

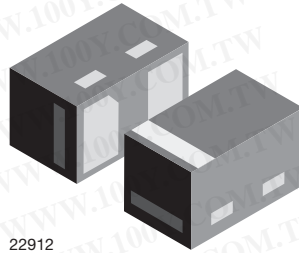
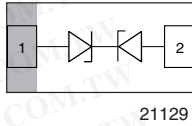


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 Http://www.100y.com.tw

# VCUT03F1-HD0

Vishay Semiconductors

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



### FEATURES

- Ultra compact LLP0603-2L package
- Low package profile < 0.4 mm
- 1-line ESD-protection
- Working range  $\pm 3.3$  V
- Low leakage current  $I_R < 0.1 \mu A$
- Low load capacitance  $C_D = 14$  pF
- ESD-protection acc. IEC 61000-4-2  
 $\pm 30$  kV contact discharge  
 $\pm 30$  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](http://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)

### DESIGN SUPPORT TOOLS

[click logo to get started](#)



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)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS VCUT03F1-HD0					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5; $t_p = 8/20 \mu s$ ; single shot		$I_{PPM}$	4	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5; $t_p = 8/20 \mu s$ ; single shot		$P_{PP}$	60	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses		$V_{ESD}$	$\pm 30$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses			$\pm 30$	kV
Operating temperature	Junction temperature		$T_J$	-40 to +125	°C
Storage temperature			$T_{stg}$	-55 to +150	°C

<b>ELECTRICAL CHARACTERISTICS VCUT03F1-HD0</b> (pin 1 to pin 2 or pin 2 to pin1) ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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	$V_{RWM}$	-	-	3.3	V
Reverse voltage	at $I_R = 0.1\text{ }\mu\text{A}$	$V_R$	3.3	-	-	V
Reverse current	at $V_{RWM} = 3.3\text{ V}$	$I_R$	-	-	0.1	$\mu\text{A}$
Reverse breakdown voltage	at $I_R = 1\text{ mA}$	$V_{BR}$	7	-	9	V
Reverse clamping voltage	at $I_{PP} = 1\text{ A}$	$V_C$	-	9	12	V
	at $I_{PP} = I_{PPM} = 4\text{ A}$		-	10.8	14	V
Capacitance	at $V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$	$C_D$	-	14	16	pF
	at $V_R = 2.5\text{ V}$ ; $f = 1\text{ MHz}$		-	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.

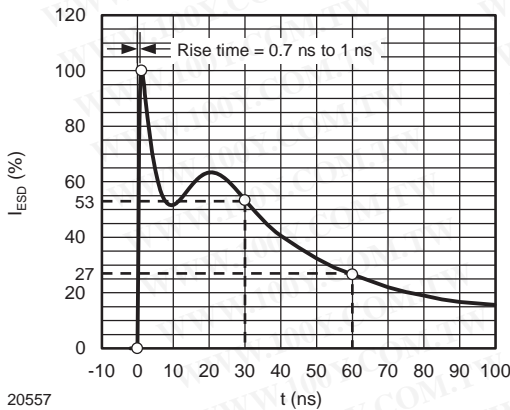
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


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

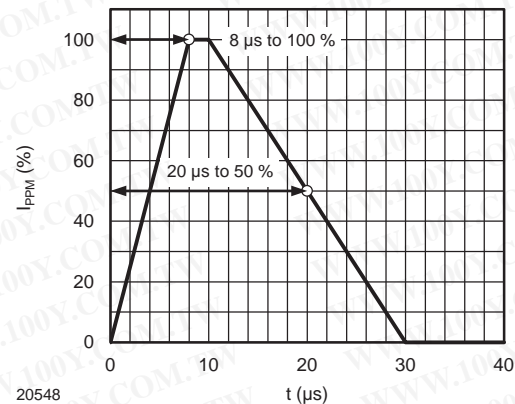


Fig. 2 - 8/20  $\mu\text{s}$  Peak Pulse Current Wave Form  
acc. IEC 61000-4-5

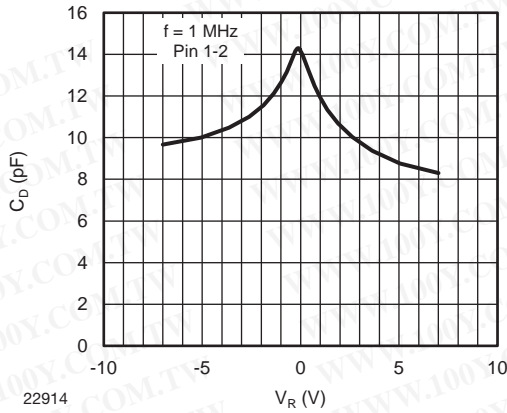


Fig. 3 - Typical Capacitance vs. Reverse Voltage

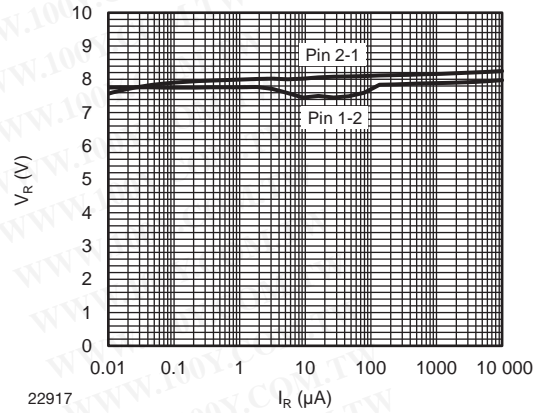


Fig. 6 - Typical Reverse Voltage vs. Reverse Current

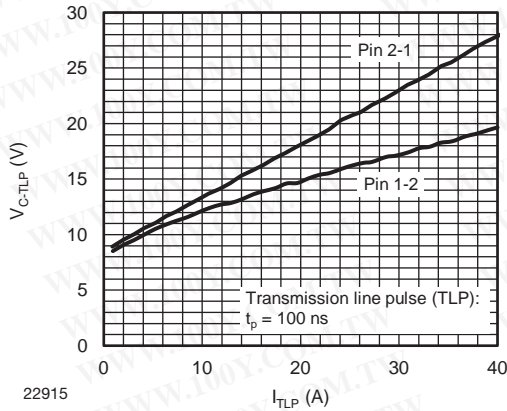


Fig. 4 - Typical Clamping Voltage vs. Peak Pulse Current

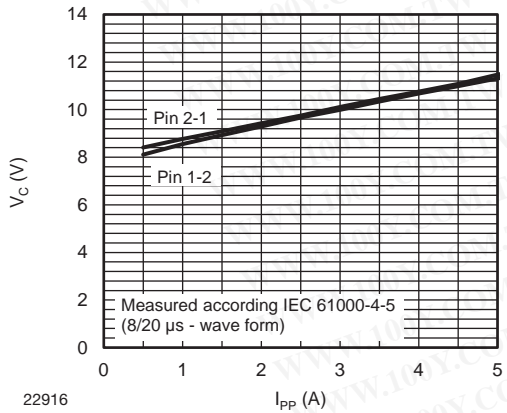
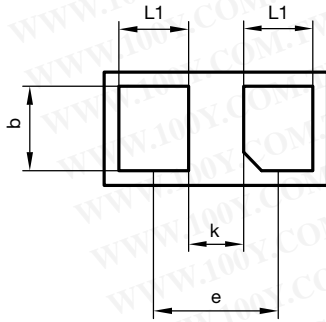


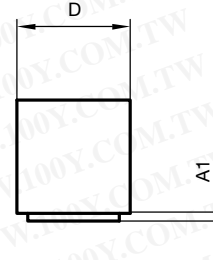
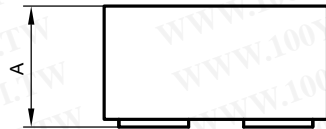
Fig. 5 - Typical Peak Clamping Voltage vs. Peak Pulse Current



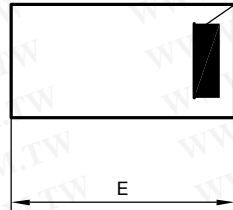
PACKAGE DIMENSIONS in millimeters (inches): **LLP0603-2L**



Package = Chip Dimensions in mm

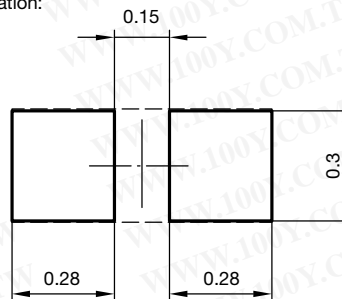


Orientation Identification



	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:



Document no.: S8-V-3906.04-020 (4)

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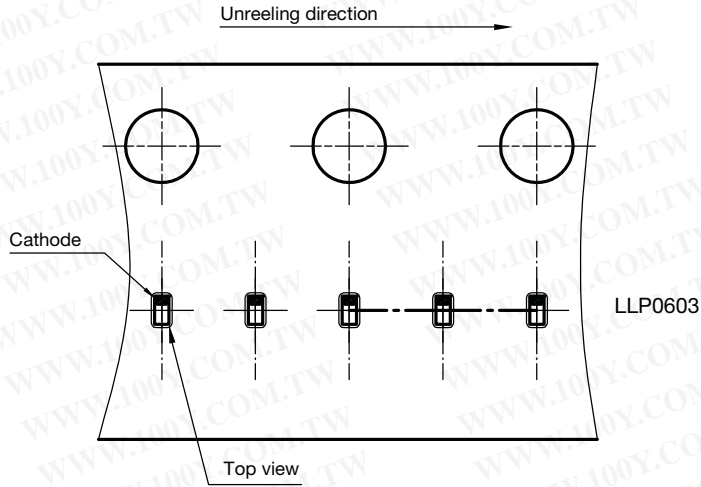
Rev.4 - Date: 29. Sept. 2017

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**ORIENTATION IN CARRIER TAPE: LLP0603**



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Created Date: 04.02.2010

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