

OM SENI

PESD3V3X1BL

Ultra low capacitance bidirectional ESD protection diode

**1. General description**

Ultra low capacitance bidirectional ElectroStatic Discharge (ESD) protection diode in a leadless ultra small Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients.

2. Features and benefits

- Bidirectional ESD protection of one line
- ESD protection up to 9 kV
- Ultra low diode capacitance: $C_d = 1.3 \text{ pF}$
- Very low leakage current: $I_{RM} = 1 \text{ nA}$
- IEC 61000-4-2; level 4 (ESD)
- AEC-Q101 qualified

3. Application information

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

4. Quick reference data**Table 1. Quick reference data**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage	$T_{amb} = 25 \text{ }^{\circ}\text{C}$	-	-	3.3	V
C_d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}; T_{amb} = 25 \text{ }^{\circ}\text{C}$	-	1.3	1.6	pF

5. Pinning information**Table 2. Pinning information**

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K1	cathode (diode 1)	Transparent top view DFN1006-2 (SOD882)	006aab041
2	K2	cathode (diode 2)		

6. Ordering information**Table 3. Ordering information**

Type number	Package		
	Name	Description	Version
PESD3V3X1BL	DFN1006-2	plastic, leadless ultra small package; 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.48 mm body	SOD882

7. Marking**Table 4. Marking codes**

Type number	Marking code
PESD3V3X1BL	SS

OM SENI

8. Limiting values

Table 5. 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						
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.

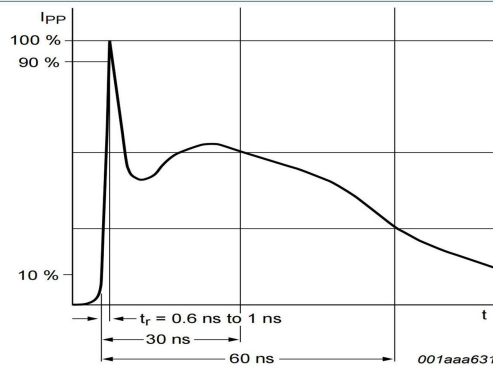
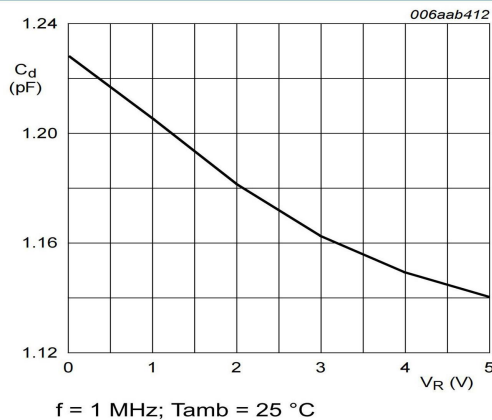


Fig. 1. ESD pulse waveform according to IEC 61000-4-2

9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage	$T_{amb} = 25\text{ °C}$		-	-	3.3	V
V_{BR}	breakdown voltage	$I_R = 5\text{ mA}$; $T_{amb} = 25\text{ °C}$		5	6.3	7.8	V
I_{RM}	reverse leakage current	$V_{RWM} = 3\text{ V}$; $T_{amb} = 25\text{ °C}$		-	1	100	nA
C_d	diode capacitance	$f = 1\text{ MHz}$; $V_R = 0\text{ V}$; $T_{amb} = 25\text{ °C}$		-	1.3	1.6	pF
r_{dif}	differential resistance	$I_R = 5\text{ mA}$		-	-	100	Ω



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

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

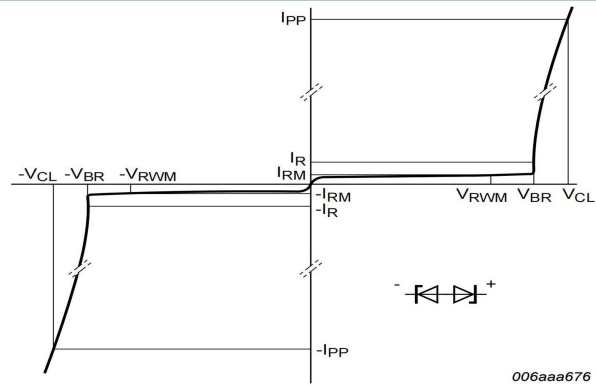


Fig. 3. V-I characteristics for a bidirectional ESD protection diode

OM SENI

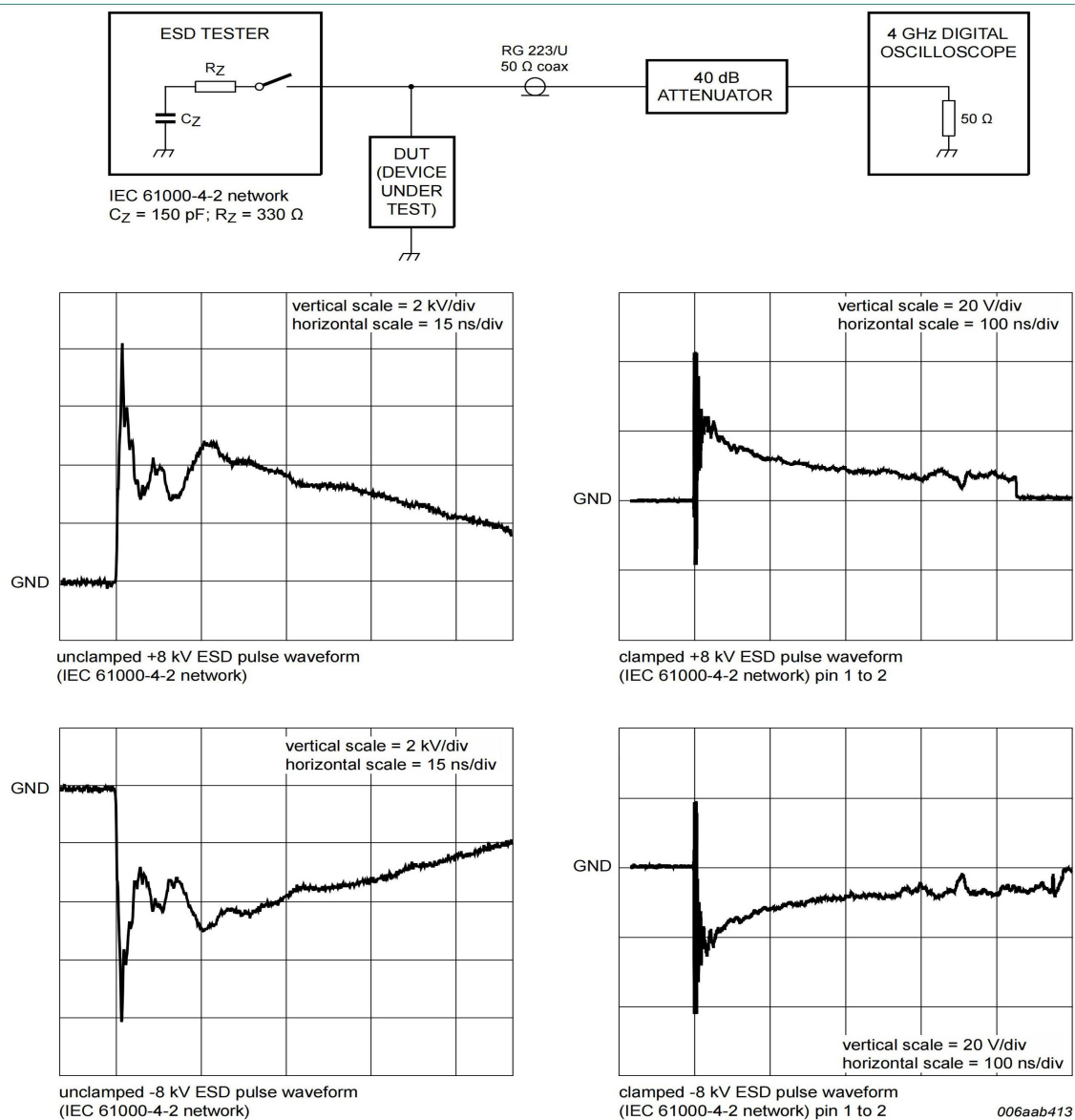


Fig. 4. ESD clamping test setup and waveforms

OM SENI

Ordering Information

PREFERRED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	DFN1006-2L	1.00×0.60×0.37	7" REEL	10,000

Recommended Soldering Conditions



Package Outline Dimensions (DFN1006-2L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.950	1.050	0.037	0.041
B	0.550	0.650	0.022	0.026
C	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
D ₁	0.280	0.380	0.011	0.015
E	0.450	0.550	0.018	0.022
L	0.000	0.100	0.000	0.004

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
J	0.50	0.60	0.020	0.024
K	0.25	0.35	0.010	0.014
M	0.55	0.65	0.022	0.026