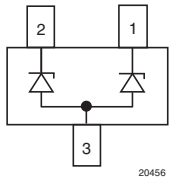
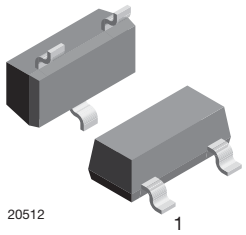
Dual-Line ESD Protection Diode in SOT-23





FEATURES

- Small SOT-23 package
- AEC-Q101 qualified available
- 2-line ESD protection
- Working range ± 33 V
- Low leakage current I_R < 0.05 µA
- Low load capacitance C_D < 18 pF
- ESD immunity acc. IEC 61000-4-2
  ± 15 kV contact discharge
  ± 15 kV air discharge
- e3 - pins plated with tin (Sn)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

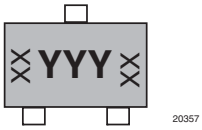
Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

MARKING (example only)



YYY = type code (see table below)
XX = date code

DESIGN SUPPORT TOOLS AVAILABLE

3D Models

ORDERING INFORMATION

PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE				PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS		TIN PLATED	3K PER 7" REEL (8 mm TAPE) 15K/BOX = MOQ	10K PER 13" REEL (8 mm TAPE) 10K/BOX = MOQ	
		STANDARD	GREEN				
VESD33A2-03S	-	G	-	3	-08	-	VESD33A2-03S-G3-08
VESD33A2-03S	H	G	-	3	-08	-	VESD33A2-03SHG3-08
VESD33A2-03S	-	G	-	3	-	-18	VESD33A2-03S-G3-18
VESD33A2-03S	H	G	-	3	-	-18	VESD33A2-03SHG3-18

PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VESD33A2-03S	SOT-23	D33	8.1 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	Acc. IEC 61000-4-5, 8/20 µs/single shot	I_{PPM}	1.6	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 µs/single shot	P_{PP}	100	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	15	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		15	kV
Operating temperature	Junction temperature	T_J	-55 to +150	°C
Storage temperature		T_{stg}	-55 to +150	°C

For technical questions, contact: ESDprotection@vishay.com

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ELECTRICAL CHARACTERISTICS (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}	-	-	33	V
Reverse voltage	at I_R = 0.1 µA	V_R	33	-	-	V
Reverse current	at V_R = 33 V	I_R	-	< 0.01	0.1	µA
Reverse breakdown voltage	at I_R = 1 mA	V_{BR}	35.5	37.4	39.3	V
Reverse clamping voltage	at $I_{PP} = I_{PPM}$ = 1.6 A, t_p = 8/20 µs	V_C	-	56	62.5	V
Forward clamping voltage	at I_{PP} = 1 A, t_p = 300 µs	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM}$ = 1.6 A, t_p = 8/20 µs	V_F	-	1.22	1.32	V
Dynamic resistance	t_p = 100 ns (TLP; 1 A to 12 A)	r_{dyn}	-	3.6	-	Ω
Capacitance	at V_R = 0 V; f = 1 MHz	C_D	12	15	18	pF

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

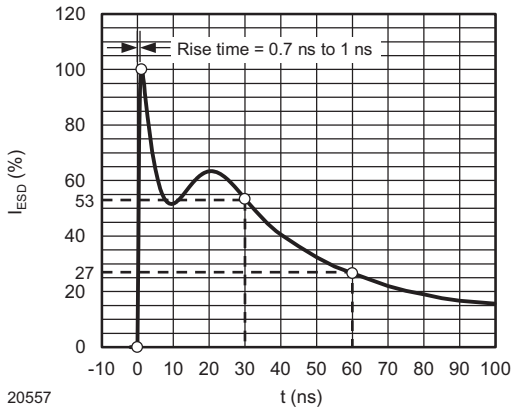

Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω / 150 pF)

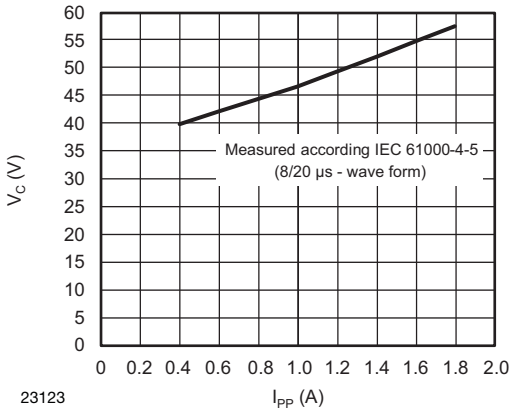

Fig. 3 - Typical Peak Clamping Voltage vs. Peak Pulse Current

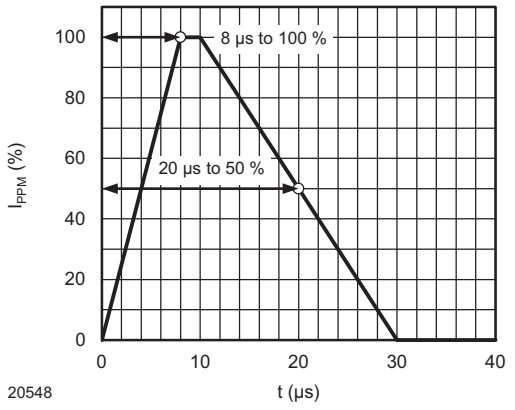

Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

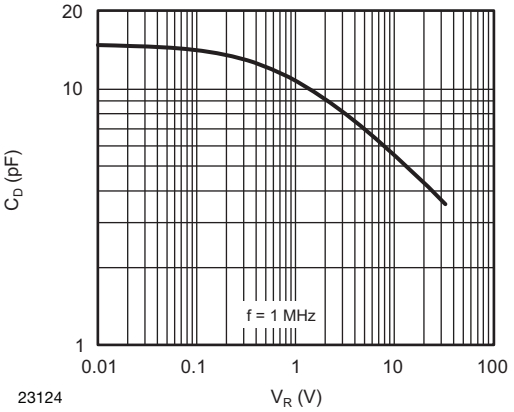

Fig. 4 - Typical Capacitance vs. Reverse Voltage

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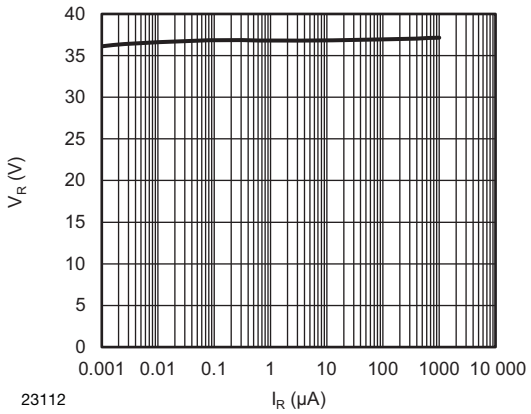

Fig. 5 - Typical Reverse Voltage vs. Reverse Current

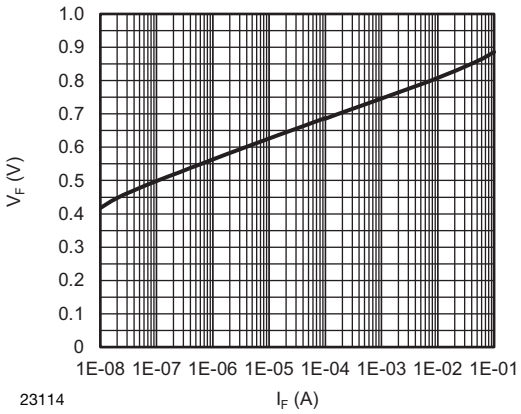

Fig. 7 - Typical Forward Voltage vs. Forward Current

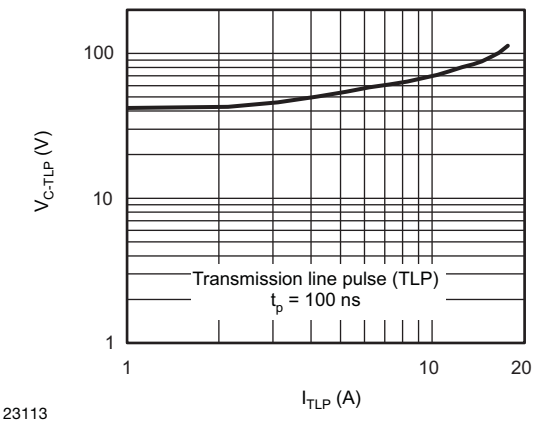

Fig. 6 - Typical Clamping Voltage vs. Peak Pulse Current

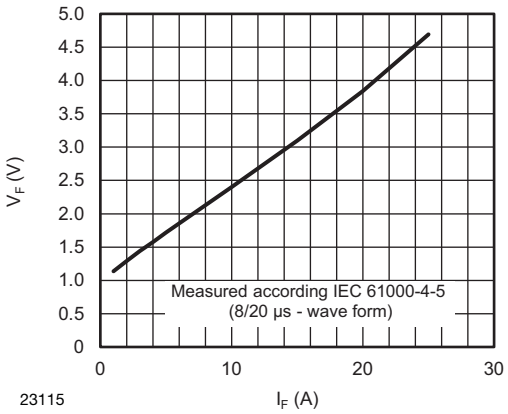

Fig. 8 - Typical Forward Voltage vs. Forward Current

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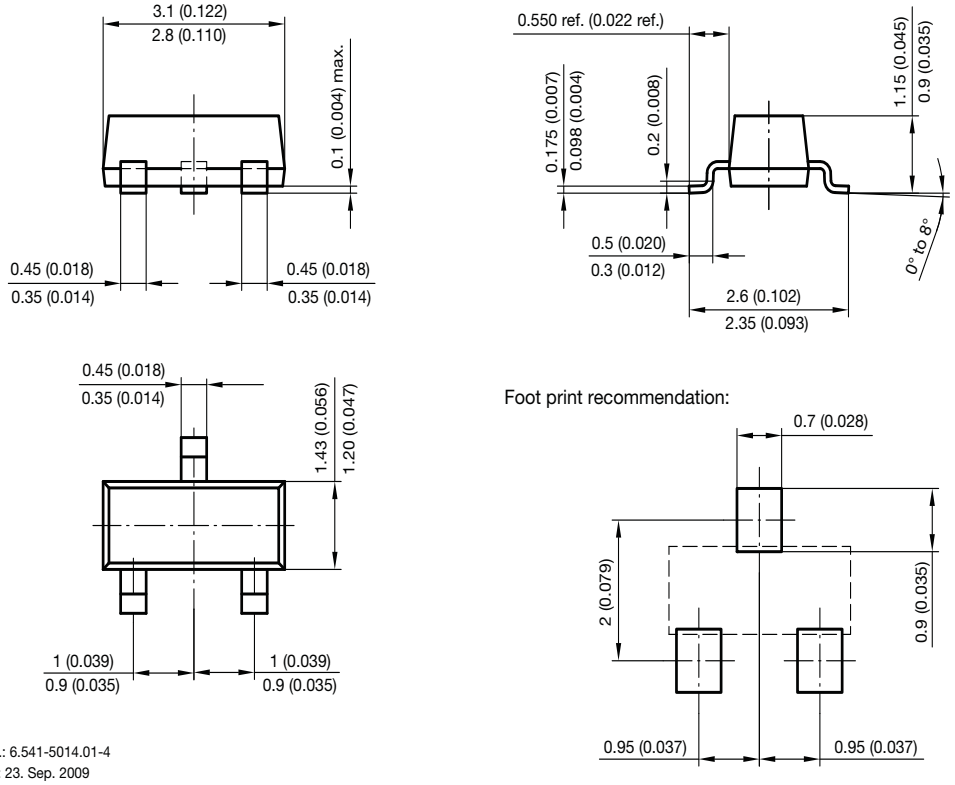
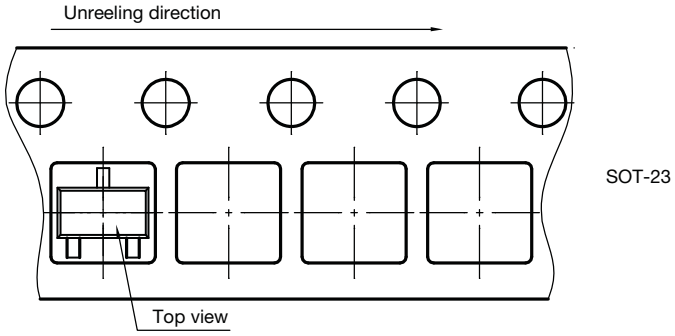
PACKAGE DIMENSIONS in millimeters (inches) SOT-23



Document no.: 6.541-5014.01-4
Rev. 8 - Date: 23. Sep. 2009
17418

ORIENTATION IN CARRIER TAPE SOT-23



Orientation in carrier tape
SOT-23
S8-V-3929.01-006 (4)
04.02.2010
22607

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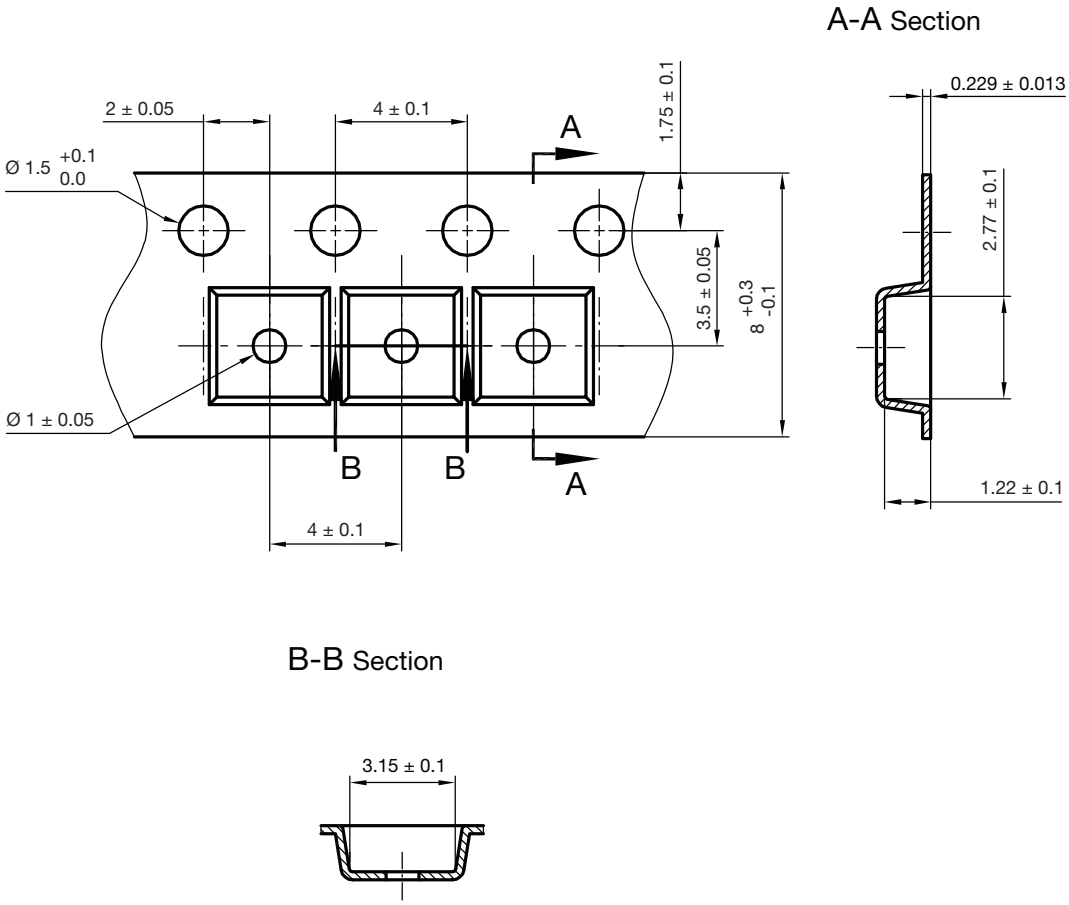
CARRIER TAPE SOT-23



Carrier tape SOT-23
Document no.: S8-V-3929.01-005 (4)
Created - Date: 04. Feb. 2010
22856

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