

1.Description

Ultra 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.

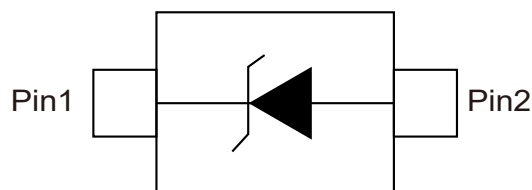
2.Features

- Unidirectional ESD protection of one line
- Ultra low diode capacitance: $C_d=2.6\text{pF}$
- Very low leakage current: $I_{RM}=1\text{nA}$
- ESD protection up to 9 kV

3.Applications

- USB interfaces
- 10/100/1000 Mbit/s Ethernet
- FireWire
- High-speed data lines
- Subscriber Identity Module (SIM) card protection
- Cellular handsets and accessories
- Portable electronics
- Communication systems
- Computers and peripherals
- Audio and video equipment

4.Pinning information



SOD-523

5. Quick reference data

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				3.3	V
diode capacitance	C_d	$V_R=0\text{V}$, $f=1\text{MHz}$		2.6	3.1	pF



6. Limiting values

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
junction temperature	T_J				150	°C
ambient temperature	T_{amb}		-55		150	°C
storage temperature	T_{STG}		-65		150	°C

7. ESD maximum ratings

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
electrostatic discharge voltage	V_{ESD}	IEC 61000-4-2 (contact discharge) ①			9	kV
		MIL-STD-883 (human body model)			10	kV

Notes:

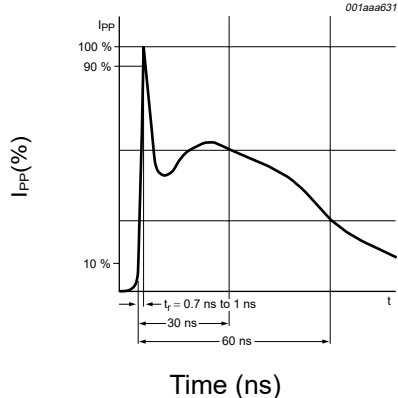
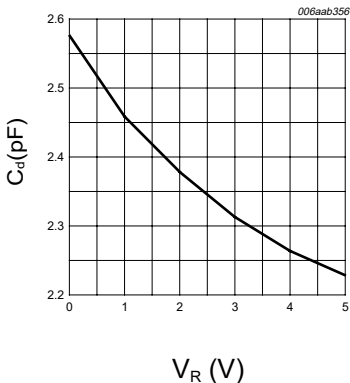
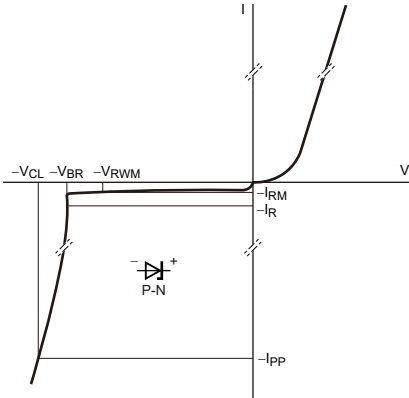
① Device stressed with ten non-repetitive ESD pulses.

8. Electrical Characteristic ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				3.3	V
reverse leakage current	I_{RM}	$V_{RWM}=3\text{V}$		1	100	nA
breakdown voltage	V_{BR}	$I_R=5\text{mA}$	4.5	5.6	6.8	V
diode capacitance	C_d	$V_R=0\text{V}$, $f=1\text{MHz}$		2.6	3.1	pF
differential resistance	r_{dif}	$I_R=5\text{mA}$			100	Ω



9.1Typical Characteristic

	
Figure 1: ESD pulse waveform according to IEC 61000-4-2	Figure 2: Diode capacitance as a function of reverse voltage; typical values
	
Figure 3: V-I characteristics for a unidirectional ESD protection diode	



9.2 Typical Characteristic

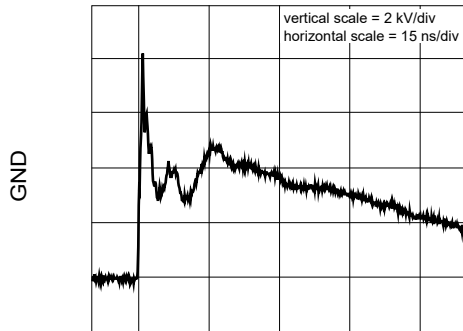


Figure 1: unclamped +8 kV ESD pulse waveform
(IEC 61000-4-2 network)

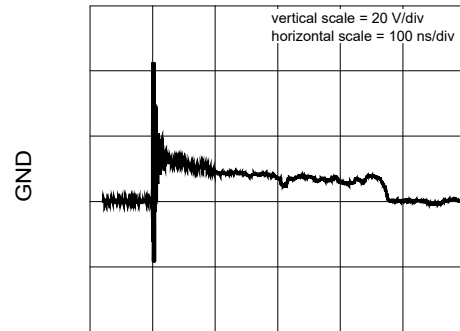


Figure 2: clamped +8 kV ESD pulse waveform
(IEC 61000-4-2 network) pin 1 to 2

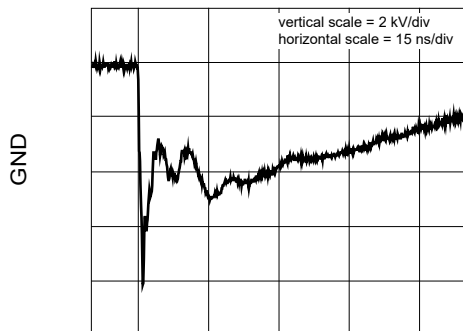


Figure 3: unclamped -8 kV ESD pulse waveform
(IEC 61000-4-2 network)

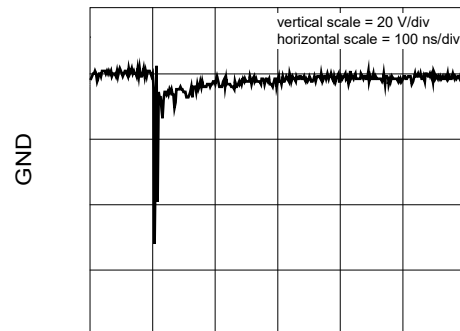
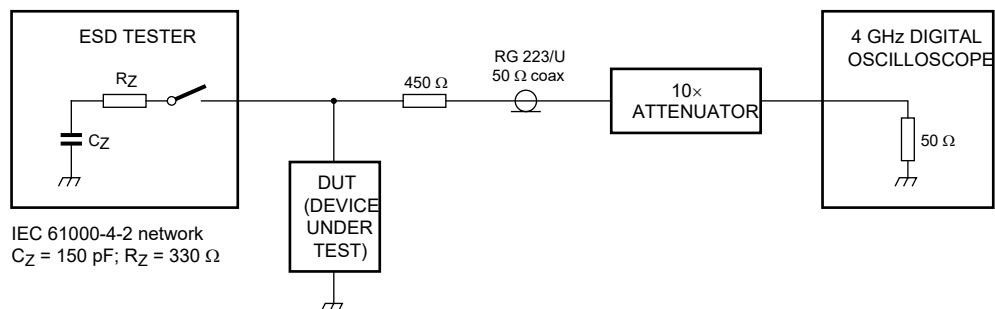
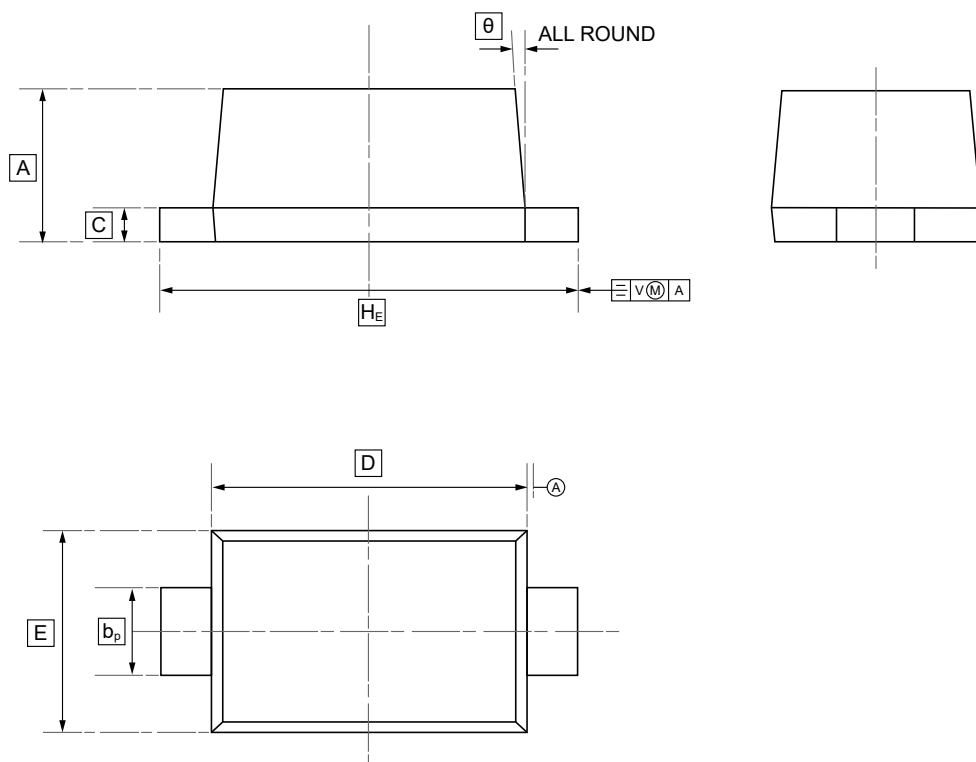


Figure 4: clamped -8 kV ESD pulse waveform
(IEC 61000-4-2 network) pin 1 to 2





10.SOD-523 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b _p	C	D	E	H _E	θ
Min	0.58	0.3	0.100	1.15	0.75	1.5	5°
Max	0.68	0.4	0.135	1.25	0.85	1.7	



11.Ordering Information



Order Code	Package	Base QTY	Delivery Mode
UMW PESD3V3U1UB	SOD-523	3000	Tape and reel



13.Disclaimer

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