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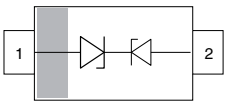
Vishay Semiconductor/Diodes Division
VCUT0714A-02Z-GS08

For any questions, you can email us directly:
sales@integrated-circuit.com

VCUT0714A-02Z

Vishay Semiconductors

Bidirectional Asymmetrical (BiAs) Single Line ESD-Protection Diode in SOD923



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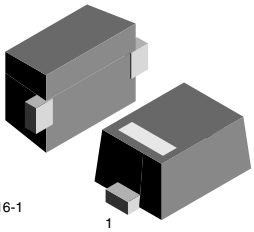

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FEATURES

- Tiny SOD-923 package
- Package height < 0.4 mm
- Working range - 7 V up to + 14 V or - 14 V up to + 7 V
- Low leakage current I_R < 0.1 µA
- Low capacitance typical C_D = 8 pF
- ESD-protection acc. IEC 61000-4-2
  ± 25 kV contact discharge
  ± 30 kV air discharge
- Working voltage range V_{RWM} = 5 V
- e3 - Sn
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**

MARKING (example only)

20279

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

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VCUT0714A-02Z	VCUT0714A-02Z-GS08	8000	8000

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VCUT0714A-02Z	SOD-923	A	0.45 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS VCUT0714A-02Z				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Pin 1 to pin 2 acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	5	A
	Pin 2 to pin 1 acc. IEC 61000-4-5, 8/20 µs/single shot		2	A
Peak pulse power	Pin 1 to pin 2 acc. IEC 61000-4-5, 8/20 µs/single shot	P_{PP}	63	W
	Pin 2 to pin 1 acc. IEC 61000-4-5, 8/20 µs/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

** Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902

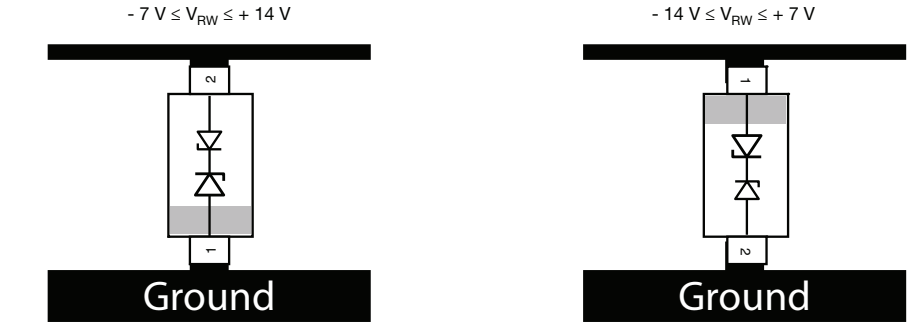
VCUT0714A-02Z

Vishay Semiconductors

Bidirectional Asymmetrical (BiAs) Single Line ESD-Protection Diode in SOD923

CUT THE SPIKES WITH VCUT0714A-02Z

The VCUT0714A-02Z 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-02Z 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 SOD-923 package the line inductance is very low, so that fast transients like an ESD-strike can be clamped with minimal over- or undershoots.



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ELECTRICAL CHARACTERISTICS VCUT0714A-02Z						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse working voltage	at I = 1 µA	V_{RWM}	14	-	-	V
Reverse current	at V = 14 V	I_R	-	-	0.1	µA
Reverse breakdown voltage	at I = 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		-	-	30	V
Capacitance	at V = 0 V; f = 1 MHz	C_D	-	8	8.5	pF
	at V = 7 V; f = 1 MHz		-	4	-	pF

Note

- Ratings at 25 °C, ambient temperature unless otherwise specified. Measured from pin 2 to pin 1.

ELECTRICAL CHARACTERISTICS VCUT0714A-02Z						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	1	lines
Reverse working voltage	at I = 1 µA	V_{RWM}	7	-	-	V
Reverse current	at V = 7 V	I_R	-	-	0.1	µA
Reverse breakdown voltage	at I = 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		-	-	17	V
Capacitance	at V = 0 V; f = 1 MHz	C_D	-	8	8.5	pF
	at V = 3.5 V; f = 1 MHz		-	6.4	-	pF

Note

- Ratings at 25 °C, ambient temperature unless otherwise specified. Measured from pin 1 to pin 2.

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

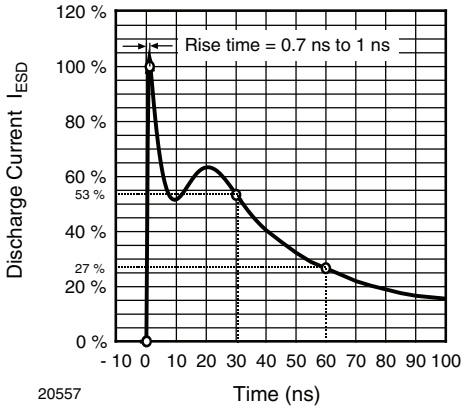


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150 pF)

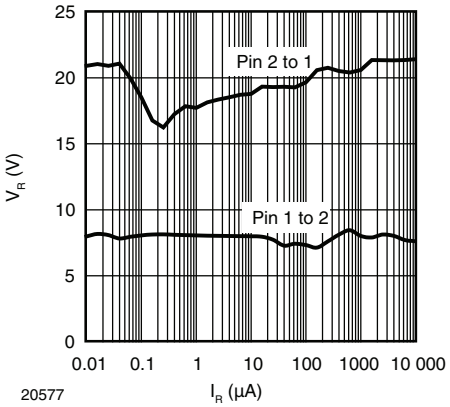


Fig. 4 - Typical Reverse Voltage V_R vs. Reverse Current I_R

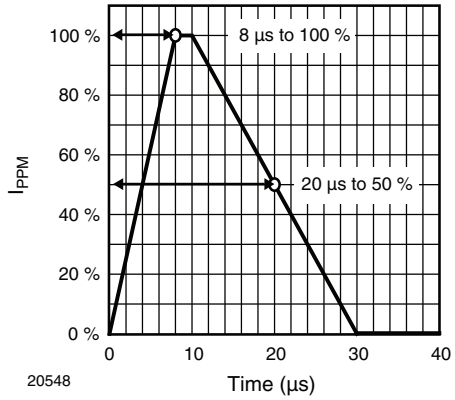


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

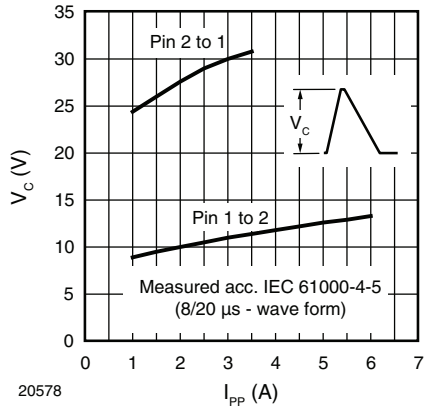


Fig. 5 - Typical Peak Clamping Voltage V_C vs. Peak Pulse Current I_{PP}

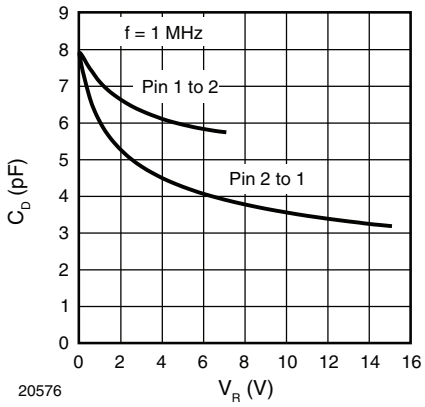


Fig. 3 - Typical Capacitance C_D vs. Reverse Voltage V_R

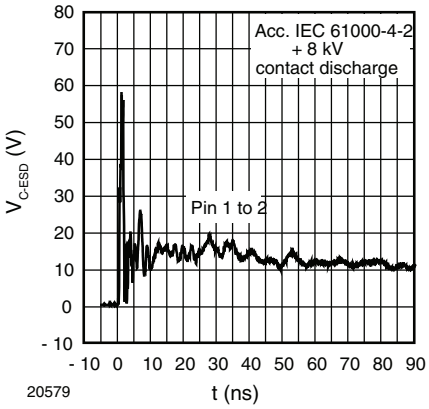


Fig. 6 - Typical Clamping Performance at + 8 kV Contact Discharge (acc. IEC 61000-4-2)

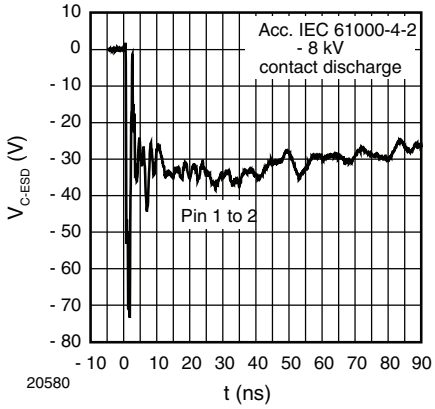


Fig. 7 - Typical Clamping Performance at - 8 kV Contact Discharge (acc. IEC 61000-4-2)

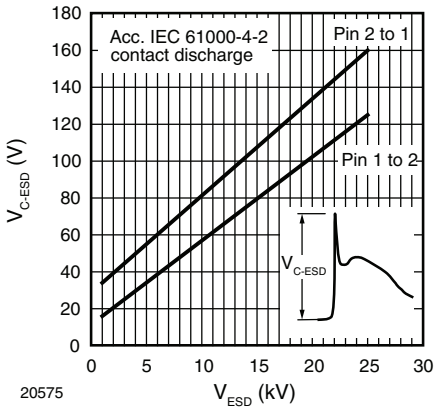
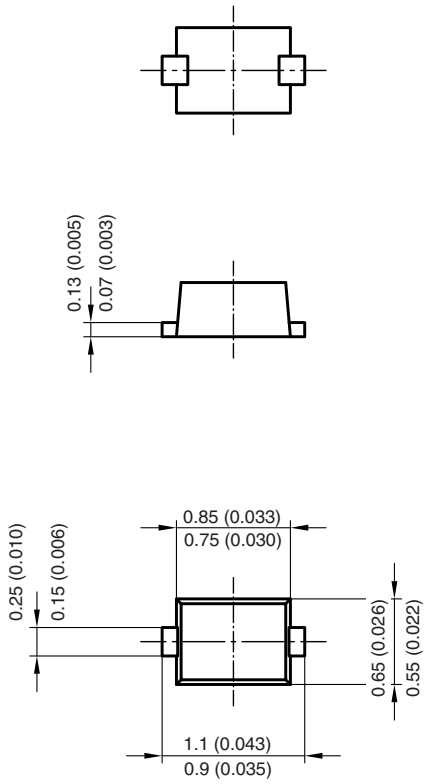
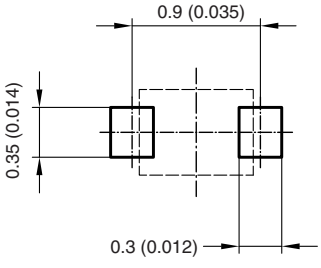


Fig. 8 - Typical Peak Clamping Voltage at ESD Contact Discharge (acc. IEC 61000-4-2)

PACKAGE DIMENSIONS in millimeters (inches): **SOD-923**



Foot print recommendation:



Document no.: S8-V-3880.05-001 (4)
Rev. 1 - Date: 05.July.2006
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