



## PRODUCT DATA SHEET



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**Datasheet**



**Resources**

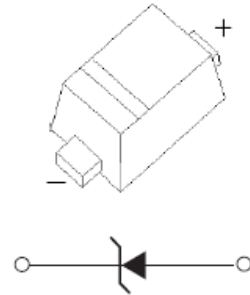


**Samples**

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at [www.jg-semi.cn](http://www.jg-semi.cn). Please email any questions regarding the system integration to [JINGAO\\_questions@jgsemi.com](mailto:JINGAO_questions@jgsemi.com).

**FEATURES**

- Uni-directional ESD protection of one line
  - Reverse stand-off voltage: 12V
  - Low reverse clamping voltage
  - Low leakage current
  - Excellent package: 1.20mm × 0.80mm × 0.60mm
- 
- Fast response time
  - JESD22-A114-B ESD Rating of class 3B per human body model
  - IEC 61000-4-2 Level 4 ESD protection

**SOD-523****APPLICATIONS**

- Computers and peripherals
  - Digital Cameras
  - Audio and video equipment
  - Cellular handsets and accessories
- 
- Portable electronics
  - Mp3 Players
  - Other electronics equipments communication systems

**MAXIMUM RATINGS (  $T_a=25^{\circ}\text{C}$  unless otherwise noted )**

Parameter	Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	$V_{\text{ESD}}^{(1)}$	$\pm 25$	kV
Air Model			
Contact Model		$\pm 25$	
JESD22-A114-B ESD Voltage		$\pm 16$	
Per Human Body Model			
ESD Voltage	Machine Model	$\pm 0.4$	
Peak Pulse Power	$P_{\text{PP}}^{(2)}$	220	W
Peak Pulse Current	$I_{\text{PP}}^{(2)}$	9	A
Lead Solder Temperature – Maximum (10 Second Duration)	$T_L$	260	$^{\circ}\text{C}$
Operation Junction and Storage Temperature Range	$T_J, T_{\text{stg}}$	-55 ~ +150	$^{\circ}\text{C}$

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

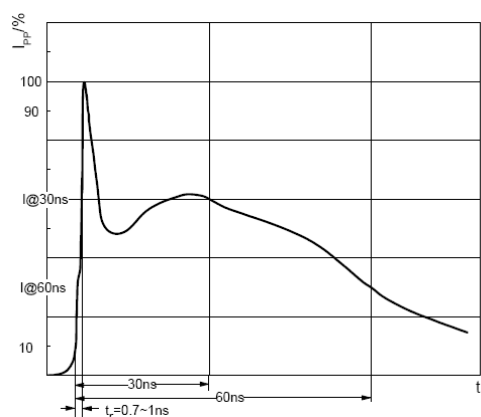
(2).Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

**ESD standards compliance**
**IEC61000-4-2 Standard**

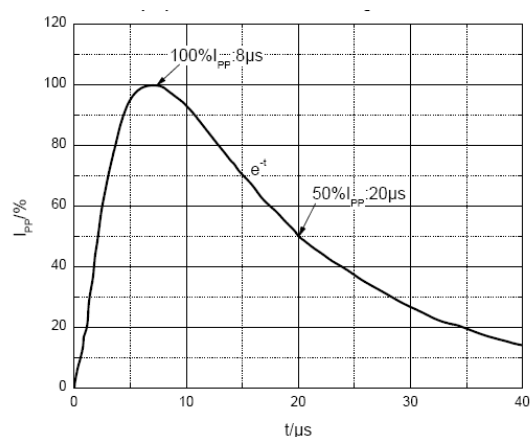
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

**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



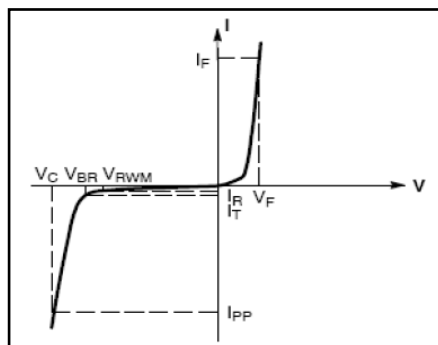
**ESD pulse waveform according to IEC61000-4-2**



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

**ELECTRICAL PARAMETER**

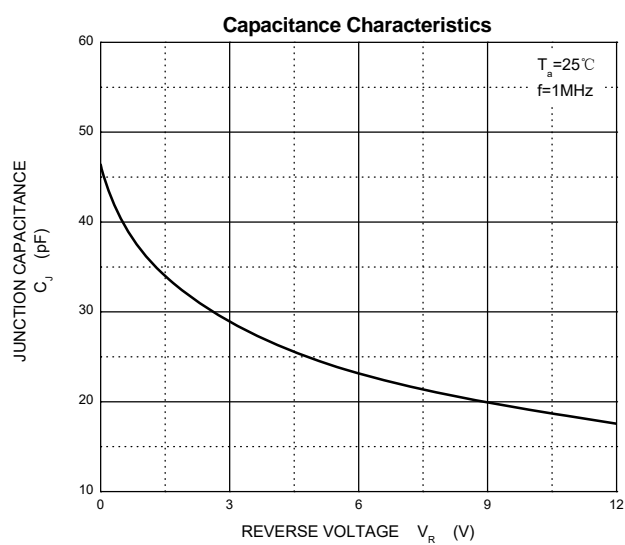
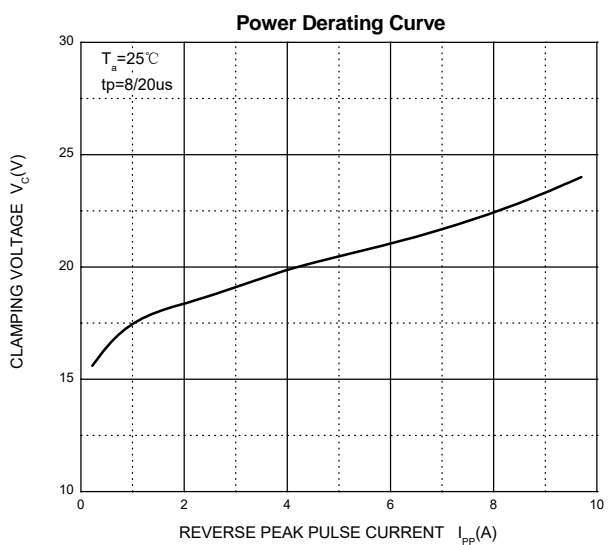
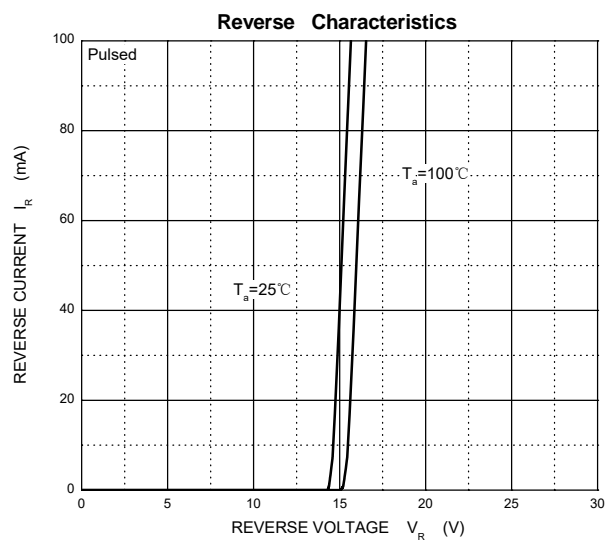
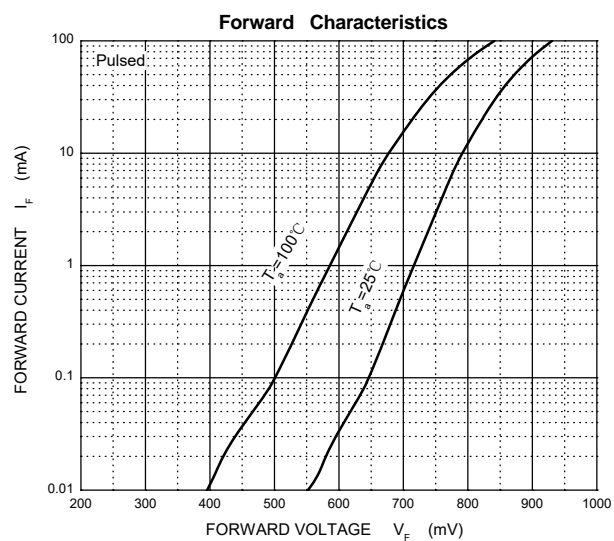
Symbol	Parameter
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Peak Pulse Current
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{RWM}$	Reverse Standoff Voltage
$V_F$	Forward Voltage @ $I_F$
$I_F$	Forward Current

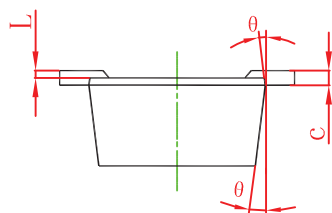
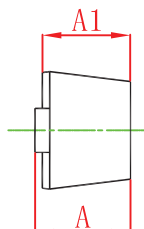
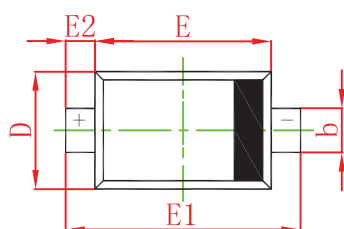

**V-I characteristics for a uni-directional TVS**
**ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand off voltage	$V_{RWM}^{(1)}$				12	V
Reverse leakage current	$I_R$	$V_{RWM}=12\text{V}$			1	$\mu\text{A}$
Breakdown voltage	$V_{(BR)}$	$I_T=1\text{mA}$	14.1		16.5	V
Clamping voltage	$V_C^{(2)}$	$I_{PP}=9\text{A}$			24	V
Forward voltage	$V_F$	$I_F=10\text{mA}$			0.9	V
Junction capacitance	$C_J$	$V_R=0\text{V}, f=1\text{MHz}$		45		pF

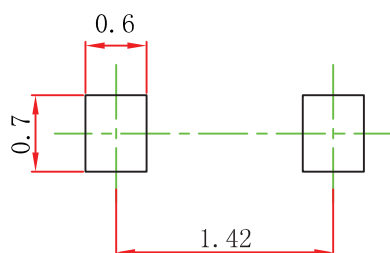
(1). Other voltages available upon request.

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

**TYPICAL CHARACTERISTICS**


**PACKAGE OUTLINE AND PAD LAYOUT INFORMATION**
**SOD-523 Package Outline Dimensions**


Sym ol	imensions In Millimeters		imensions 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
$\theta$	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 purposes only.

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