

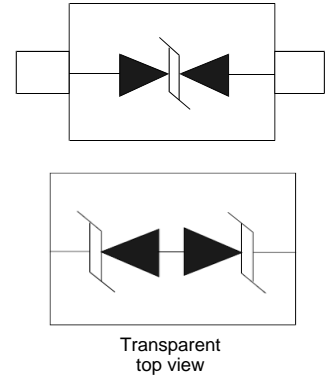


**THE DATASHEET OF  
PESD5V0V1BL**



## Features

- Bidirectional ESD protection of one line
- Very low diode capacitance:  $C_d = 11 \text{ pF}$
- Max. peak pulse power:  $P_{PP} = 45 \text{ W}$
- Low clamping voltage:  $V_{CL} = 12.5 \text{ V}$
- Ultra low leakage current:  $I_{RM} < 1 \text{ nA}$
- ESD protection up to 30 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge);  $I_{PP} = 4.8 \text{ A}$
- AEC-Q101 qualified



## Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Subscriber Identity Module (SIM) card protection
- Communication systems
- Portable electronics
- 10/100 Mbit/s Ethernet
- FireWire

## Mechanical Data

- SOD-882 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Quick reference data

### Quick reference data

$T_{amb} = 25 \text{ }^\circ\text{C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{RWM}$	reverse standoff voltage		-	-	5	V
$C_d$	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}$	-	11	13	pF

## Ordering information

Ordering information

Type number	Package		
	Name	Description	Version
PESD5V0V1BA	SC-76	plastic surface-mounted package; 2 leads	SOD323
PESD5V0V1BB	SC-79	plastic surface-mounted package; 2 leads	SOD523
PESD5V0V1BL	-	leadless ultra small plastic package; 2 terminals; body 1.0 ? 0.6 ? 0.5 mm	SOD882

## Limiting values

Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
<b>Per diode</b>					
$P_{PP}$	peak pulse power	$t_p = 8/20 \text{ ?s}$	[1]	-	45 W
$I_{PP}$	peak pulse current	$t_p = 8/20 \text{ ?s}$	[1]	-	4.8 A

Limiting values ...continued

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
<b>Per device</b>					
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-55	+150	°C
$T_{stg}$	storage temperature		-65	+150	°C

[1] Non-repetitive current pulse 8/20  $\mu$ s exponential decay waveform according to IEC 61000-4-5.

### ESD maximum ratings

$T_{amb} = 25 \text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{ESD}$	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	[1]	-	30 kV
		machine model	-	2	kV
		MIL-STD-883 (human body model)	-	16	kV

[1] Device stressed with ten non-repetitive ESD pulses.

### ESD standards compliance

Standard	Conditions
IEC 61000-4-2; level 4 (ESD)	> 15 kV (air); > 8 kV (contact)
MIL-STD-883; class 3B (human body model)	> 8 kV

## Characteristics

### Characteristics

T<sub>amb</sub> = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>RWM</sub>	reverse standoff voltage		-	-	5	V
I <sub>RM</sub>	reverse leakage current	V <sub>RWM</sub> = 5 V	-	< 1	10	nA
V <sub>BR</sub>	breakdown voltage	I <sub>R</sub> = 5 mA	5.8	6.8	7.8	V
C <sub>d</sub>	diode capacitance	f = 1 MHz; V <sub>R</sub> = 0 V	-	11	13	pF
V <sub>CL</sub>	clamping voltage	I <sub>PP</sub> = 4.8 A [1]	-	-	12.5	V
r <sub>dyn</sub>	dynamic resistance	I <sub>R</sub> = 10 A [2]	-	0.2	-	Ω
r <sub>dif</sub>	differential resistance	I <sub>R</sub> = 5 mA	-	-	35	Ω

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

[2] Non-repetitive current pulse, Transmission Line Pulse (TLP) t<sub>p</sub> = 100 ns; square pulse; ANS/IESD STM5.1-2008.

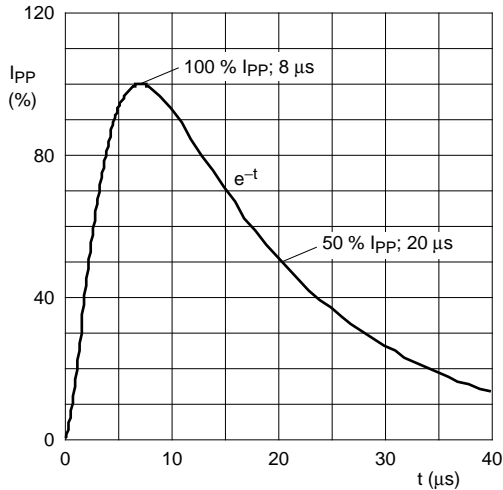


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

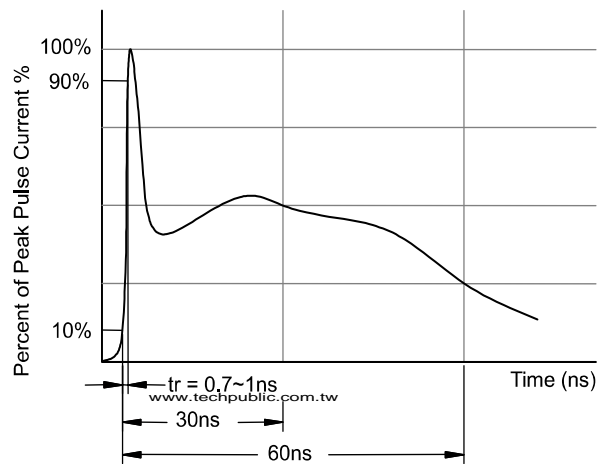


Fig 2. ESD pulse waveform according to IEC 61000-4-2

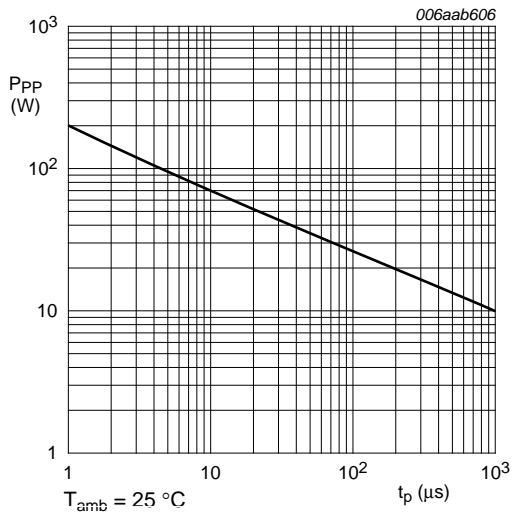


Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

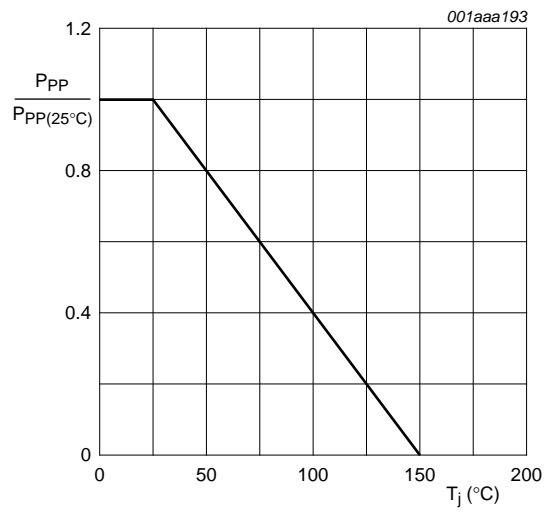


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values

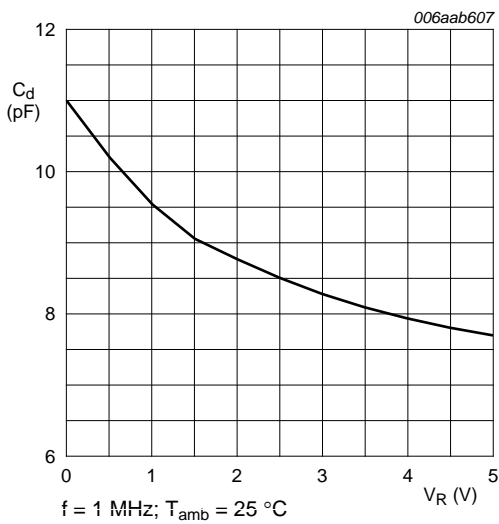


Fig 5. Diode capacitance as a function of reverse voltage; typical values

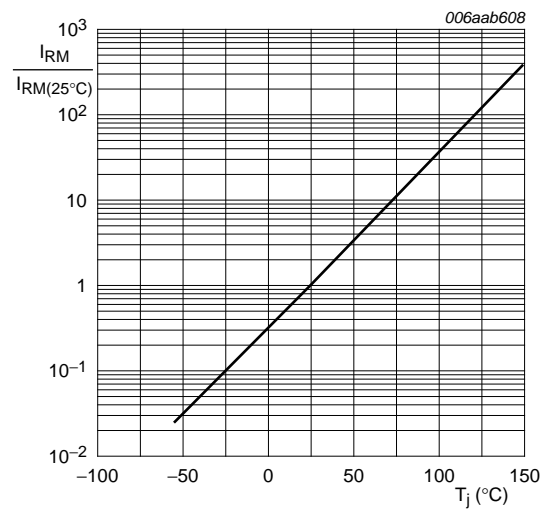
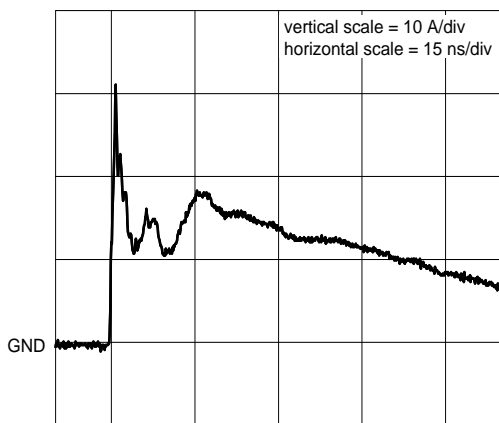
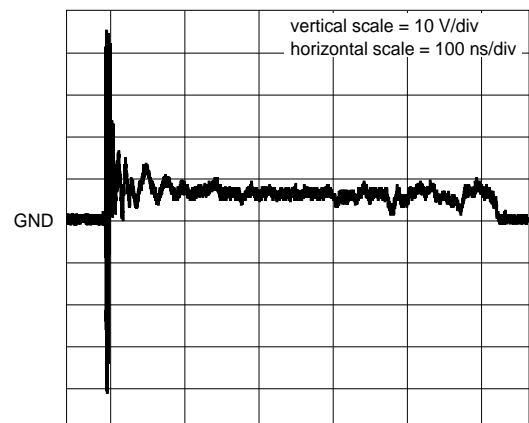


Fig 6. Relative variation of reverse leakage current as a function of junction temperature; typical values

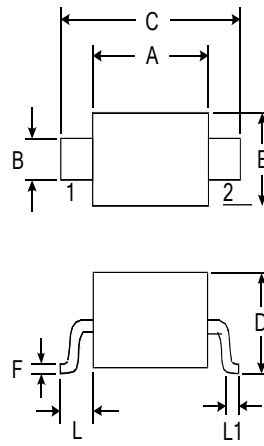
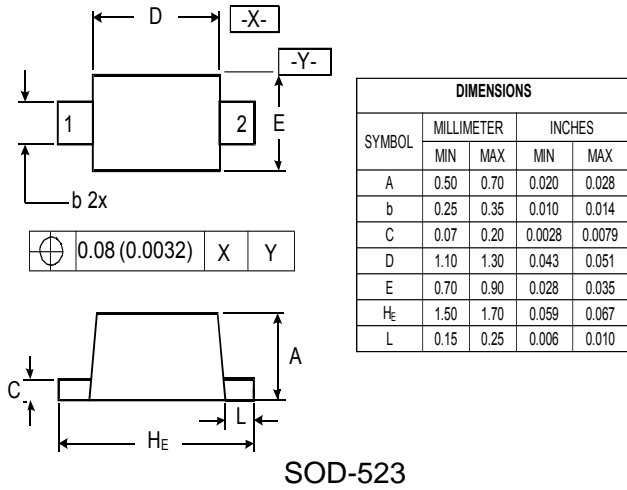


unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)



clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

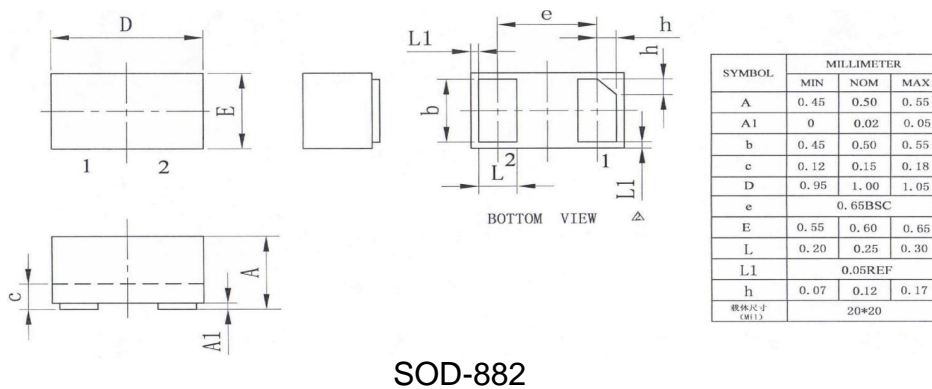
Outline Drawing – SOD-323/SOD-523/SOD-882



SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.600	1.800	0.063	0.071
B	0.250	0.350	0.010	0.014
C	2.500	2.700	0.098	0.106
D	1.000		0.039	
E	1.200	1.400	0.047	0.055
F	0.080	0.150	0.003	0.006
L	0.475 REF		0.019 REF	
L1	0.250	0.400	0.010	0.016
H	0.000	0.100	0.000	0.004

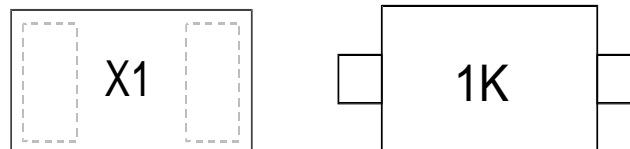
SOD-523

SOD-323



SOD-882

Marking





Ordering information

Order code	Marking codes	Package	Baseqty	Deliverymode
UMW PESD5V0V1BA	1K	SOD-323	10000	Tape and reel
UMW PESD5V0V1BB	Z9	SOD-523	10000	Tape and reel
UMW PESD5V0V1BL	X1	SOD-882	10000	Tape and reel

## Looking for pricing, stock, or lifecycle information?

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