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PESD5V0U1BL

Low capacitance bidirectional ESD protection diode



DFN1006-2L(SOD-882)

**1. General description**

Low capacitance bidirectional ElectroStatic Discharge (ESD) protection diode in an SOD882 leadless ultra-small 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
- Low diode capacitance: $C_d = 2.9 \text{ pF}$
- Ultra low leakage current: $I_{RM} = 5 \text{ nA}$
- ESD protection of up to 10 kV
- IEC 61000-4-2, level 4 (ESD)

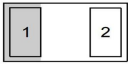
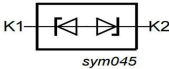
3. Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- 10/100/1000 Ethernet
- Local Area Network (LAN) equipment
- Communication systems
- Portable electronics
- SIM card protection
- High-speed data lines

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage	$T_{amb} = 25^\circ\text{C}$	-	-	5	V
C_d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}; T_{amb} = 25^\circ\text{C}$	-	2.9	3.5	pF
		$f = 1 \text{ MHz}; V_R = 5 \text{ V}; T_{amb} = 25^\circ\text{C}$	-	1.9	-	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)	 sym045
2	K2	cathode (diode 2)		

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

Type number	Package		
	Name	Description	Version
PESD5V0U1BL	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
PESD5V0U1BL	AN

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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] [2]	-	10	kV
		MIL-STD-883; human body model (HBM)		-	8	kV

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

[2] Measured from pin 1 to pin 2.

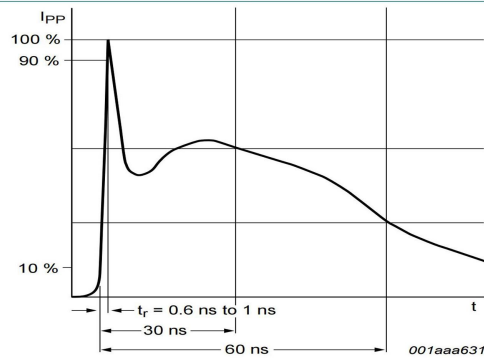
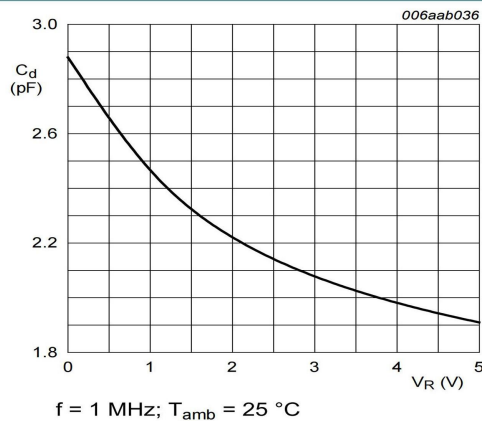


Fig. 1. ESD pulse waveform according to IEC 61000-4-2

9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage	$T_{amb} = 25\text{ °C}$		-	-	5	V
V_{BR}	breakdown voltage	$I_R = 5\text{ mA}; T_{amb} = 25\text{ °C}$		5.5	7	9.5	V
I_{RM}	reverse leakage current	$V_{RWM} = 5\text{ V}; T_{amb} = 25\text{ °C}$		-	5	100	nA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0\text{ V}; T_{amb} = 25\text{ °C}$		-	2.9	3.5	pF
		$f = 1\text{ MHz}; V_R = 5\text{ V}; T_{amb} = 25\text{ °C}$		-	1.9	-	pF
R_{diff}	differential resistance	$I_R = 1\text{ mA}; T_{amb} = 25\text{ °C}$		-	-	100	Ω



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

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

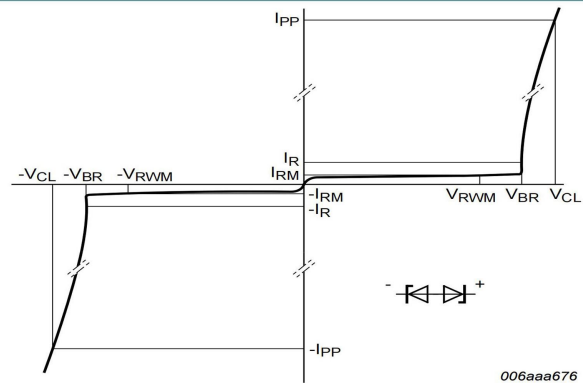


Fig. 3. V-I characteristics for a bidirectional ESD protection diode

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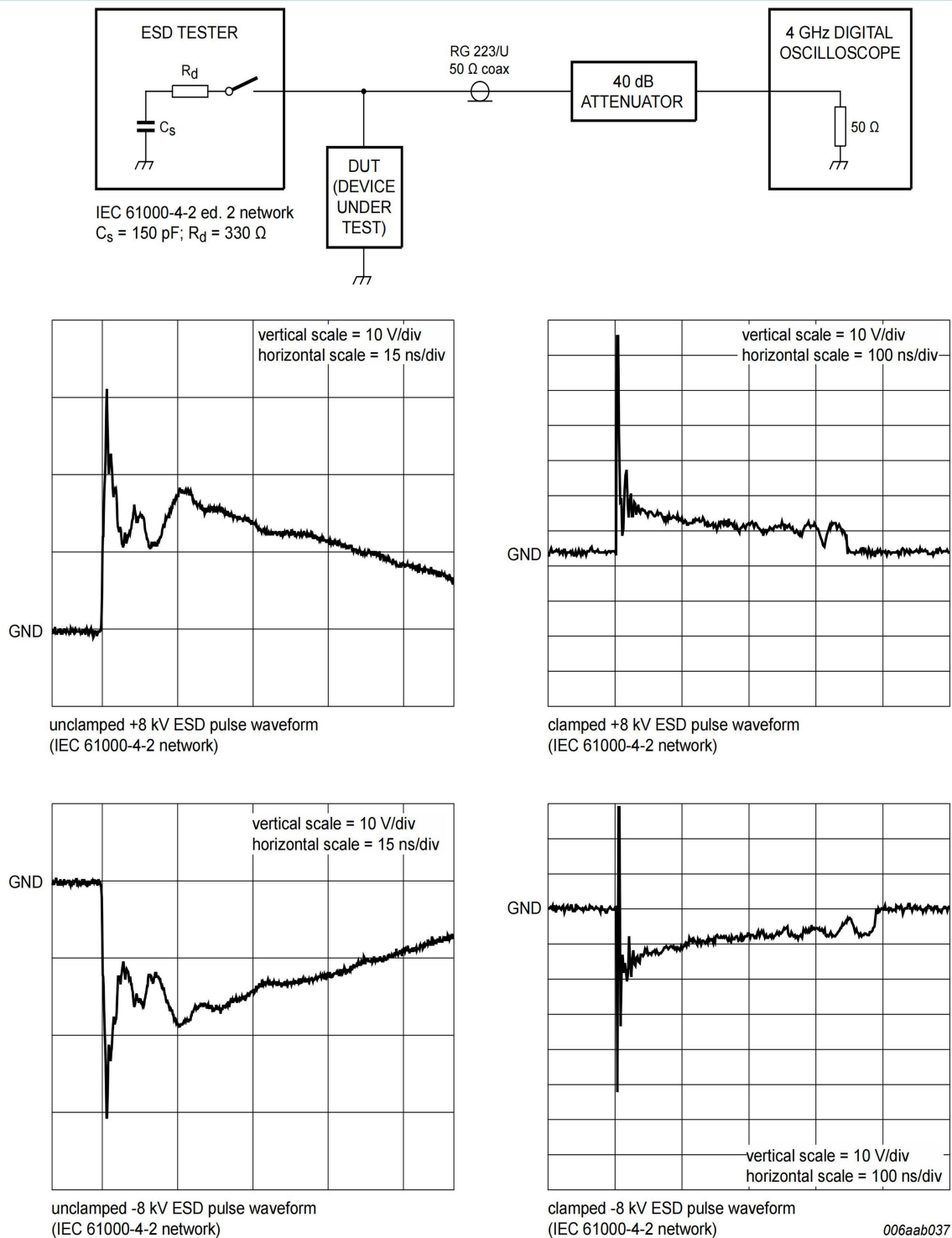


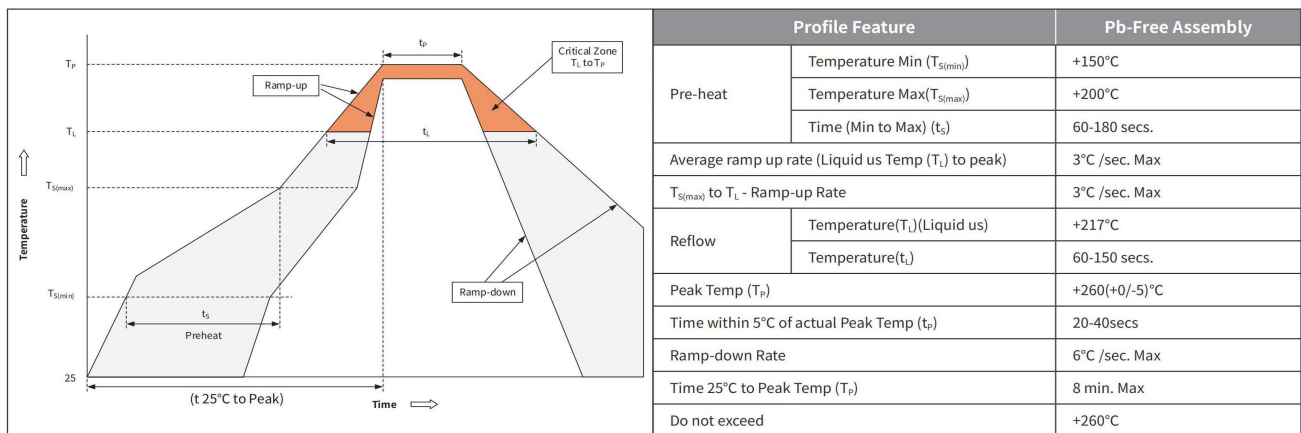
Fig. 4. ESD clamping test setup and waveforms

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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