

**Vishay Semiconductors** 

# Low Capacitance, Single-Line ESD-Protection Diode in SOD-323

# 2



#### **MARKING** (example only)



XYZ = type code (see table below) bar = pin 1

20503

#### LINKS TO ADDITIONAL RESOURCES



## FEATURES

- For LIN-Bus applications
- Small SOD-323 package
- 1-line ESD-protection
- Working range: ± 33 V
- Low leakage current  $I_R < 0.05 \; \mu A$
- Low load capacitance  $C_D < 13 \ \text{pF}$
- ESD-protection acc. IEC 61000-4-2 ± 30 kV contact discharge ± 30 kV air discharge
- ESD capability according to AEC-Q101: human body model: class H3B: > 8 kV
- e3 pins plated with tin (Sn)
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

ORDERING INFORMATION								
PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE				PACKAG	ING CODE		
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS		TIN PLATED	3K PER 7" REEL (8 mm TAPE)	10K PER 13" REEL (8 mm TAPE)	ORDERING CODE (EXAMPLE)	
	QUALIFIED	STANDARD	GREEN	FLATED	15K/BOX = MOQ	10K/BOX = MOQ		
VLIN3333-02G	-	E	-	3	-08	-	VLIN3333-02G-E3-08	
VLIN3333-02G	Н	E	-	3	-08	-	VLIN3333-02GHE3-08	
VLIN3333-02G	-	E	-	3	-	-18	VLIN3333-02G-E3-18	
VLIN3333-02G	Н	E	_	3	-	-18	VLIN3333-02GHE3-18	

PACKAGE DATA								
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS		
VLIN3333-02G	SOD-323	333	4.30 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C		

ABSOLUTE MAXIMUM RATINGS						
PARAMETER TEST CONDITIONS		SYMBOL	VALUE	UNIT		
Peak pulse current	$T_A = 25$ °C; acc. IEC 61000-4-5; $t_p = 8/20 \ \mu s$ ; single shot	I <sub>PPM</sub>	3.5	А		
Peak pulse power	$T_A$ = 25 °C; acc. IEC 61000-4-5; $t_p$ = 8/20 µs; single shot	P <sub>PP</sub>	200	W		
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses; $T_A = 25 \text{ °C}$	V	± 30	kV		
	Air discharge acc. IEC 61000-4-2; 10 pulses; $T_A$ = 25 °C	V <sub>ESD</sub>	± 30	kV		
Operating temperature	Junction temperature	TJ	-55 to +150	°C		
Storage temperature		T <sub>STG</sub>	-55 to +150	°C		



RoHS

COMPLIANT

# VLIN3333-02G

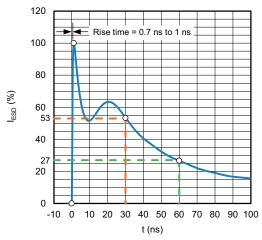


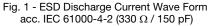
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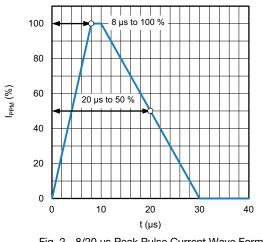
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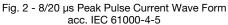
<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITIONS / REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines	
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	33	V	
Reverse voltage	At I <sub>R</sub> = 0.05 μA	V <sub>R</sub>	33	-	-	V	
Reverse current	At V <sub>RWM</sub> = 33 V	I <sub>R</sub>	-	-	0.05	μA	
Reverse breakdown voltage	At I <sub>R</sub> = 1 mA	V <sub>BR</sub>	36	38	40	V	
Reverse clamping voltage	At I <sub>PP</sub> 1 A; t <sub>p</sub> = 8/20 μs	V <sub>C</sub>	-	42	46	V	
	At $I_{PP} = I_{PPM} = 3.5 \text{ A}$ ; $t_p = 8/20 \mu\text{s}$	V <sub>C</sub>	-	50	57	V	
Capacitance	At $V_R = 0 V$ , f = 1 MHz	CD	-	11	13	pF	

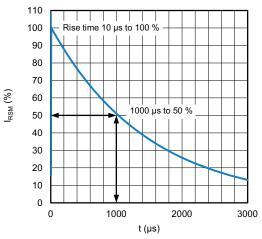
TYPICAL CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

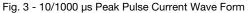












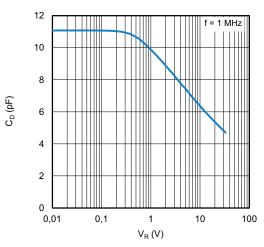
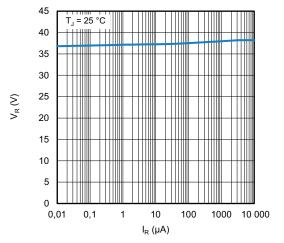


Fig. 4 - Typical Capacitance C<sub>D</sub> vs. Reverse Voltage V<sub>R</sub>

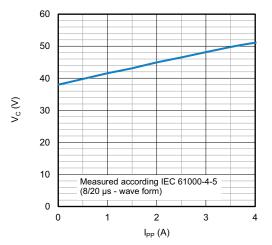
## **Vishay Semiconductors**

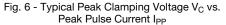


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Fig. 5 - Typical Reverse Voltage V<sub>R</sub> vs. Reverse Current I<sub>R</sub>





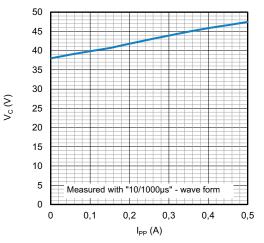


Fig. 7 - Typical Peak Clamping Voltage V\_C vs. Peak Pulse Current  $I_{PP}$ 

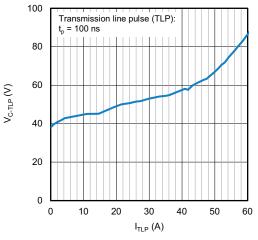


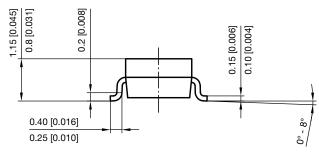
Fig. 8 - Typical Clamping Voltage  $V_{C-TLP}$  vs. Peak Pulse Current  $I_{TLP}$ 

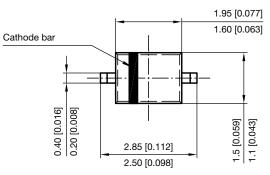


0.1 [0.004] max.

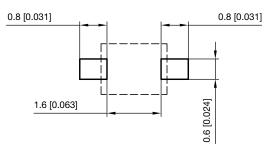


## PACKAGE DIMENSIONS in millimeters (inches) SOD-323





Footprint recommendation:

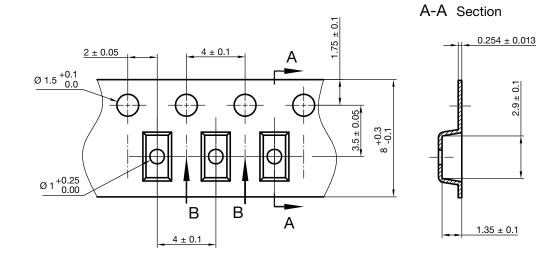


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## **CARRIER TAPE SOD-323**

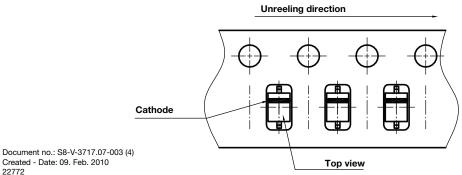


**B-B** Section



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#### **ORIENTATION IN CARRIER TAPE SOD-323**



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