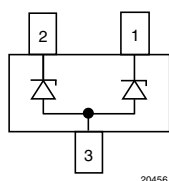
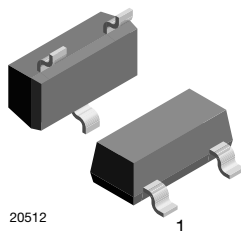




Dual-Line Unidirectional ESD Protection Diode in SOT-23



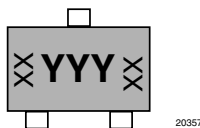
20456



20512

1

MARKING (example only)



20357

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

FEATURES

- Small SOT-23 package
- AEC-Q101 qualified available
- 2-line unidirectional ESD protection
- Working range 33 V
- Low leakage current $I_R < 0.05 \mu A$
- Low load capacitance $C_D < 18 \text{ pF}$
- 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



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

LINKS TO ADDITIONAL RESOURCES



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 ($T_{amb} = 25 \text{ }^\circ\text{C}$, between pin 1 - 3 or 2 - 3, unless otherwise specified)					
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	$^\circ\text{C}$
Storage temperature			T_{stg}	-55 to +150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, between pin 1 - 3 or 2 - 3, 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 $I_R = 0.1\text{ }\mu\text{A}$	V_R	33	-	-	V
Reverse current	at $V_R = 33\text{ V}$	I_R	-	< 0.01	0.1	μA
Reverse breakdown voltage	at $I_R = 1\text{ mA}$	V_{BR}	35.5	37.4	39.3	V
Reverse clamping voltage	at $I_{PP} = I_{PPM} = 1.6\text{ A}$, $t_p = 8/20\text{ }\mu\text{s}$	V_C	-	56	62.5	V
Forward clamping voltage	at $I_{PP} = 1\text{ A}$, $t_p = 300\text{ }\mu\text{s}$	V_F	0.9	1.1	1.2	V
	at $I_{PP} = I_{PPM} = 1.6\text{ A}$, $t_p = 8/20\text{ }\mu\text{s}$	V_F	-	1.22	1.32	V
Dynamic resistance	$t_p = 100\text{ ns}$ (TLP; 1 A to 12 A)	r_{dyn}	-	3.6	-	Ω
Capacitance	at $V_R = 0\text{ V}$; $f = 1\text{ MHz}$	C_D	12	15	18	pF

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

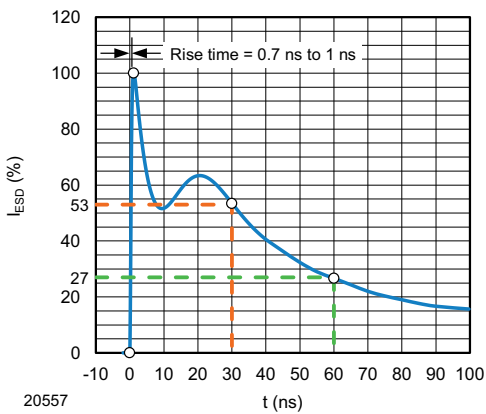


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω / 150 pF)

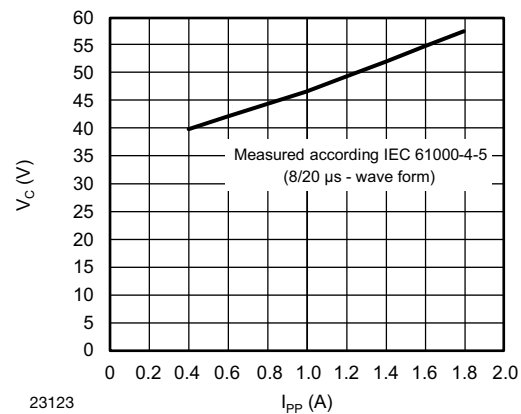


Fig. 3 - Typical Peak Clamping Voltage vs. Peak Pulse Current

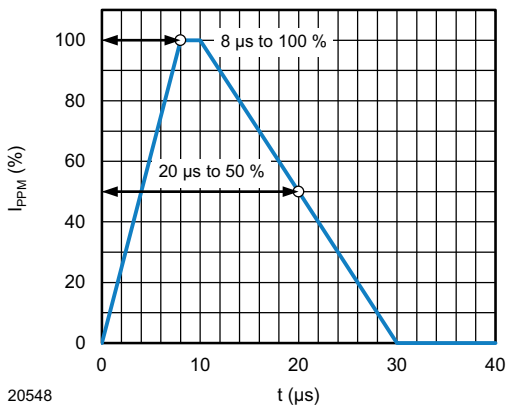


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

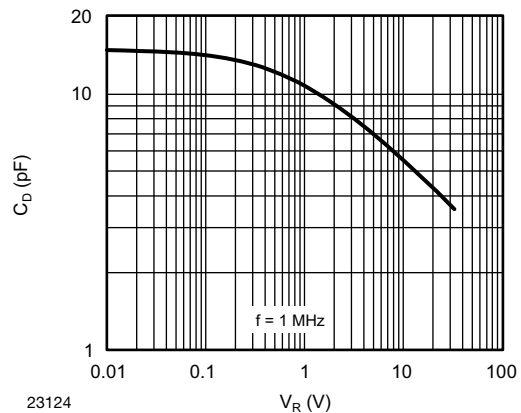


Fig. 4 - Typical Capacitance vs. Reverse Voltage

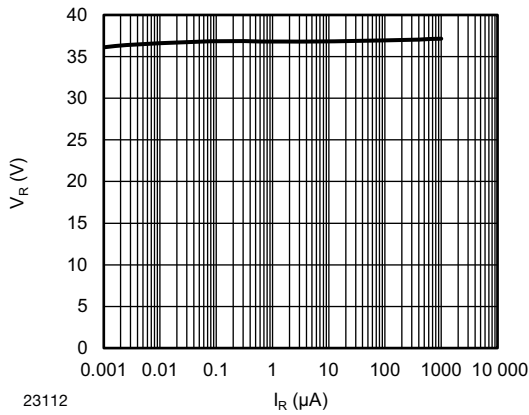


Fig. 5 - Typical Reverse Voltage vs. Reverse Current

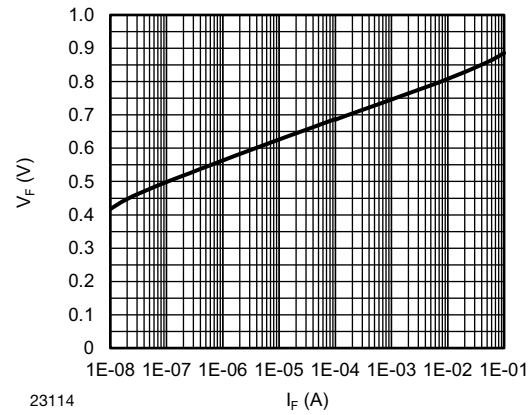


Fig. 7 - Typical Forward Voltage vs. Forward Current

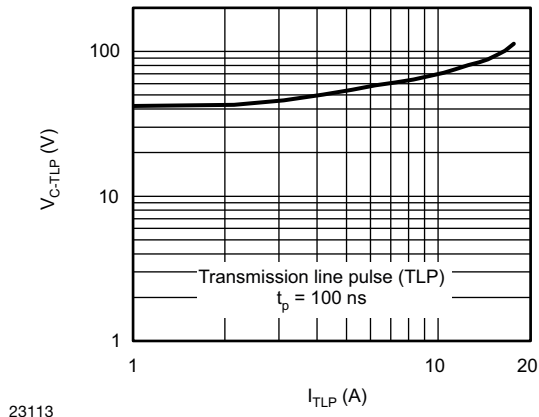


Fig. 6 - Typical Clamping Voltage vs. Peak Pulse Current

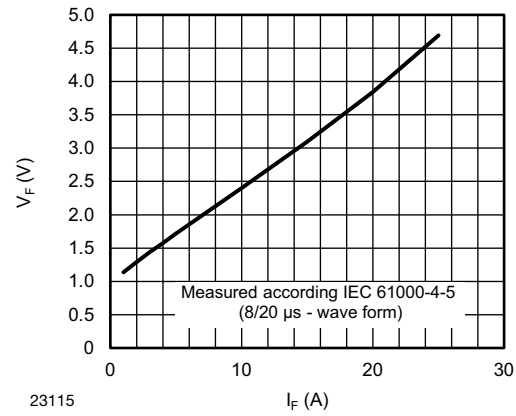
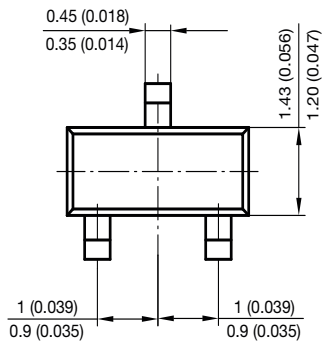
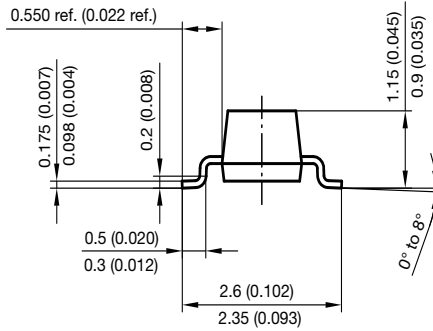
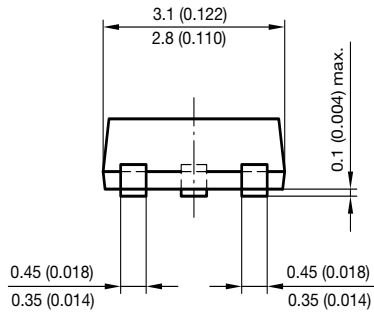


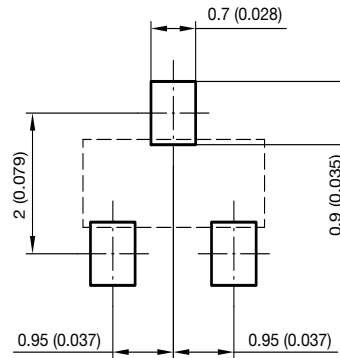
Fig. 8 - Typical Forward Voltage vs. Forward Current



PACKAGE DIMENSIONS in millimeters (inches) **SOT-23**

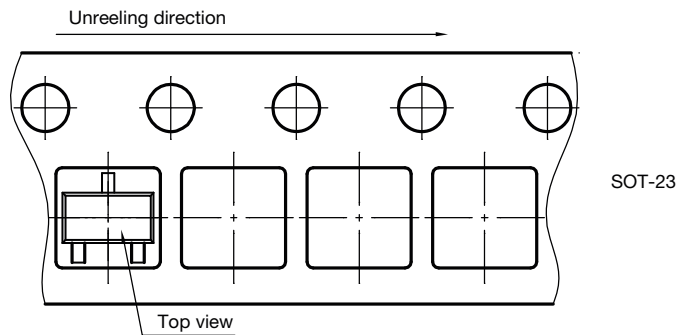


Foot print recommendation:



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

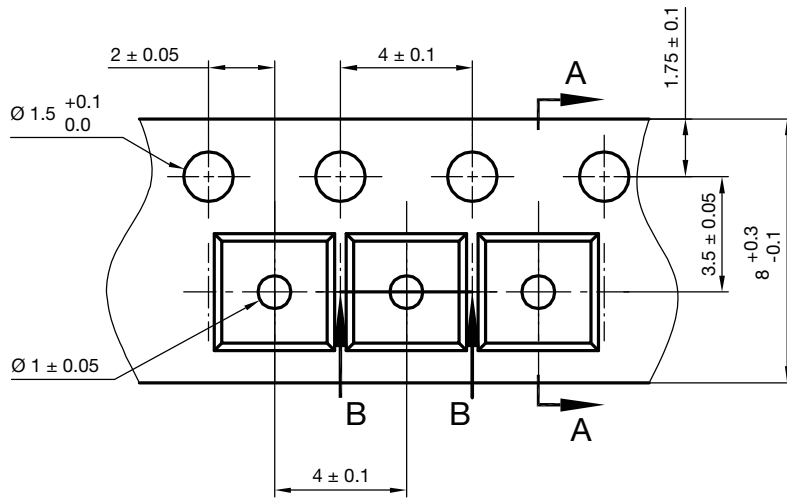
ORIENTATION IN CARRIER TAPE SOT-23



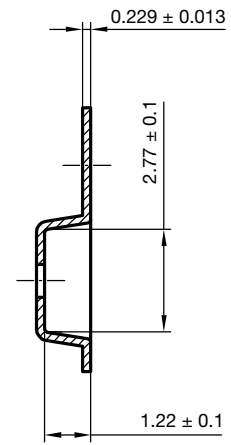
Orientation in carrier tape
SOT-23
S8-V-3929.01-006 (4)
04.02.2010
22607



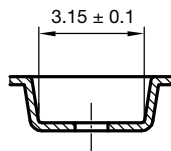
CARRIER TAPE SOT-23



A-A Section



B-B Section



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



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