PESD5V0L1UA/UB/UL

1.Features

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

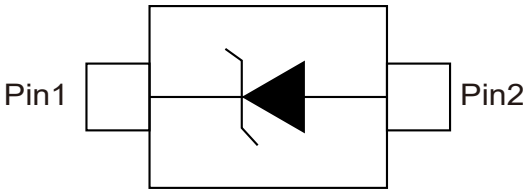
2.Mechanical Characteristics

- Marking: Marking Code
- Packaging: Tape and Reel per EIA4 81
- RoHS/WEEE Compliant
- Molding compoun dflammability rating: UL94 V-0

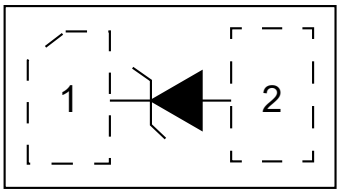
3.Applications

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

4.Pinning information



SOD-323/523



SOD-882

5. Quick reference data

T_{amb}=25°C unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
diode capacitance	C_d	V_R=0V, f=1MHz		25	30	pF

6.Limiting values

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
peak pulse power	P_{PP}	t_p=8/20μs ①②			42	W
peak pulse current	I_{PP}	t_p=8/20μs ①②			3.5	A
junction temperature	T_J				150	°C
ambient temperature	T_{amb}		-55		150	°C
storage temperature	T_{STG}		-65		150	°C

Notes:

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.

7.ESD maximum ratings

T_{amb}=25°C unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ	Max	Units
electrostatic discharge voltage	V_{ESD}	IEC 61000-4-2 (contact discharge) ①			26	kV
		machine model			400	V
		MIL-STD-883 (human body model)			10	kV

Notes:

① Device stressed with ten non-repetitive ESD pulses.

8.ESD standards compliance

Parameter	Conditions
IEC 61000-4-2; level 4 (ESD)	> 15 kV (air); > 8 kV (contact)
MIL-STD-883; class 3 (human body model)	> 4 kV

9.Electrical Characteristic (T_A=25°C unless otherwise noted)

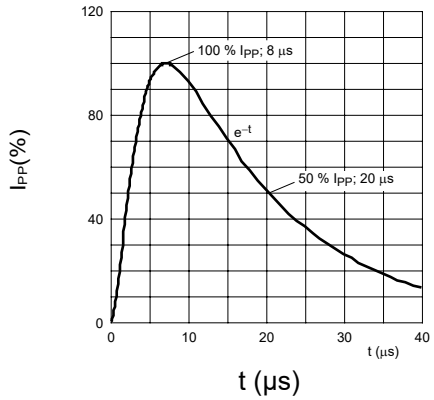
Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
reverse leakage current	I_{RM}	V_{RWM}=5V		10	100	nA
breakdown voltage	V_{BR}	I_R=5mA	6.4	6.8	7.2	V
diode capacitance	C_d	V_R=0V, f=1MHz		25	30	pF
clamping voltage	V_{CL}	①②				
		I_{PP}=1A			9	V
		I_{PP}=3.5A			12	V
differential resistance	r_{dif}	I_R=5mA			30	Ω
forward voltage	V_F	I_F=200mA			1.2	V

Notes:

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

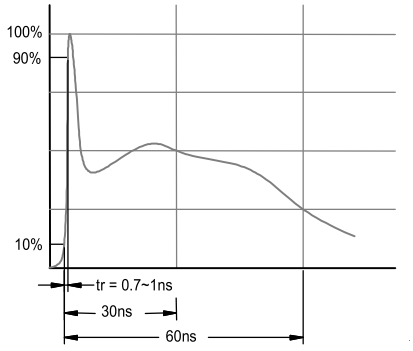
② Measured from pin 1 to pin 2.

10.1Typical characteristic



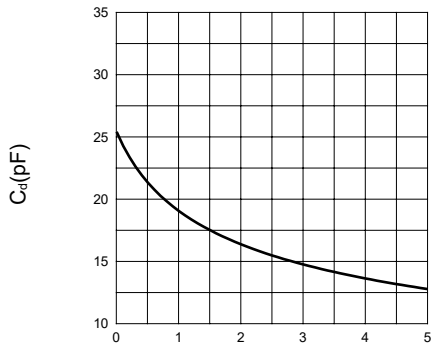
t (µs)

Figure 1: 8/20 µs pulse waveform according to IEC 61000-4-5



Time (ns)

Figure 2: ESD pulse waveform according to IEC 61000-4-2



V_R(V)

Figure 3: Diode capacitance as a function of reverse voltage; typical values

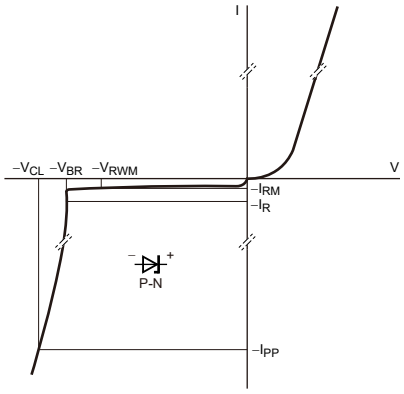


Figure 4: V-I characteristics for a unidirectional ESD protection diode

10.2Typical characteristic

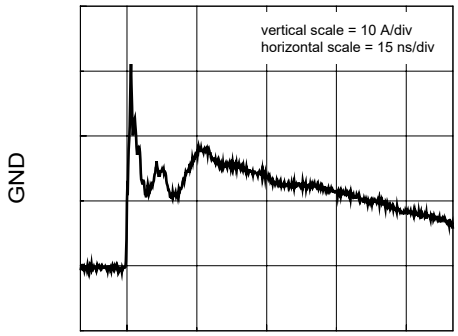


Figure 5: unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

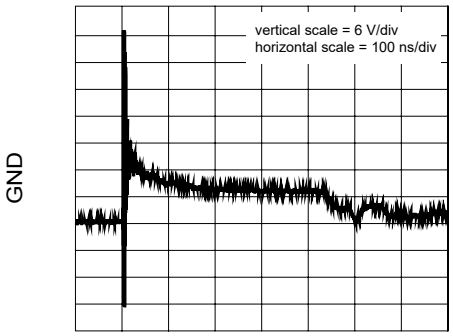


Figure 6: clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2

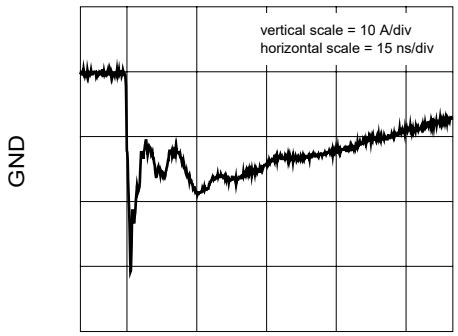


Figure 7: unclamped −8 kV ESD pulse waveform (IEC 61000-4-2 network)

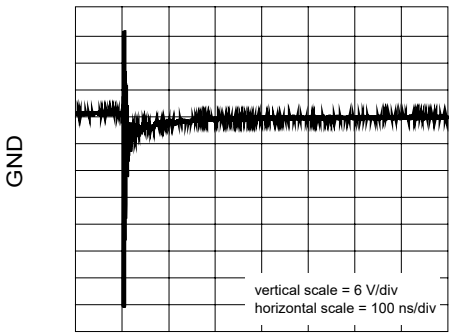
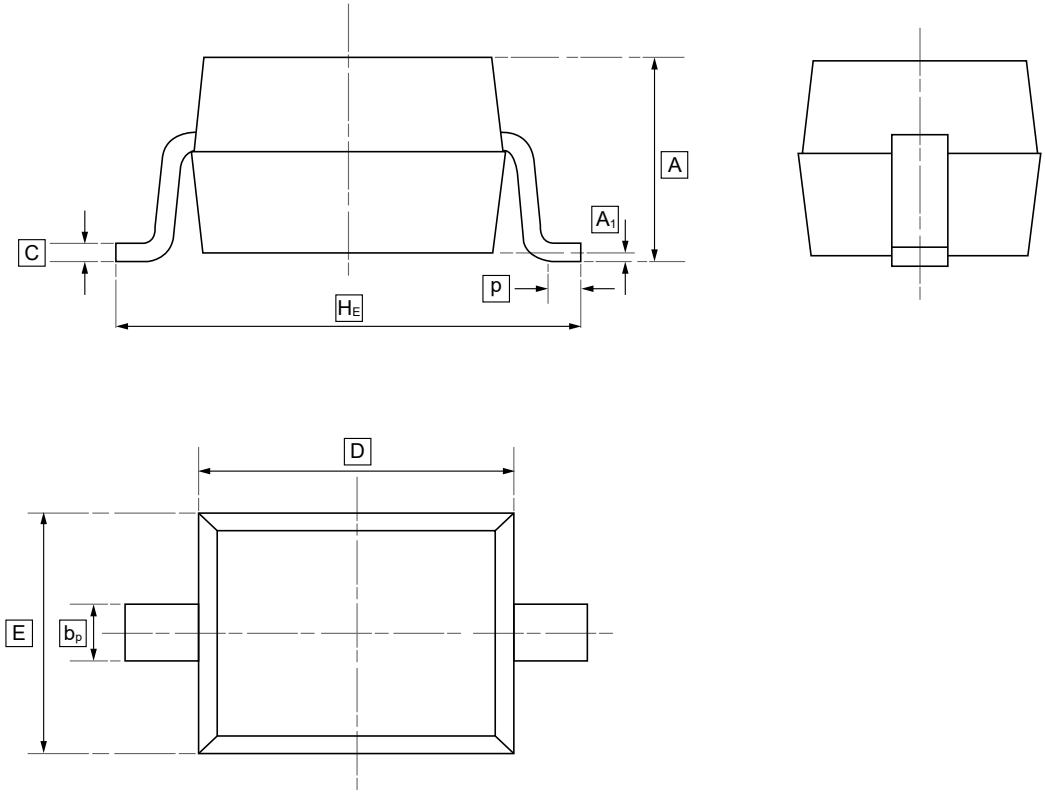


Figure 8: clamped −8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2

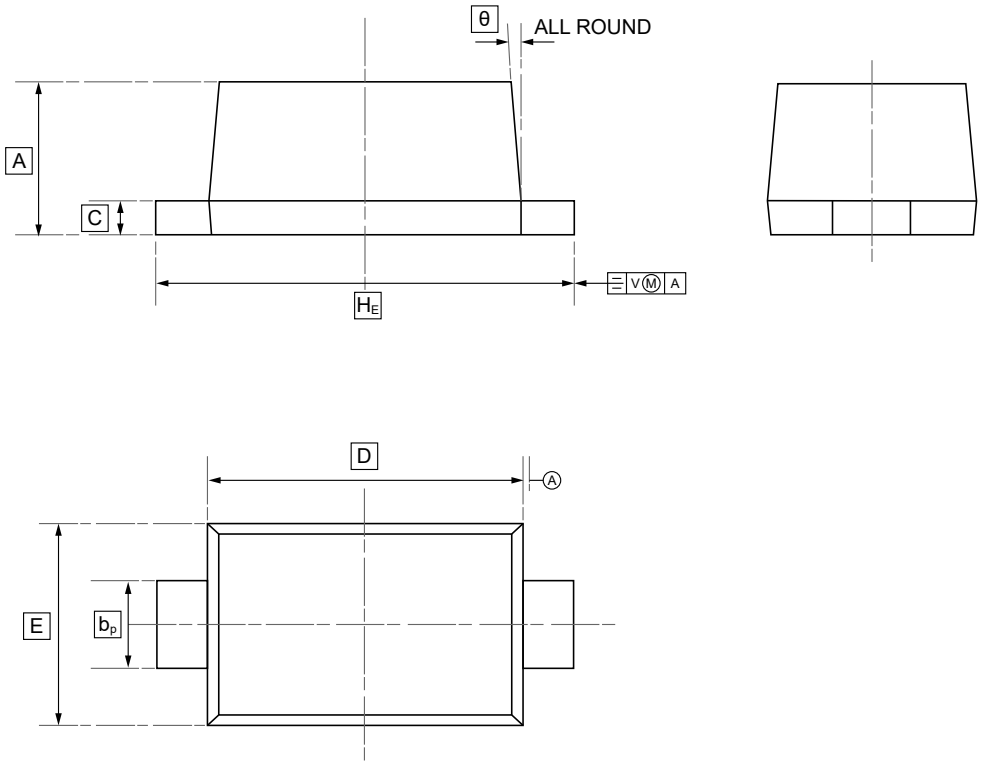
11.1SOD-323 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b_p	C	D	E	H_E	A_1	p
Min	0.80	0.25	0.10	1.50	1.15	2.30	0.01	0.20
Max	1.20	0.40	0.15	1.80	1.35	2.80	0.10	0.50

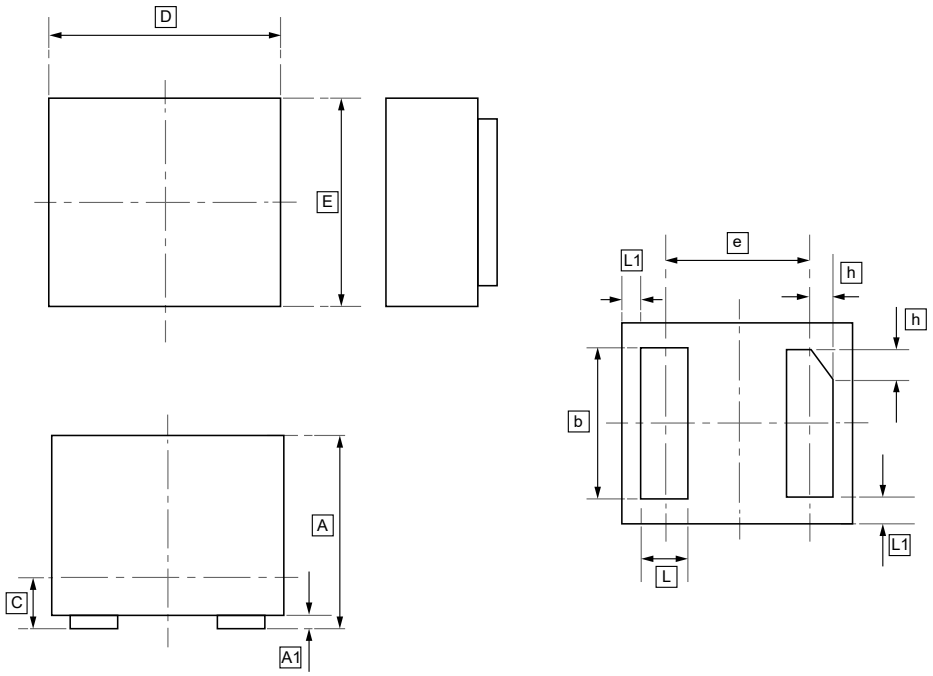
11.2.SOD-523 Package Outline Dimensions



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	

11.3.SOD-882 Package Outline Dimensions

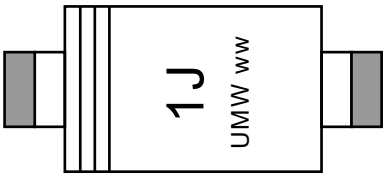


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	b	C	D	e	E	L	L1	h
Min	0.450	0.000	0.45	0.12	0.950	0.65	0.550	0.200	0.05	0.07
Max	0.550	0.050	0.55	0.18	1.050	BSC	0.650	0.300	REF	0.17

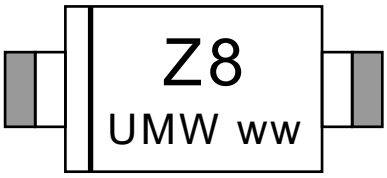
12.Ordering information

SOD-323



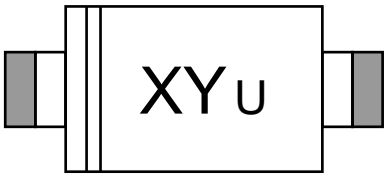
ww: Batch Code

SOD-523



ww: Batch Code

SOD-882



Order Code	Marking	Package	Base QTY	Delivery Mode
UMW PESD5V0L1UA	1J	SOD-323	3000	Tape and reel
UMW PESD5V0L1UB	Z8	SOD-523	3000	Tape and reel
UMW PESD5V0L1UL	XY	SOD-882	10000	Tape and reel

13.Disclaimer

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