



## **AD-CESD3V3D5 Plastic-Encapsulated Diode**

### **AD-CESD3V3D5 Uni-direction ESD protection diode**

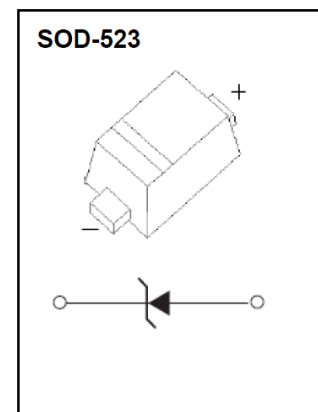
#### **DESCRIPTION**

To protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance and fast response time provide best in class protection on designs which are exposed to ESD.

The combination of small size, high level of ESD protection makes the product a flexible solution for applications such as HDMI, Display Port TM and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) .

#### **FEATURES**

- Uni-directional ESD protection of one line
- Reverse stand-off voltage: 3.3V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 1.2mm X 0.8mm X 0.6mm
- Fast response time
- JESD22-A114-B ESD rating of class 3B per human body model
- IEC 61000-4-2 level 4 ESD protection
- AEC-Q101 qualified



#### **APPLICATIONS**

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- Other electronics equipment communication systems

## MARKING



ZE = Device code

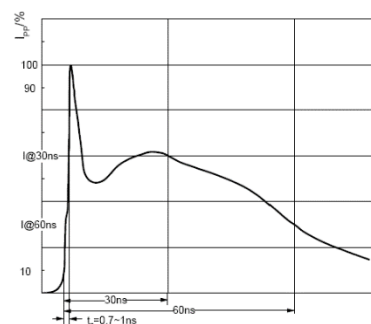
MAXIMUM RATINGS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)

Parameter		Symbol	Value	Unit
IEC 61000-4-2 ESD voltage	Air model	$V_{\text{ESD}}^{1)}$	$\pm 25$	kV
	Contact model		$\pm 25$	
JESD22-A114-B ESD voltage per human body model			$\pm 16$	
ESD voltage per machine model			$\pm 0.4$	
Peak pulse power		$P_{\text{PP}}^{2)}$	210	W
Peak pulse current		$I_{\text{PP}}^{2)}$	16	A
Maximum lead solder temperature (10 second duration)		$T_L$	260	$^\circ\text{C}$
Operation junction and storage temperature range		$T_j, T_{\text{stg}}$	-55 ~ 150	$^\circ\text{C}$

## ESD STANDARD COMPLIANCE

## IEC61000-4-2 standard

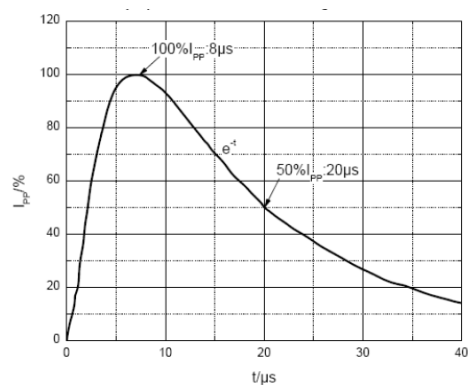
Contact discharge		Air discharge	
Level	Test voltage (kV)	Level	Test voltage (kV)
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15



ESD pulse waveform according to IEC61000-4-2

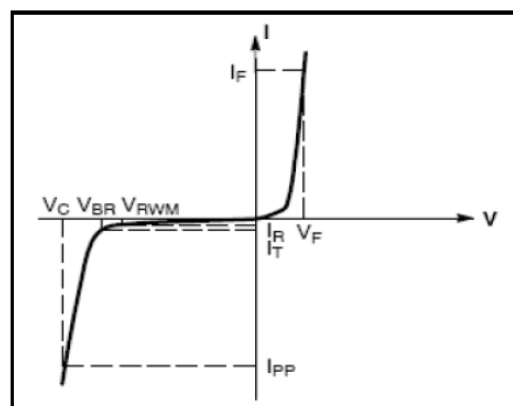
## JESD22-A114-B standard

ESD class	Human body discharge (V)
0	0 ~ 249
1A	250 ~ 499
1B	500 ~ 999
1C	1000 ~ 1999
2	2000 ~ 3999
3A	4000 ~ 7999
3B	8000 ~ 15999

8/20 $\mu\text{s}$  pulse waveform according to IEC 61000-4-5

**ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

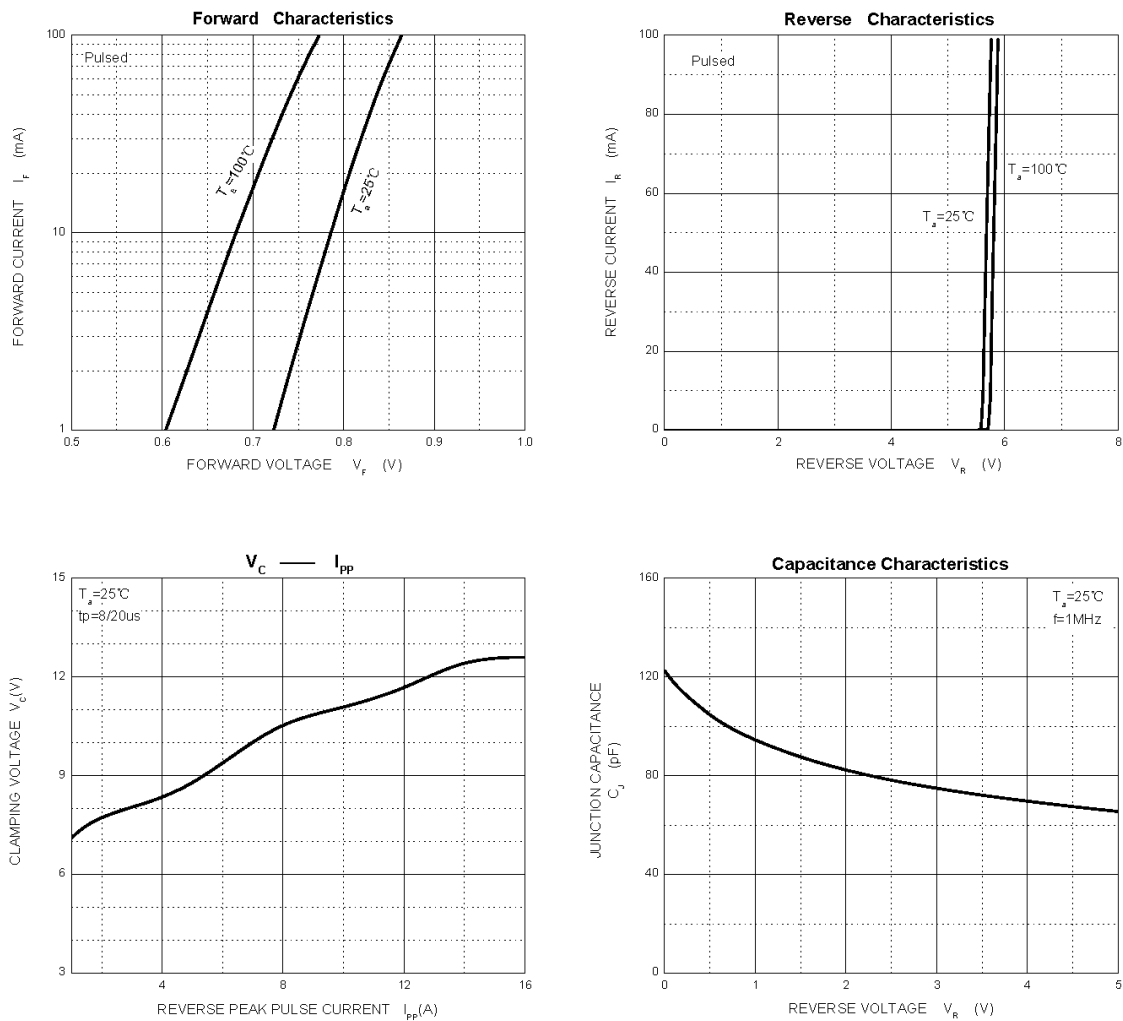
Parameter	Symbol
Clamping voltage @ $I_{PP}$	$V_C$
Peak pulse current	$I_{PP}$
Breakdown voltage @ $I_T$	$V_{BR}$
Test current	$I_T$
Reverse leakage current @ $V_{RWM}$	$I_R$
Reverse standoff voltage	$V_{RWM}$
VF Forward Voltage@ $I_F$	$V_F$
Forward Current	$I_F$

**V-I characteristics for a uni-directional TVS**

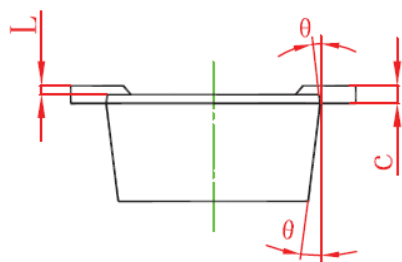
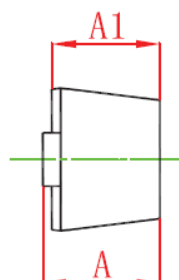
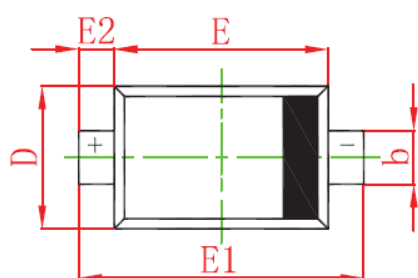
Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Reverse standoff voltage	$V_{RWM}^{1)}$		-	-	3.3	V
Reverse leakage current	$I_R$	$V_{RWM} = 3.3\text{V}$	-	-	1	$\mu\text{A}$
Breakdown voltage	$V_{BR}$	$I_T = 1\text{mA}$	5.0	-	5.9	V
Clamping voltage	$V_C^{2)}$	$I_{PP} = 16\text{A}$	-	-	13	V
Forward voltage	$V_F$	$I_F = 10\text{mA}$	-	-	0.9	V
Junction capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	120	-	pF

1) Device stressed with ten non-repetitive ESD pulses.

2) Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

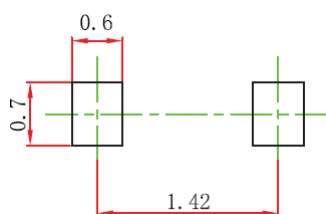


## SOD-523 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.500	0.700	0.020	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
θ	7° REF		7° REF	

## SOD-523 SUGGESTED PAD LAYOUT

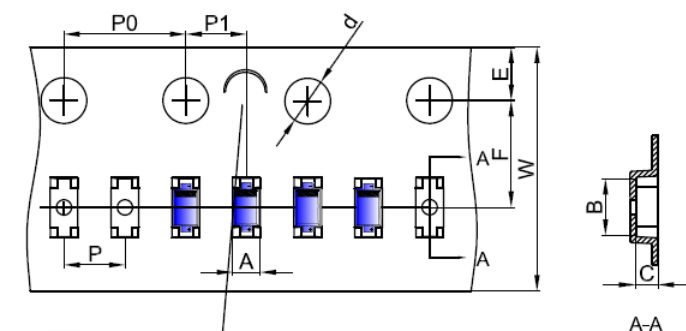


Note:

1. Controlling dimension in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purpose only.

## SOD-523 TAPE AND REEL

### SOD-523 Embossed Carrier Tape



NOTE: TO CAVE 'C' ON CARRIER TAPE PER 120MM

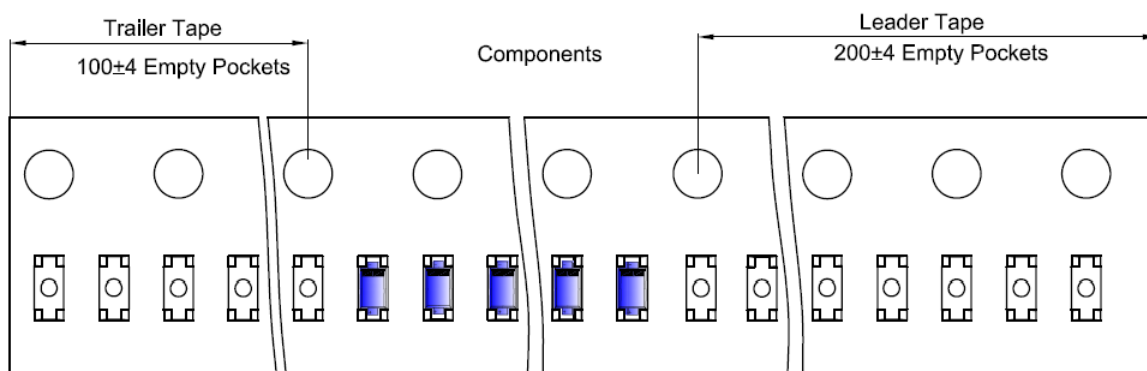
#### Packaging Description:

SOD-523 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 8,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

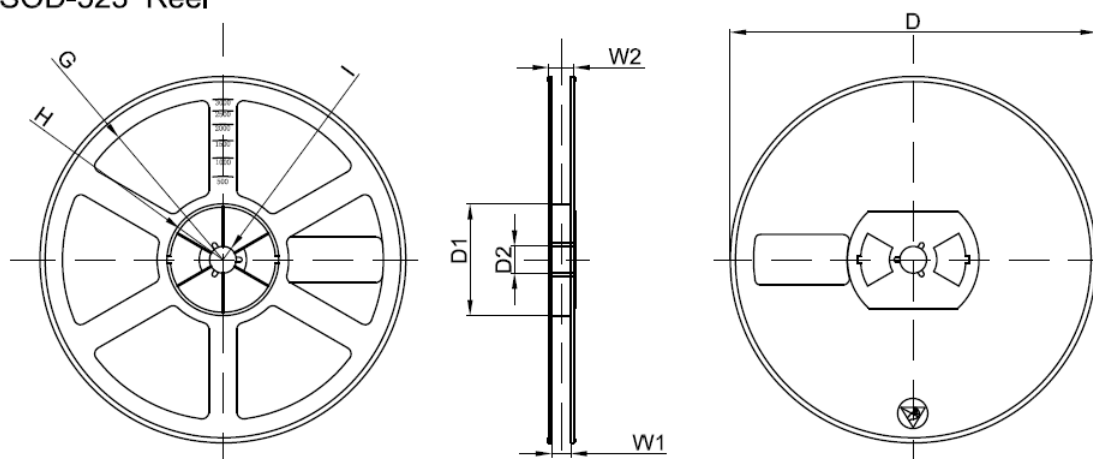
Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-523	0.9	1.94	0.73	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

### SOD-523 Tape Leader and Trailer



### SOD-523 Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7"D1a	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
8000 pcs	7 inch	120,000 pcs	203×203×195	480,000 pcs	438×438×220	

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