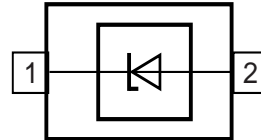


### General description

Low capacitance unidirectional ElectroStatic Discharge (ESD) protection diodes in small Surface-Mounted Device (SMD) plastic packages designed to protect one signal line from the damage caused by ESD and other transients.



### Features

- Unidirectional ESD protection of
- Low diode capacitance:  $C_d = 25 \text{ pF}$
- Low clamping voltage:  $V_{CL} = 12 \text{ V}$
- Very low leakage current:  $I_{RM} = 10 \text{ nA}$
- ESD protection up to 26 kV
- IEC 61000-4-2; level 4 (ESD)
- AEC-Q101 qualified

### Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- Subscriber Identity Module (SIM) card protection
- Portable electronics
- FireWire
- High-speed data lines

### Quick reference data

**Table 2. 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				5.0	V
$C_d$	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}$		25	30	pF

## Limiting values

### Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
P <sub>PP</sub>	peak pulse power	t <sub>p</sub> = 8/20 μs	[1][2]	42	W
I <sub>PP</sub>	peak pulse current	t <sub>p</sub> = 8/20 μs	[1][2]	3.5	A
T <sub>j</sub>	junction temperature			150	°C
T <sub>amb</sub>	ambient temperature		-55	+150	°C
T <sub>stg</sub>	storage temperature		-65	+150	°C

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

[2] Measured from pin 1 to pin 2.

### ESD maximum ratings

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

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>ESD</sub>	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	[1]	26	kV
		machine model		400	V
		MIL-STD-883 (human body model)		10	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 3 (human body model)	> 4 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				5.0	V
I <sub>RM</sub>	reverse leakage current	V <sub>RWM</sub> = 5.0 V		10	100	nA
V <sub>BR</sub>	breakdown voltage	I <sub>R</sub> = 5 mA	6.4	6.8	7.2	V
C <sub>d</sub>	diode capacitance	f = 1 MHz; V <sub>R</sub> = 0 V		25	30	pF
V <sub>CL</sub>	clamping voltage		[1][2]			
		I <sub>PP</sub> = 1 A			9	V
		I <sub>PP</sub> = 3.5 A			12	V
r <sub>dif</sub>	differential resistance	I <sub>R</sub> = 5 mA			30	Ω
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 200 mA			1.2	V

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

[2] Measured from pin 1 to pin 2.

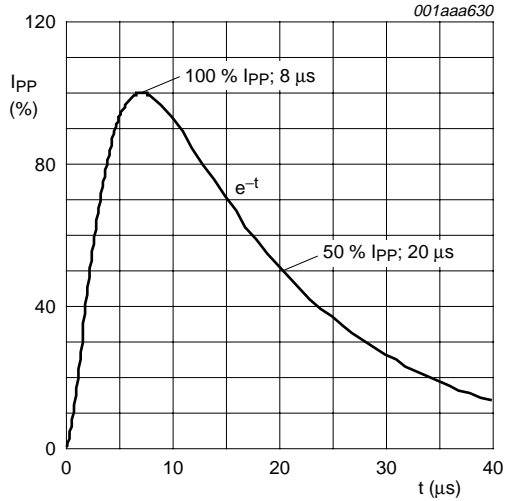


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

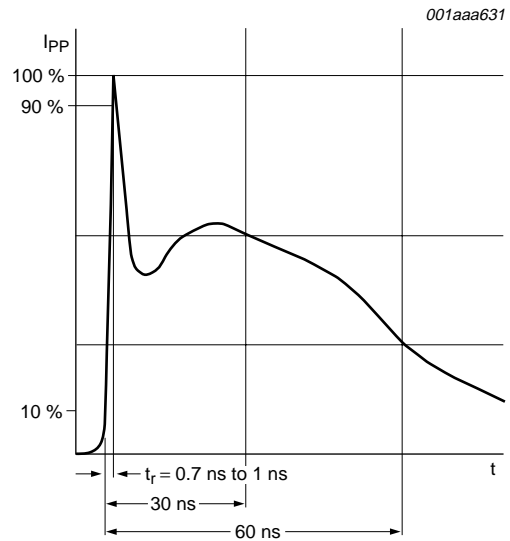
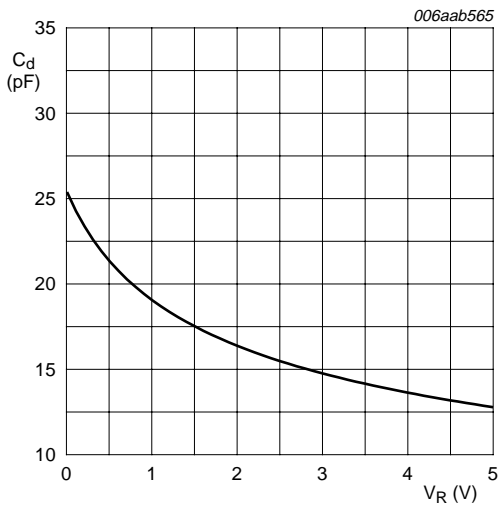


Fig 2. ESD pulse waveform according to IEC 61000-4-2



f = 1 MHz; T<sub>amb</sub> = 25 °C

Fig 3. Diode capacitance as a function of reverse voltage; typical values

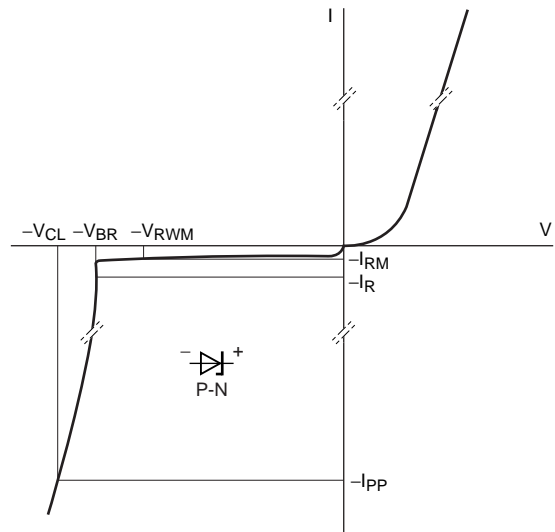


Fig 4. V-I characteristics for a unidirectional ESD protection diode

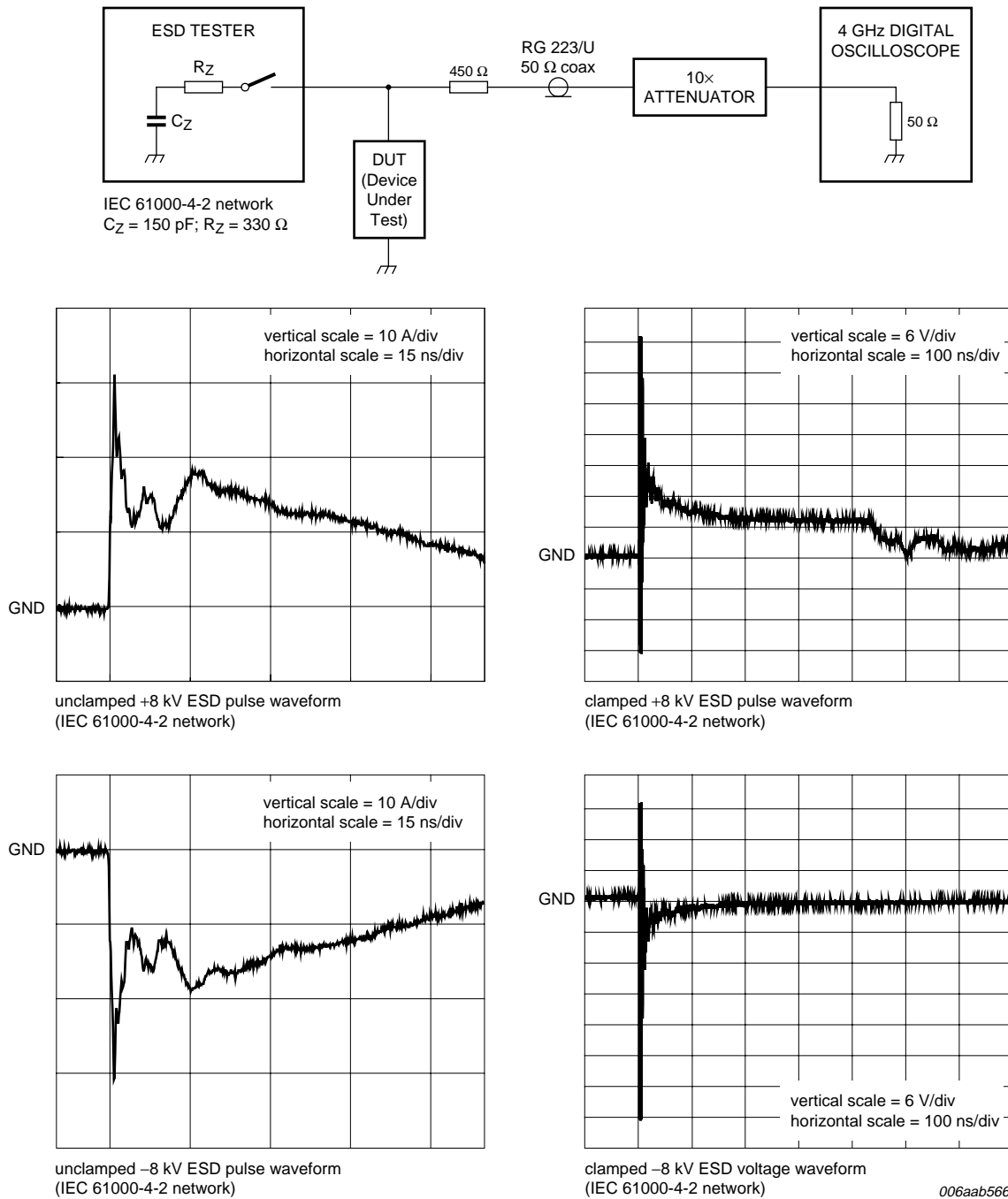
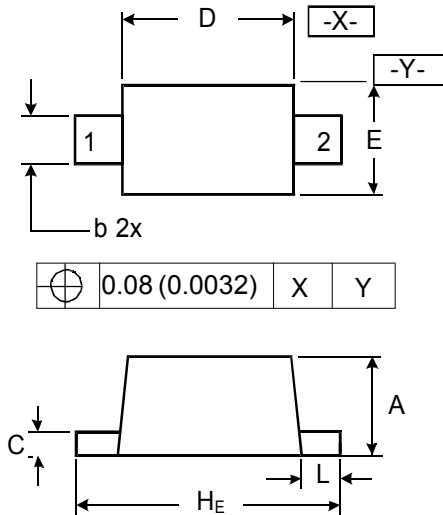



Fig 5. ESD clamping test setup and waveforms

Package outline dimensions

SOD-523



	0.08 (0.0032)	X	Y
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DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
C	0.07	0.20	0.0028	0.0079
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
H <sub>E</sub>	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
UMW PESD5V0L1UB	SOD-523	3000	Tape and reel

单击下面可查看定价，库存，交付和生命周期等信息

[>>UMW\(友台半导体\)](#)