

**Transient Voltage Suppressors**

**FEATURES**

- ◆Uni-directional ESD protection of one line
- ◆Reverse stand-off voltage:36V
- ◆Low reverse clamping voltage
- ◆Low leakage current
- ◆Fast response Time
- ◆JESD22-A114-B ESD Rating of class 3B per human body model
- ◆IEC 61000-4-2 Level 3 ESD protection

**APPLICATIONS**

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

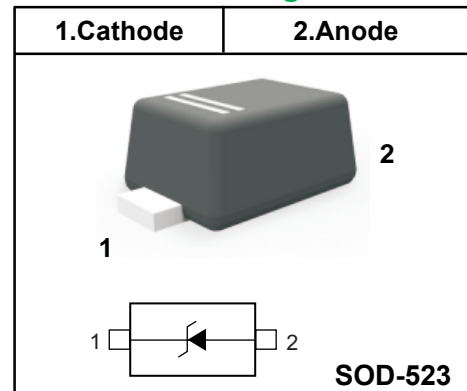
**ABSOLUTE MAXIMUM RATING**

Parameter	Symbol	Rating	Unit
ESD per IEC61000-4-2(Air)	<b>V<sub>ESD</sub></b>	±8	<b>Kv</b>
ESD per IEC61000-4-2(Contact)		±8	
JESD22-A114-B ESD Voltage Per Human Body Mode(note 1)		±15	
ESD Voltage Machine Model(note 1)		±0.4	
IEC 61000-4-4(EFT)		40	<b>A</b>
Peak Pulse Power(note 2)	<b>P<sub>PP</sub></b>	240	<b>W</b>
Peak Pulse Current(note 2)	<b>I<sub>PP</sub></b>	3.0	<b>A</b>
Junction Temperature	<b>T<sub>j</sub></b>	150	<b>°C</b>
Storage temperature range	<b>T<sub>stg</sub></b>	-55 ~ +150	<b>°C</b>
Lead Soldering temperature-Maximum (10 second Duration)	<b>I<sub>L</sub></b>	260	<b>°C</b>

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

(2). Non-repetitive current pulse 8/20us exponential decay waveform according to IEC61000-4-5.

**Pinning**



**Marking Code**

<b>ESD5Z36</b>	<b>ZS</b>
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**Electrical Characteristics**

(Ta= 25°C unless otherwise noted, VF=0.9V Max.@ IF=10mA for all types).

Parameter	Symbol	Test Conditions	Criterion			Unit
			Min	Typ	Max	
Reverse stand off voltage(1)	$V_{RWM}$		-	-	36	V
Reverse leakage current	$I_R$	$V_{RWM} = 36 V; TA = 25 ^\circ C$	-	-	1	$\mu A$
Breakdown voltage	$V_{BR}$	$I_T = 1mA$	40	-	48	V
Clamping voltage(2)	$V_C$	$I_{PP}=3.0A$	-	-	80	V
Forward voltage	$V_F$	$I_F=10mA$	-	-	0.9	V
Junction capacitance	$C_J$	$V_R = 0V, f = 1 MHz$	-	30	-	pF

(1). Other voltages available upon request.

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

Surge current waveform per Figure 1.

2. VBR is measured with a pulse test current  $I_T$  at an ambient temperature of 25°C

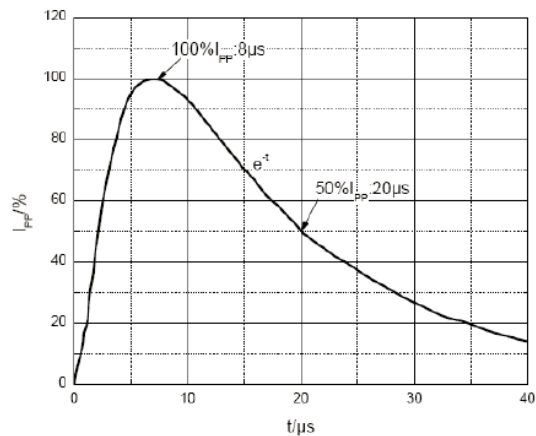
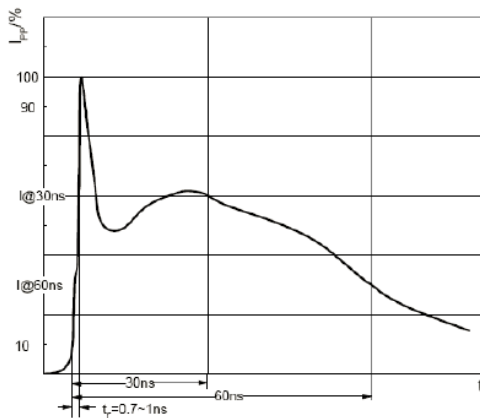
**ESD standards compliance**

**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



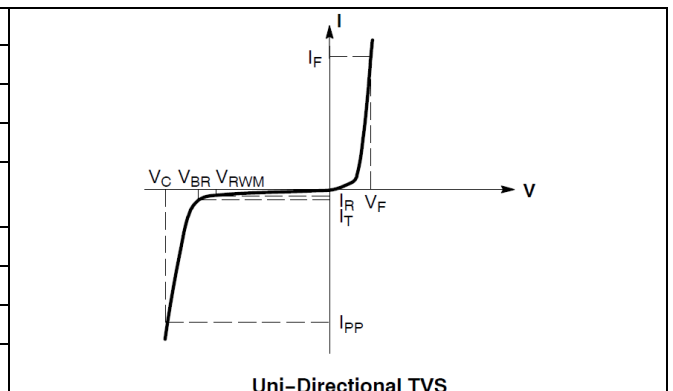
ESD pulse waveform according to IEC61000-4-2

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

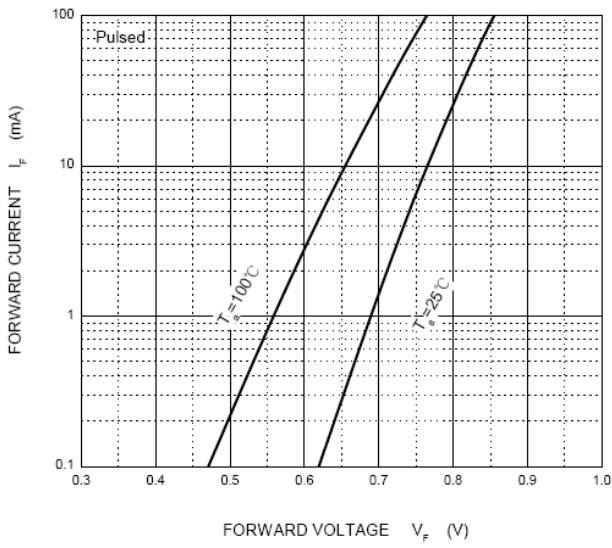
**Electrical Characteristics**

(Ratings at 25°C ambient temperature unless otherwise specified).

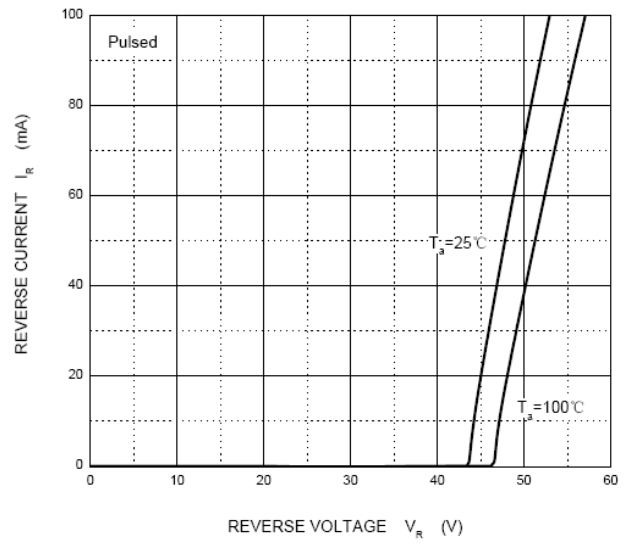
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{pp}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage@ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



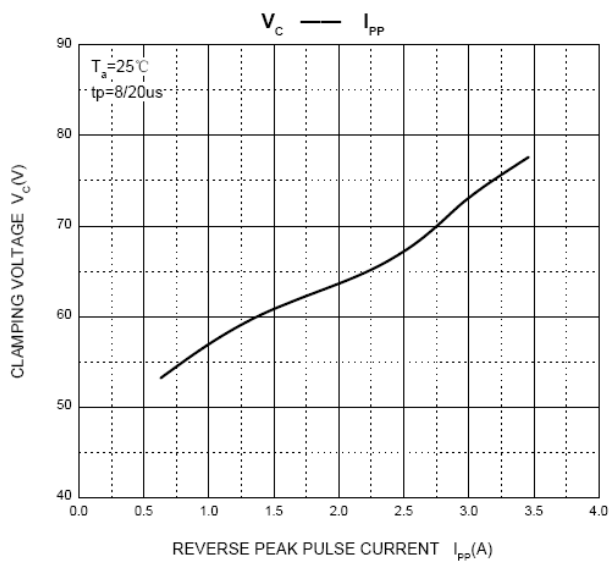
**Forward Characteristics**



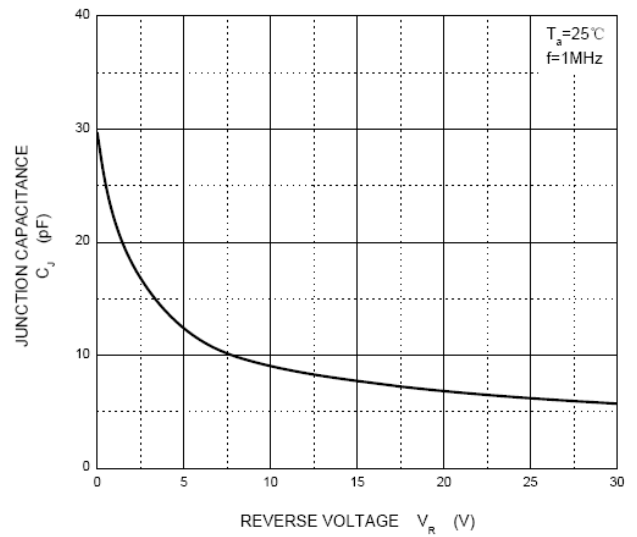
**Reverse Characteristics**



**$V_C - I_{PP}$**



**Capacitance Characteristics**



**Ordering information**

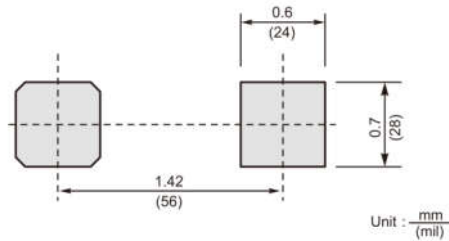
Package	Packing Description	Packing Quantity
SOD-523	Tape/Reel, 7" reel	3000PCS/Reel 120000PCS/Carton

**Package Dimensions**

**SOD-523**

Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	0.51	0.77	20	30
e	0.25	0.35	10	14
C	0.08	0.15	3	6
D	1.10	1.30	43	51
E	0.75	0.99	30	39
HE	1.50	1.70	59	67
N	0.35ref		14ref	
L	0.2ref		8ref	
P	R0.1 ALL ROUND		R4.0 ALL ROUND	
∠	10°			

**The recommended mounting pad size**



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