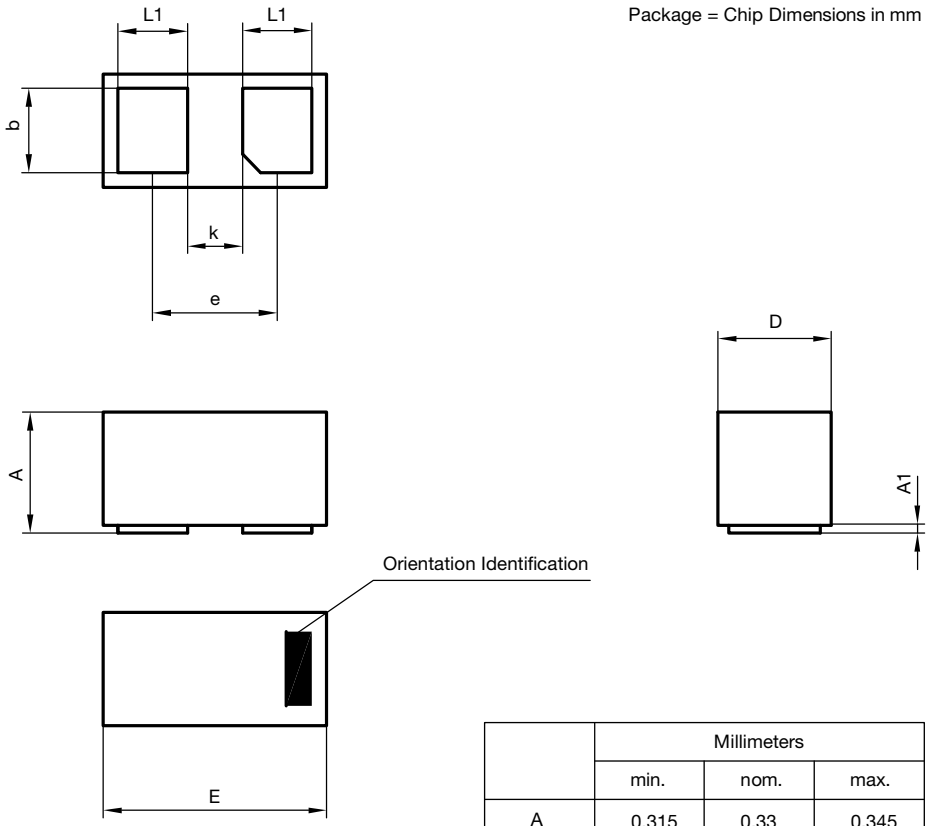


Fig. 5 - Typical Peak Clamping Voltage vs. Peak Pulse Current

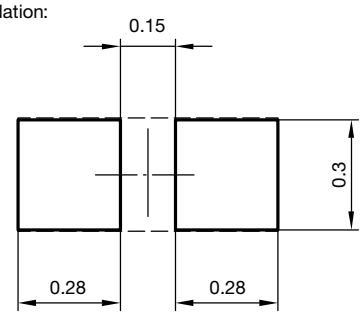
PACKAGE DIMENSIONS in millimeters (inches): **LLP0603-2L**

Package = Chip Dimensions in mm



	Millimeters		
	min.	nom.	max.
A	0.315	0.33	0.345
A1			0.01
b	0.18	0.23	0.28
D	0.26	0.31	0.36
E	0.56	0.61	0.66
e		0.34	
L1	0.14	0.19	0.24
k	0.1	0.15	0.2

foot print recommendation:



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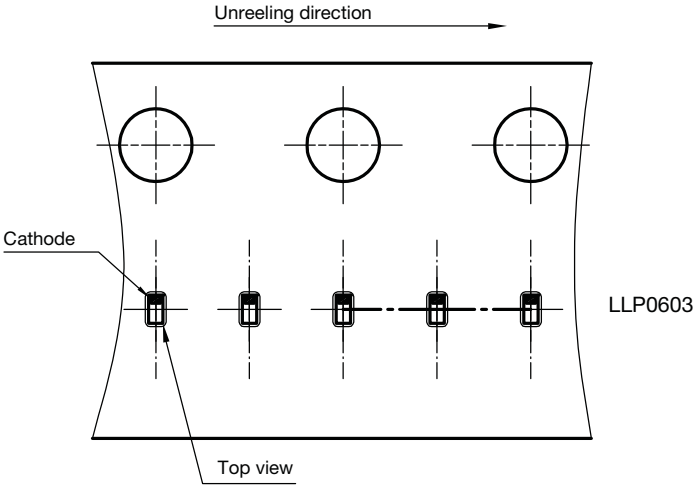
ORIENTATION IN CARRIER TAPE: LLP0603



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Created Date: 04.02.2010

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