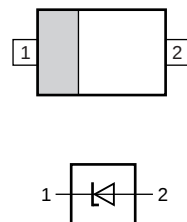


General description

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.



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

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

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				3.3	V
C_d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}$		2.6	3.1	pF

Limiting values

Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
T_j	junction temperature			150	°C
T_{amb}	ambient temperature		-55	+150	°C
T_{stg}	storage temperature		-65	+150	°C

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]	9	kV
		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)	> 8 kV (contact)
MIL-STD-883; class 3 (human body model)	> 4 kV

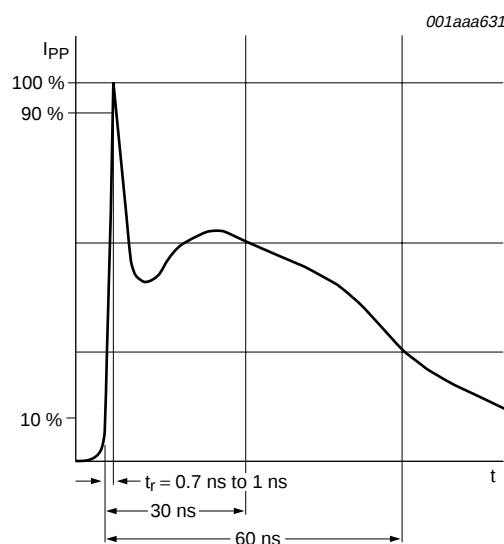
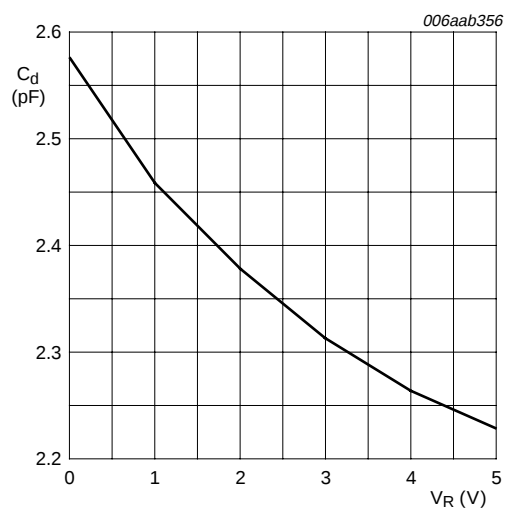


Fig 1. ESD pulse waveform according to IEC 61000-4-2

Characteristics

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

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



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

Fig 2. Diode capacitance as a function of reverse voltage; typical values

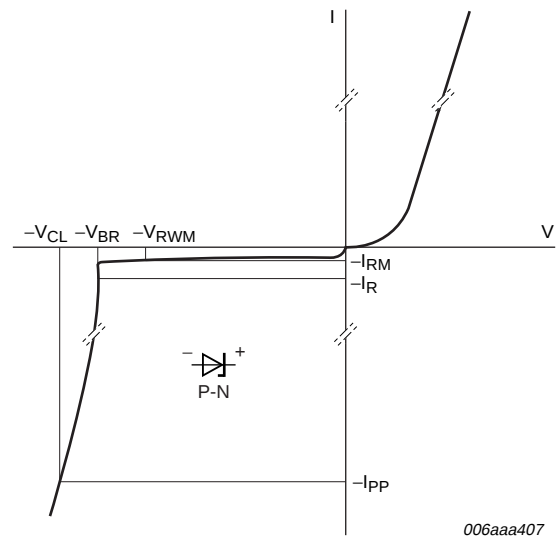


Fig 3. V-I characteristics for a unidirectional ESD protection diode

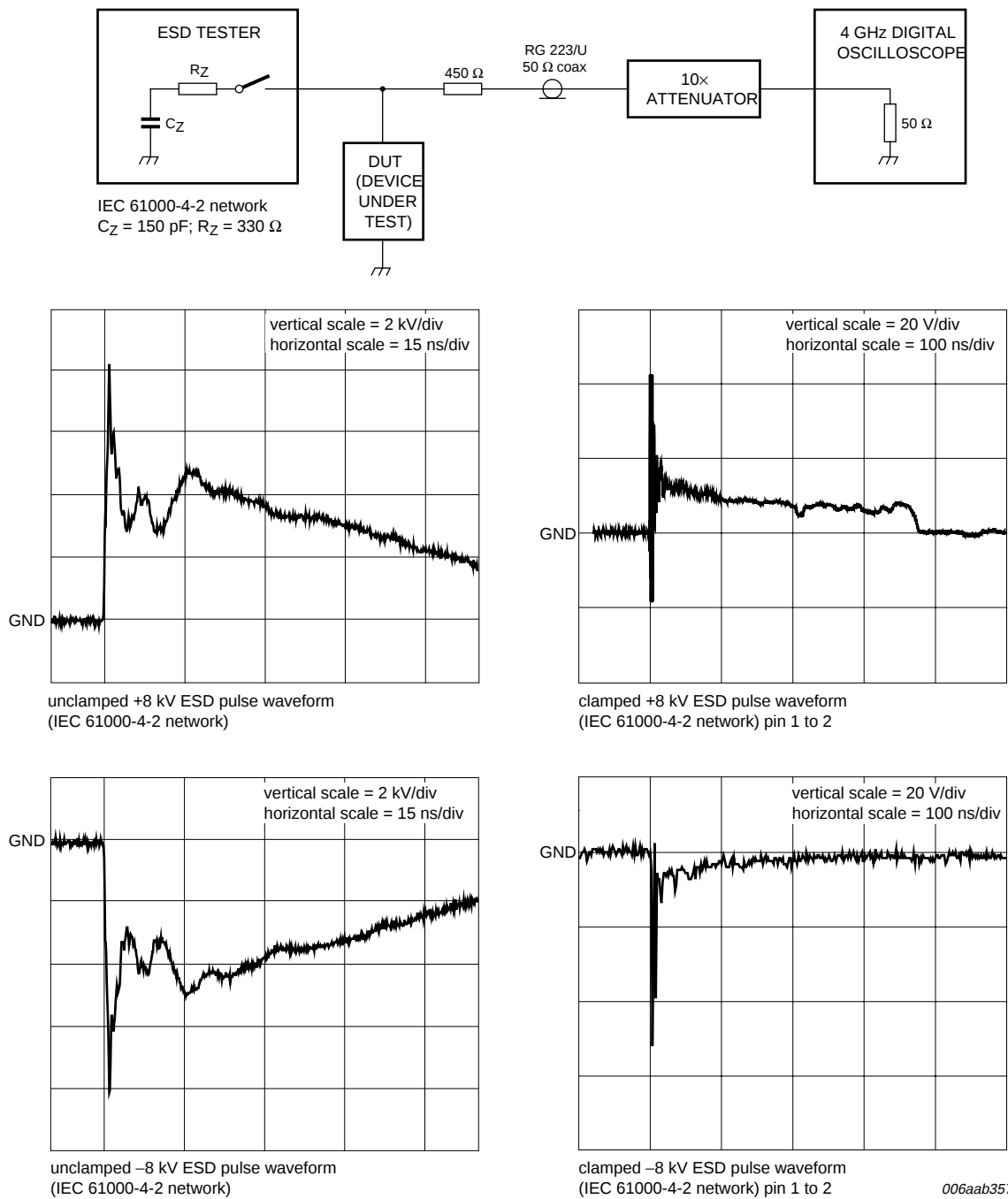
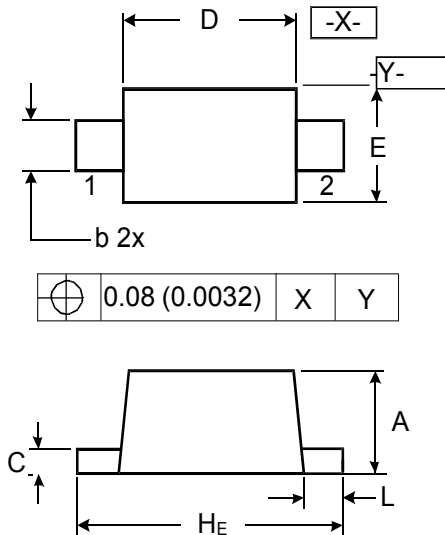


Fig 4. ESD clamping test setup and waveforms

Outline Drawing – SOD-523



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 _E	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 PESD3V3U1UB	SOD-523	3000	Tape and reel