

1.Features

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

3.Applications

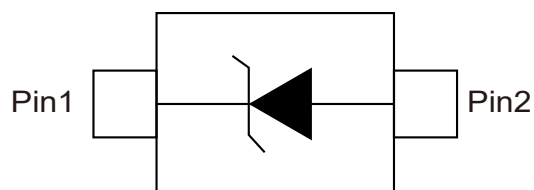
- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- FireWire

2.Mechanical Characteristics

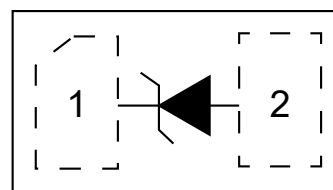
- Marking: Marking Code
- Packaging: Tape and Reel per EIA4 81
- RoHS/WEEE Compliant
- Molding compound flammability rating: UL94 V-0

- Subscriber Identity Module (SIM) card protection
- High-speed data lines
- Portable electronics

4.Pinning information



SOD-323/523



SOD-882



5. Quick reference data

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
diode capacitance	C_d	$V_R=0\text{V}$, $f=1\text{MHz}$		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}	$t_p=8/20\mu\text{s}$ ①②			42	W
peak pulse current	I_{PP}	$t_p=8/20\mu\text{s}$ ①②			3.5	A
junction temperature	T_J				150	$^{\circ}\text{C}$
ambient temperature	T_{amb}		-55		150	$^{\circ}\text{C}$
storage temperature	T_{STG}		-65		150	$^{\circ}\text{C}$

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

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

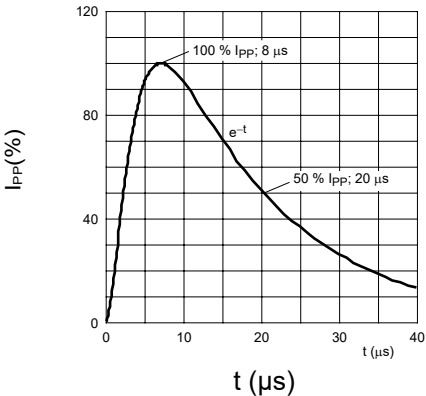
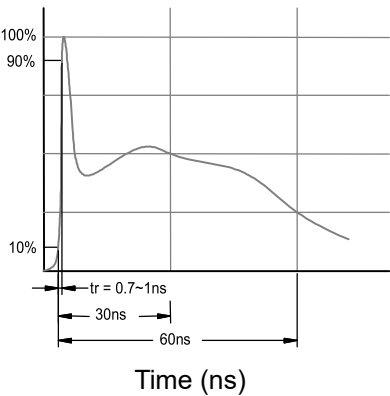
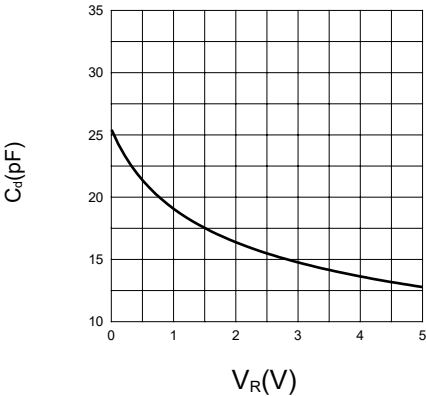
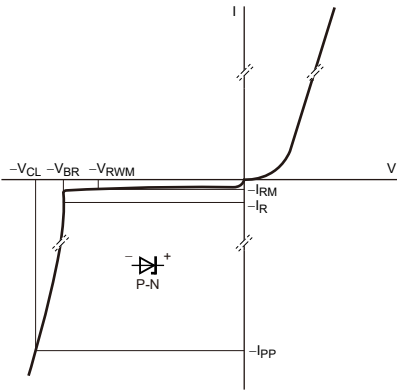
Notes:

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.

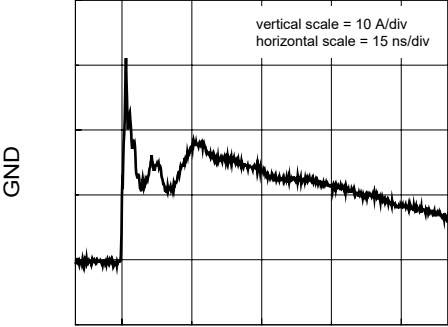
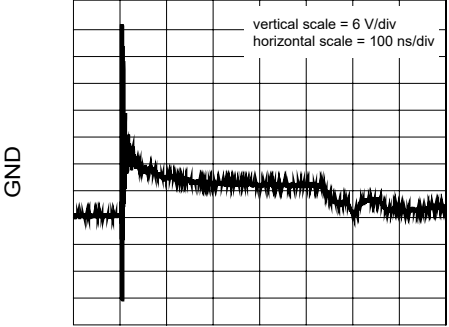
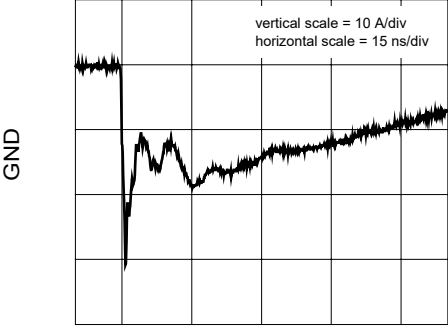
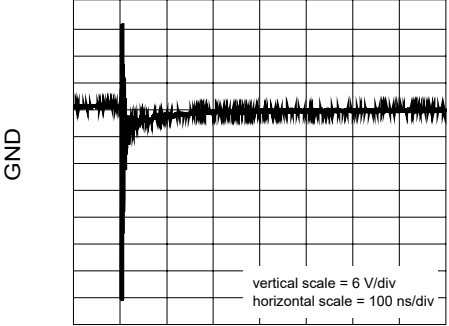


10.1Typical characteristic

	
Figure 1: 8/20 μ s pulse waveform according to IEC 61000-4-5	Figure 2: ESD pulse waveform according to IEC 61000-4-2
	
Figure 3: Diode capacitance as a function of reverse voltage; typical values	Figure 4: V-I characteristics for a unidirectional ESD protection diode

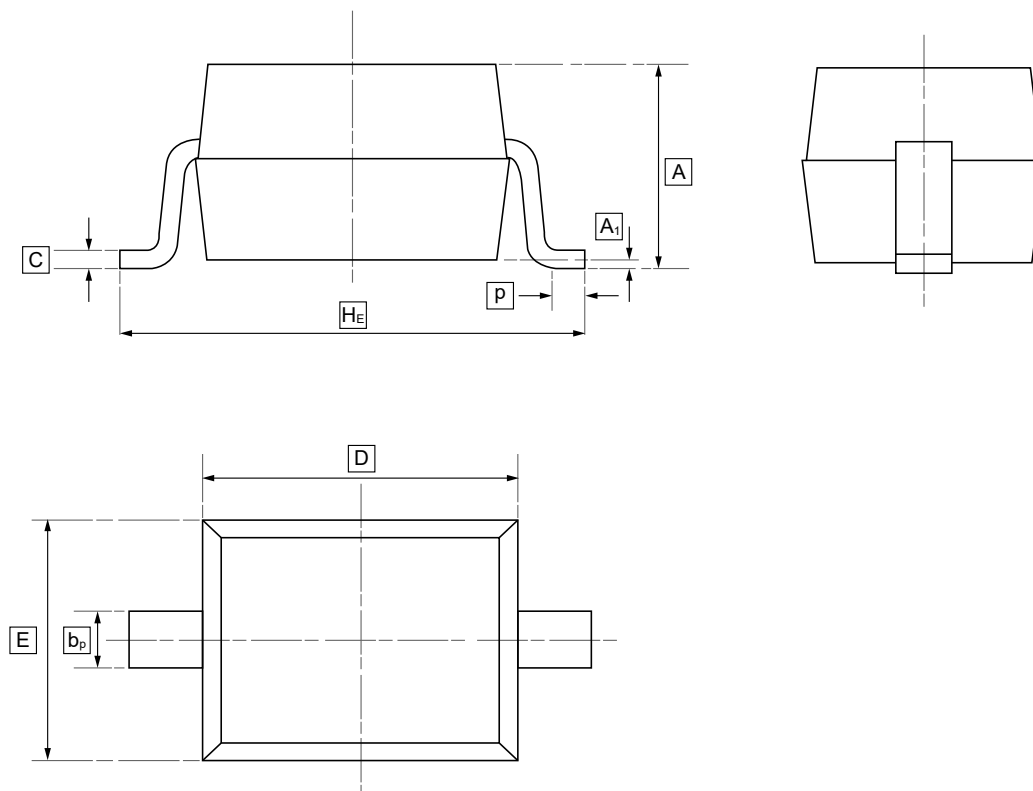


10.2Typical characteristic

	
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



11.1 SOD-323 Package Outline Dimensions

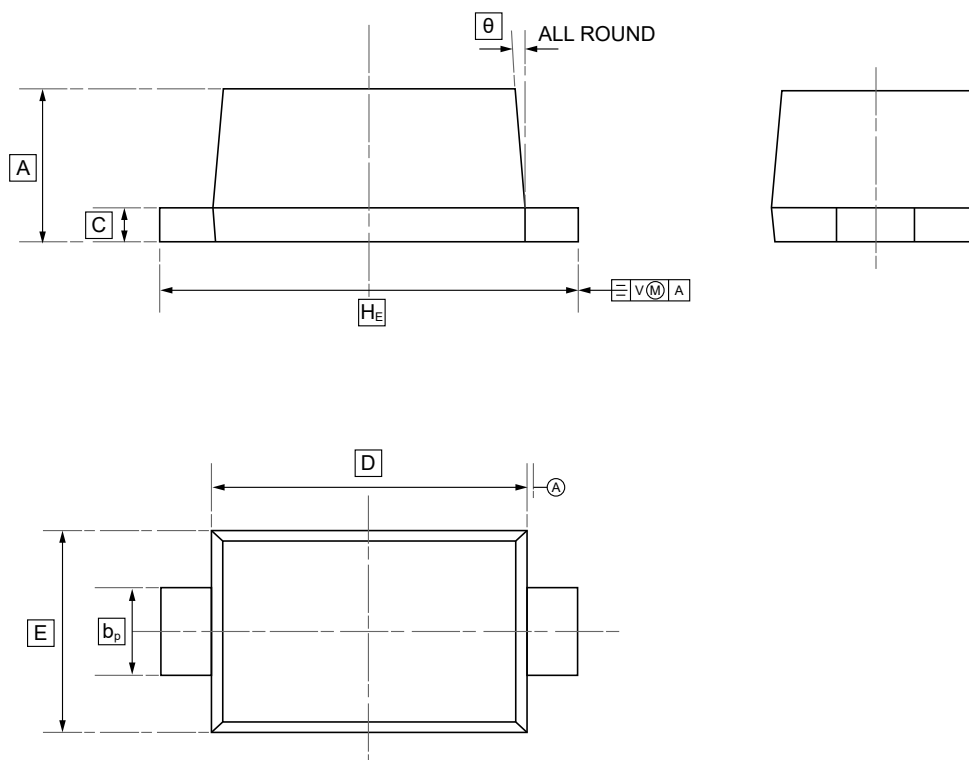


DIMENSIONS (mm are the original dimensions)

Symbol	A	b_p	C	D	E	H_E	A_1	p
Min	0.90	0.25	0.10	1.60	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

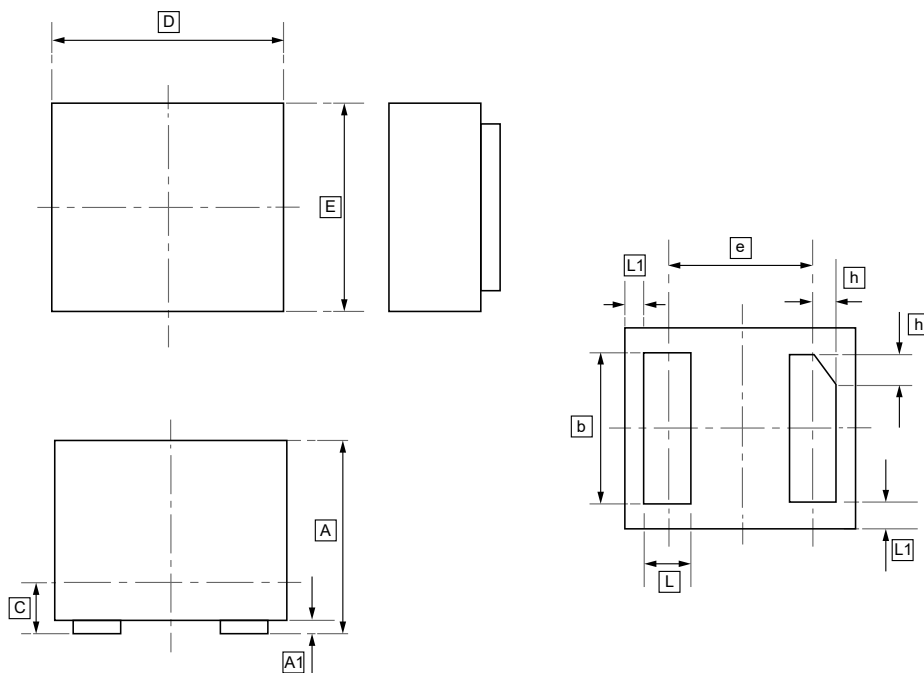


DIMENSIONS (mm are the original dimensions)

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

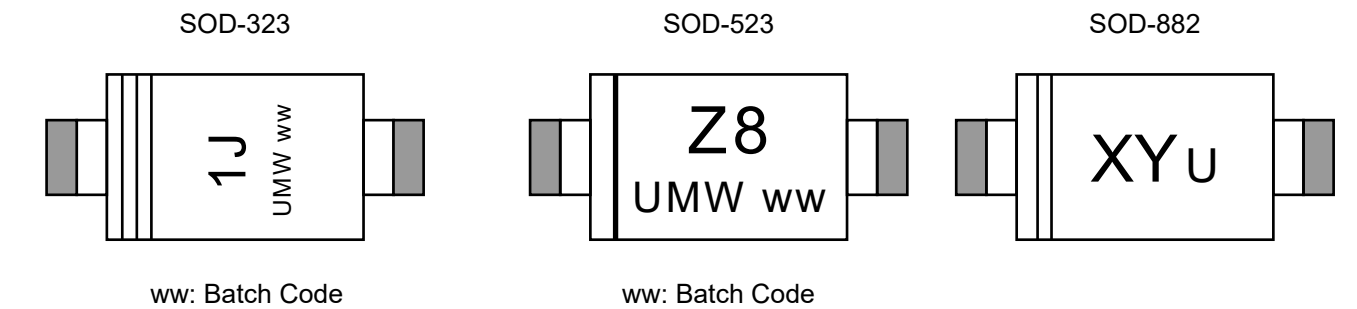


DIMENSIONS (mm are the original dimensions)

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



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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