1.Features

- Transient Voltage Suppression (TVS)
- protection of one line
- Max. peak pulse power: P_{PP}=890 W
- Low clamping voltage: V_{CL}=19V
- ESD protection up to 30kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); I_{PP}=47 A

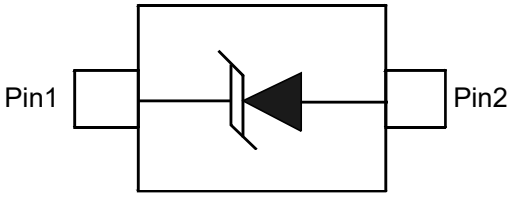
2.Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- Portable electronics
- Medical and industrial equipment

3.Mechanical Data

- SOD323 package
- Molding compound flammability rating: UL94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

4.Pinning information



SOD-323

5. Quick reference data

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				12	V
diode capacitance	C_d	V_R=0V, f=1MHz		160	180	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			600	W
peak pulse current	I_{PP}	t_p=8/20μs ①②			22.5	A
total power dissipation	P_{tot}	T_{amb} ≤ 25°C ③			360	mW
		④			500	mW
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 Soldering point of cathode tab.

③ Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

④ Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm 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			30	kV
		machine model			400	V

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}				12	V
reverse leakage current	I_{RM}	V_{RWM}=12V			1	μA
breakdown voltage	V_{BR}	I_R=5mA	13.3	14.5	17.75	V
diode capacitance	C_d	V_R=0V, f=1MHz		160	180	pF
clamping voltage	V_{CL}	I_{PP}=47A ①			27	V
		I_{PP}=25A			23.5	V
		I_{PP}=5A			19	V
differential resistance	r_{dif}	I_R=5mA		2	100	Ω

Notes:

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

10.Typical characteristic

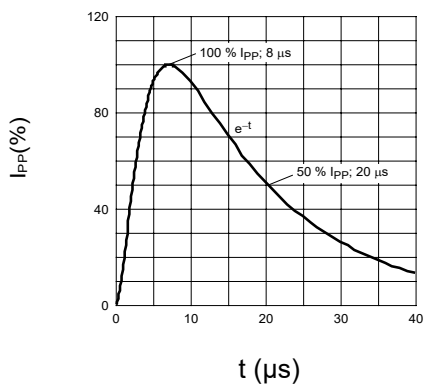


Figure 1: 8/20 µs pulse waveform according to IEC 61000-4-5

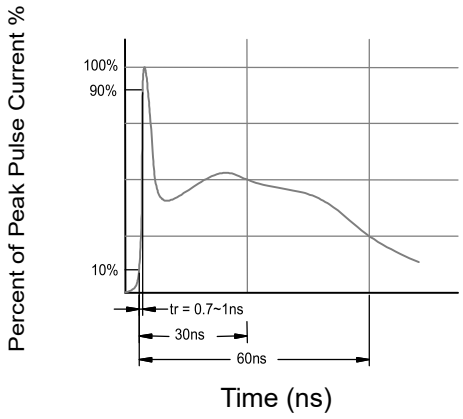


Figure 2: ESD pulse waveform according to IEC 61000-4-2

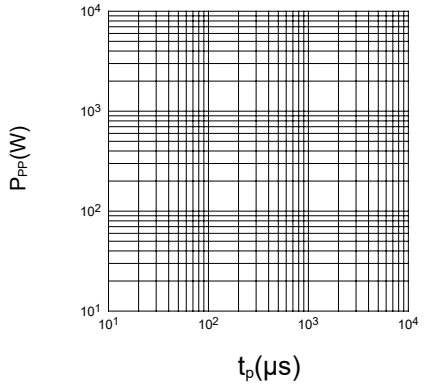


Figure 3: Peak pulse power as a function of exponential pulseduration; typical values

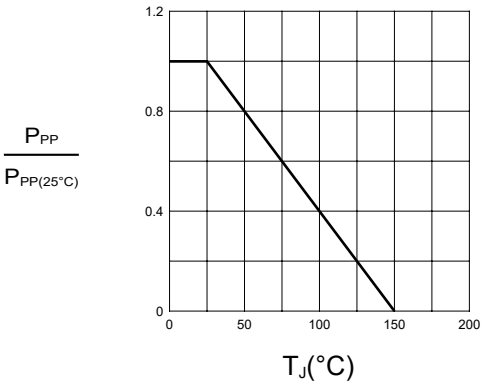


Figure 4: Relative variation of peak pulse power as a function of junction temperature; typical values

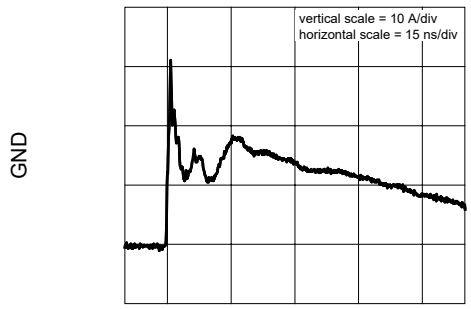


Figure 5: unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

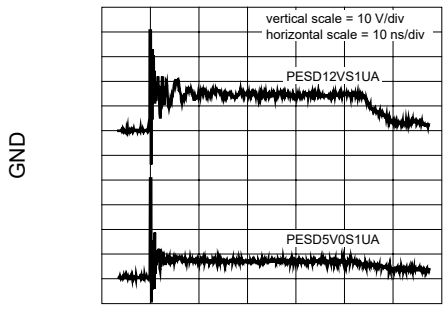
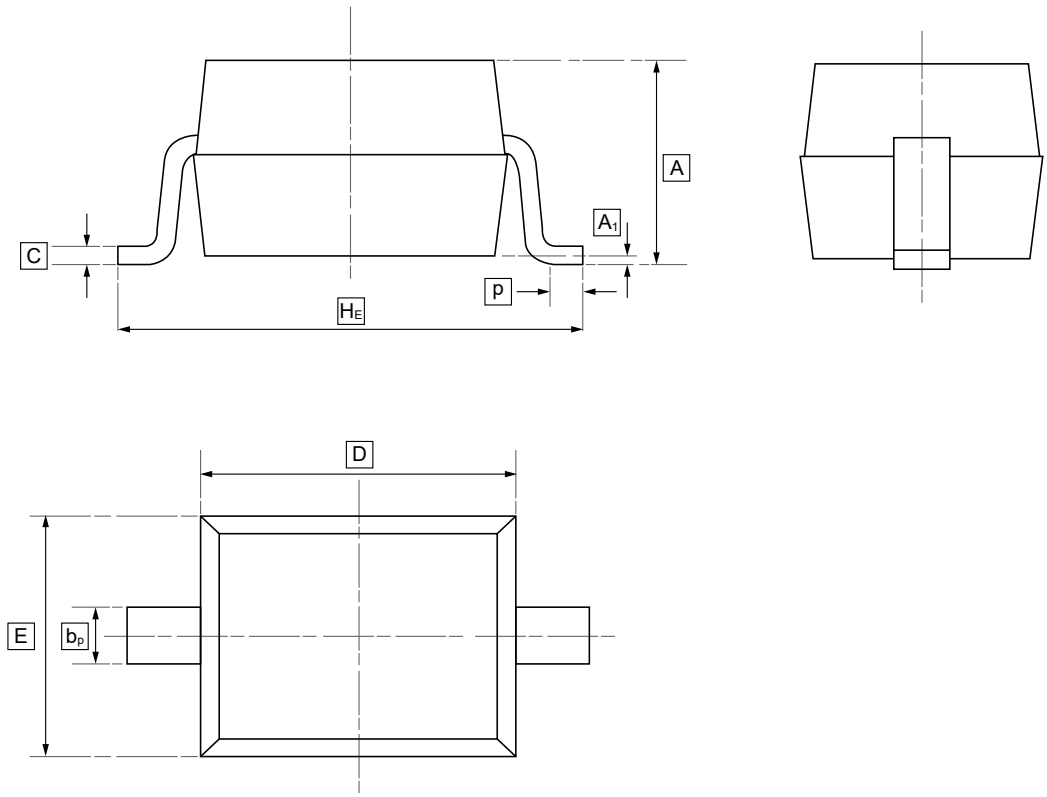


Figure 6: clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

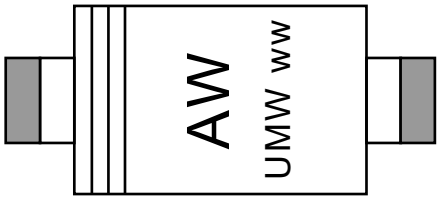
11.SOD-323 Package Outline Dimensions



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

12.Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW PESD12VS1UA	SOD-323	3000	Tape and reel

13.Disclaimer

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