

## ESD12VD5

### Description

ESD12VD5 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.

### Features

- Uni-directional ESD protection of one line
- Package: SOD-523
- Ultra low leakage
- Low operating voltage: 12V
- Low clamping voltage
- Response Time is Typically < 1 ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 25\text{kV}$
    - Contact discharge:  $\pm 25\text{kV}$
  - IEC61000-4-5 (Lightning) 9A (8/20 $\mu\text{s}$ )
- Marking: ZM

### Absolute Ratings

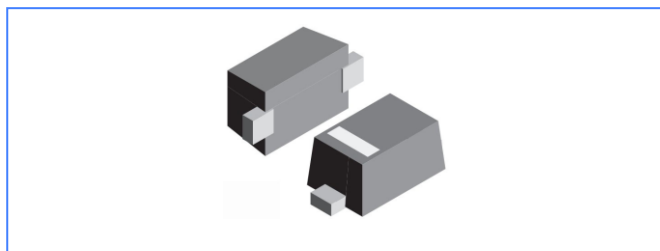
Tamb=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power ( $t_p = 8/20\mu\text{s}$ )	$P_{PK}$	220	W
Maximum Reverse Peak Pulse Current(8/20 $\mu\text{s}$ )	$I_{PP}$	9	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 25$	KV
ESD per IEC 61000-4-2 (Contact)		$\pm 25$	
Storage Temperature Range	$T_{STJ}$	-55 to +150	°C
Operating Temperature Range	$T_J$	-55 to +125	°C

### Electrical Characteristics

TA=25°C unless otherwise specified

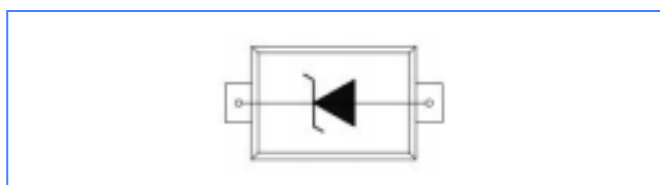
Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Peak Voltage	-			12	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	14.1		16.5	V
$I_R$	Reverse Current	$V_{RWM} = 12\text{V}$			1	$\mu\text{A}$
$V_F$	Forward Voltage	$I_F = 10\text{mA}$			0.9	V
$V_C$	Clamping Voltage	$I_{PP} = 9\text{A}$ , $t_p = 8/20\mu\text{s}$			24	V
$C_D$	Diode Capacitance	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		45		pF



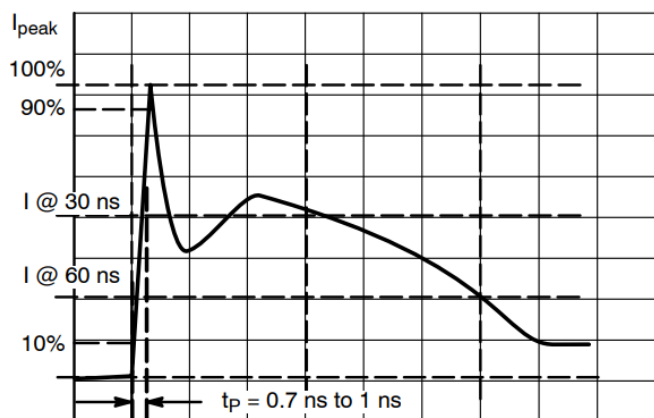
### Applications

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

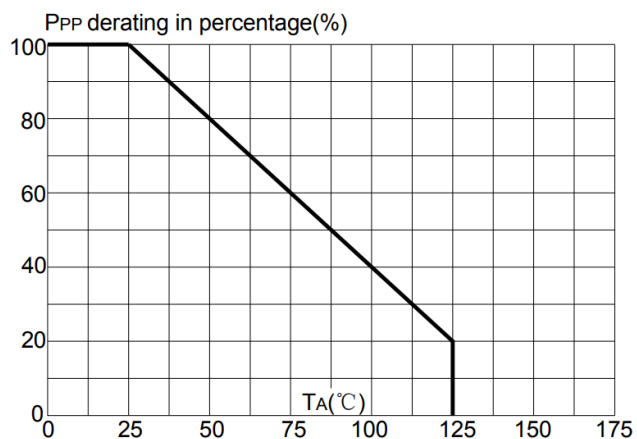
### Circuit Diagram



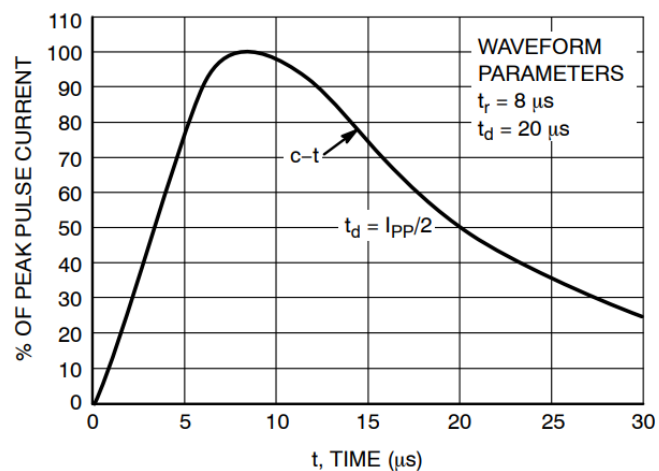
## Characteristic Curves



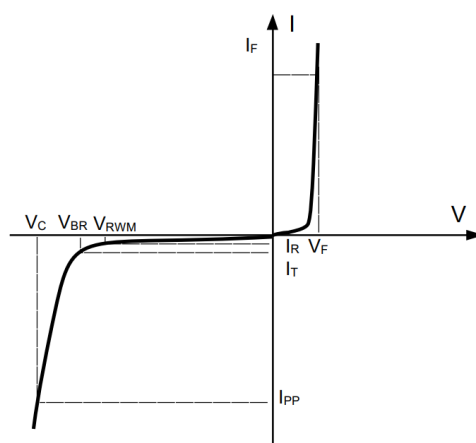
IEC61000-4-2 Pulse Waveform



Power Derating Curve

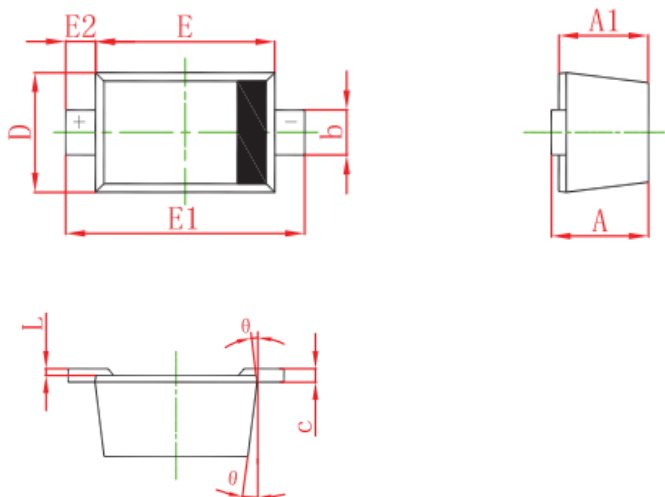


8/20μs Pulse Waveform



V-I Characteristics for Unidirectional Diode

## SOD523 Package Outline & Dimensions



Symbol	Dimensions in mm	
	min	max
A	0.510	0.770
A1	0.500	0.700
b	0.250	0.350
c	0.080	0.150
D	0.750	0.850
E	1.100	1.300
E1	1.500	1.700
E2	0.200 REF	
L	0.010	0.070
$\theta$	7° REF	

## Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.