

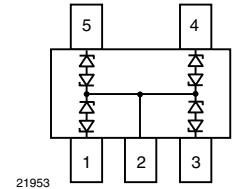
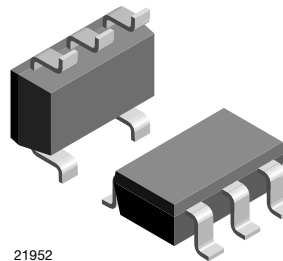
## 4-Line Bidirectional Symmetrical (BiSy) ESD-Protection Diode in SOT-23-5L

### Features

- SOT-23-5L package
- 4-line ESD-protection
- Working range  $\pm 5.5$  V
- Low leakage current  $< 0.1 \mu\text{A}$
- Low load capacitance  $C_D = 16$  pF
- ESD-protection acc. IEC 61000-4-2  
 $\pm 20$  kV contact discharge  
 $\pm 30$  kV air discharge
- Pin plating tin (e3)
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



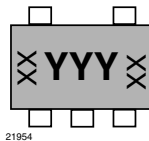
**RoHS**  
COMPLIANT  
**GREEN**  
[5-2008]\*\*



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### Marking (example only)



YYY = Type code (see table below)  
XX = Date code

### Ordering Information

Device name	Ordering code	Taped units per reel (8 mm tape on 7" reel)	Minimum order quantity
VCUT05A4-05S	VCUT05A4-05S-G-08	3000	15 000

### Package Data

Device name	Package name	Type code	Weight	Molding compound flammability rating	Moisture sensitivity level	Soldering conditions
VCUT05A4-05S	SOT-23-5L	5A4	15.5 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 $\mu\text{s}$ /single shot	$I_{PPM}$	3.5	A
Peak pulse power	Pin 1 to pin 2, acc. IEC 61000-4-5, 8/20 $\mu\text{s}$ /single shot	$P_{PP}$	56	W
ESD immunity	Contact discharge acc. IEC61000-4-2; 10 pulses	$V_{ESD}$	$\pm 20$	kV
	Air discharge acc. IEC61000-4-2; 10 pulses		$\pm 30$	
Operating temperature	Junction temperature	$T_j$	- 40 to + 85	°C

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

## Cut the spikes with VCUT05A4-05S:

The **VCUT05A4-05S** 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 **VCUT05A4-05S** offers a high isolation (low leakage current, low capacitance) within the specified working range.

## Electrical Characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

### VCUT05A4-05S

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	$N_{lines}$			4	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	$\mu\text{A}$
Reverse breakdown voltage	at $I = 1\text{ mA}$	$V_{BR}$	7	7.5		V
Reverse clamping voltage	at $I_{PP} = 1\text{ A}$	$V_C$			12	V
	at $I_{PP} = I_{PPM} = 3.5\text{ A}$	$V_C$			16	V
Capacitance	at $V = 0\text{ V}$ ; $f = 1\text{ MHz}$	$C_D$		16	20	pF

## Typical Characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

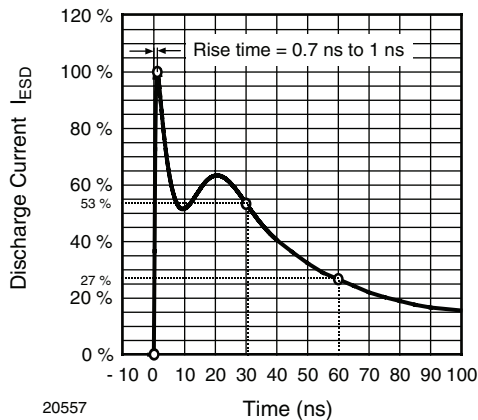


Figure 1. ESD Discharge Current Wave Form  
acc. IEC 61000-4-2 (330  $\Omega$ /150 pF)

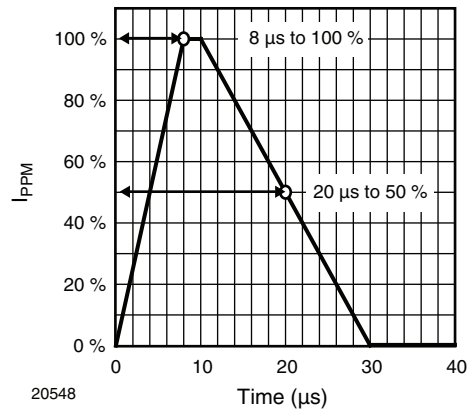


Figure 2. 8/20  $\mu\text{s}$  Peak Pulse Current Wave Form  
acc. IEC 61000-4-5

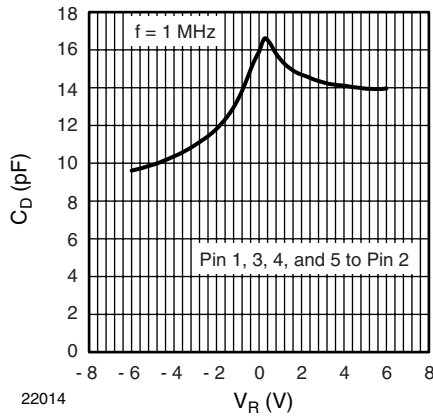


Figure 3. Typical Capacitance  $C_D$  vs. Reverse Voltage  $V_R$

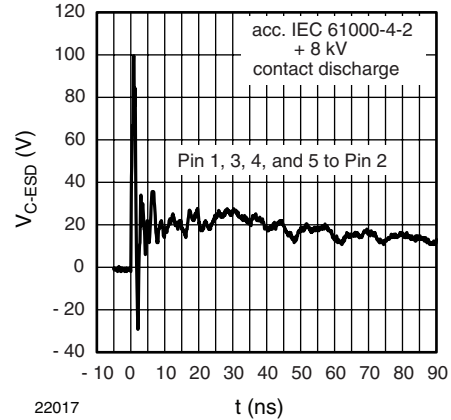


Figure 6. Typical Clamping Performance at +8 kV Contact Discharge (acc. IEC 61000-4-2)

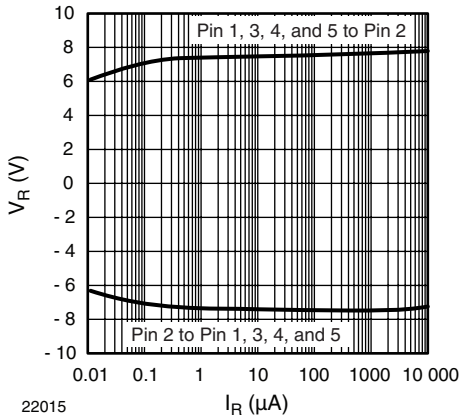


Figure 4. Typical Reverse Voltage  $V_R$  vs. Reverse Current  $I_R$

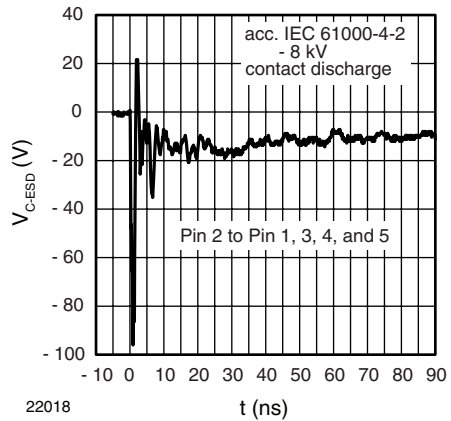


Figure 7. Typical Clamping Performance at -8 kV Contact Discharge (acc. IEC 61000-4-2)

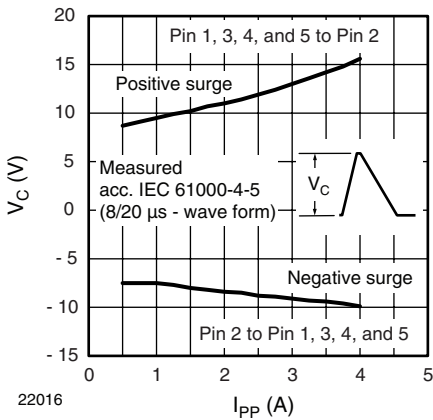


Figure 5. Typical Peak Clamping Voltage  $V_C$  vs. Peak Pulse Current  $I_{PP}$

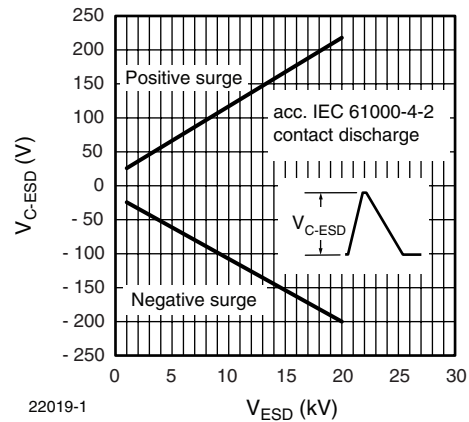
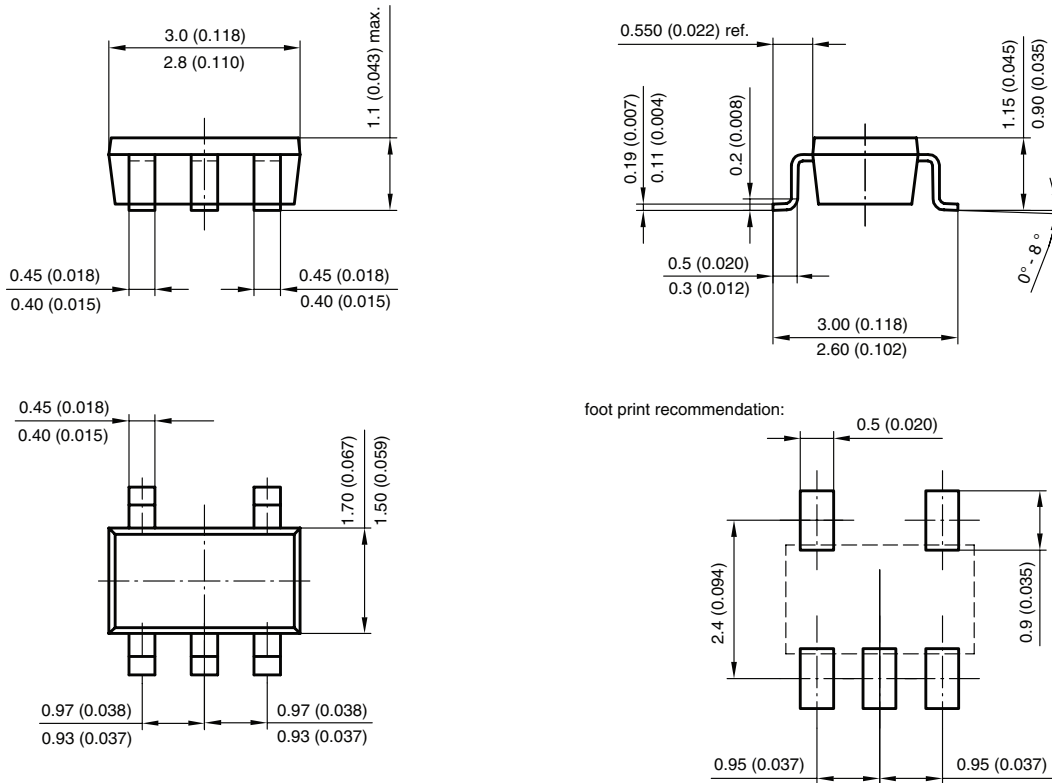


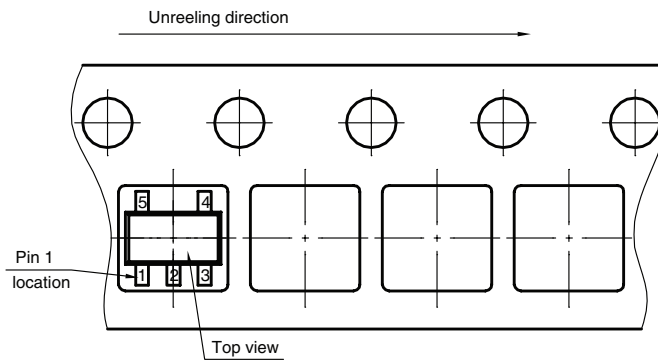
Figure 8. Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

## Package Dimensions in millimeters (inches): SOT-23-5L



Document no.: S8-3929.01-001 (4)  
 Rev. 1 - Date: 15.Jan.2010  
 21955

## Orientation in Blister Tape



S8-V-3929.01-003 (4)  
 Date: 23. 11. 2009  
 22006



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