

1.Description

Low capacitance ElectroStatic Discharge (ESD) protection diodes in ultra small SMD plastic packages designed to protect one signal line from the damage caused by ESD and other transients.

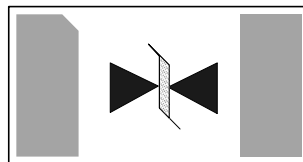
3.Features

- Bidirectional ESD protection of one line
- Max. peak pulse power: $P_{PP}=130W$
- Low clamping voltage: $V_{(CL)R}=14V$
- Ultra low leakage current: $I_{RM}=5nA$

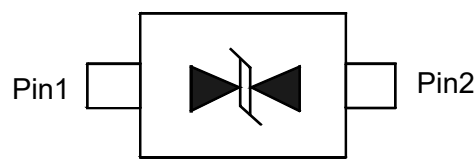
2.Applications

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

4.Pinning information



SOD-882



SOD-323/523

5. Quick reference data

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
diode capacitance	C_d	$V_R=0V$, $f=1MHz$		35	45	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}	$t_p=8/20\mu s$ ①②			130	W
peak pulse current	I_{PP}	$t_p=8/20\mu s$ ①②			12	A
junction temperature	T_J				150	°C
ambient temperature	T_{amb}		-65		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 (see Figure 1)
- ② Measured from pin 1 to pin 2.

7. ESD maximum ratings

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
electrostatic discharge capability	V_{ESD}	IEC 61000-4-2 (contact discharge) ①②			30	kV
		MIL-STD-883			10	kV

Notes:

- ① Measured from pin 1 to pin 2.
- ② Device stressed with ten non-repetitive ElectroStatic Discharge (ESD) pulses; see Figure 2.



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

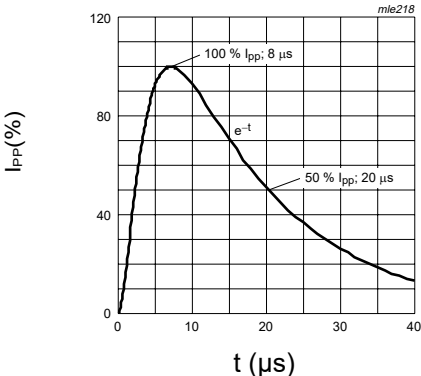
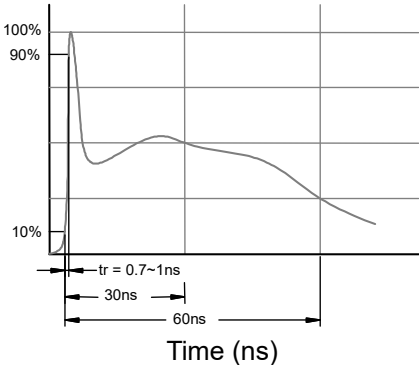
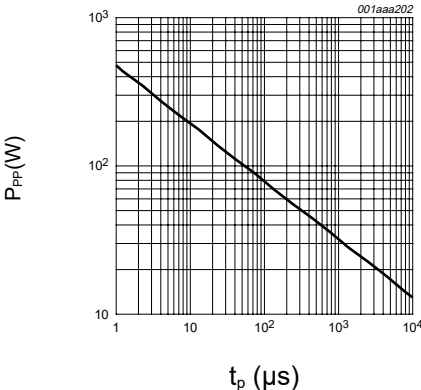
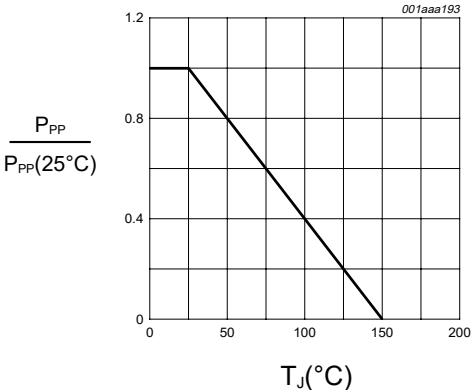
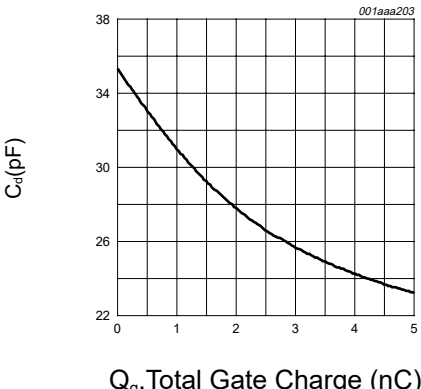
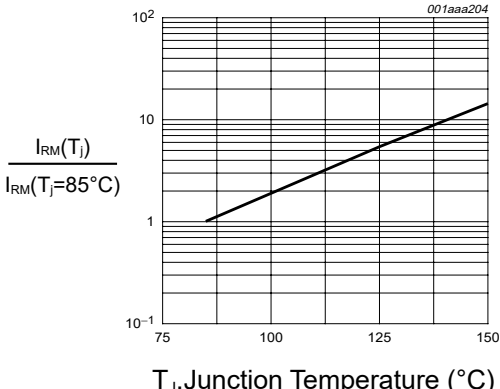
Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
reverse leakage current	I_{RM}	$V_{RWM}=5\text{V}$, see Figure 6		5	100	nA
clamping voltage	$V_{CL(R)}$	$I_{PP}=1\text{A}$ ①②			10	V
		$I_{PP}=12\text{A}$ ①②			14	V
breakdown voltage	V_{BR}	$I_R=1\text{mA}$	5.5		9.5	V
differential resistance	r_{dif}	$I_R=1\text{mA}$			50	Ω
diode capacitance	C_d	$V_R=0\text{V}$, $f=1\text{MHz}$, see Figure 5		35	45	pF

Notes:

- ① Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5. see Figure 1.
 ② Measured from pin 1 to pin 2.

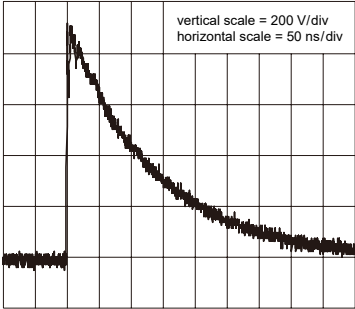
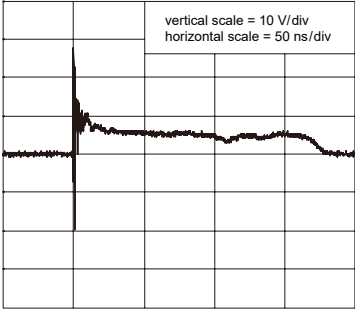
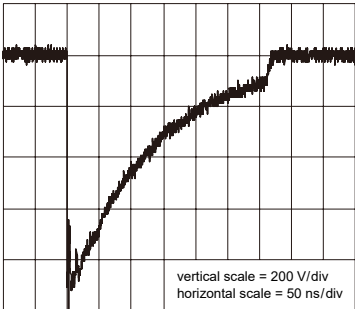
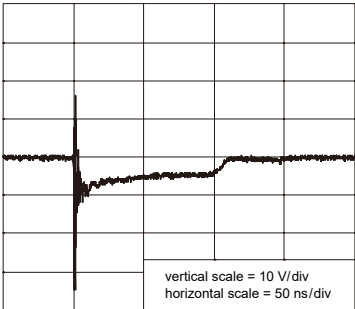


9.1 Typical characteristic

	
Figure 1: 8/20 μ s pulse waveform according to IEC 61000-4-5	Figure 2: ElectroStatic Discharge (ESD) pulse waveform according to IEC 61000-4-2
	
Figure 3: Peak pulse power dissipation as a function of exponential time duration t_p ; typical values	Figure 4: Relative variation of peak pulse power as a function of junction temperature; typical values
	
Figure 5: Diode capacitance as a function of reverse voltage; typical values	Figure 6: Relative variation of reverse leakage current as a function of junction temperature; typical

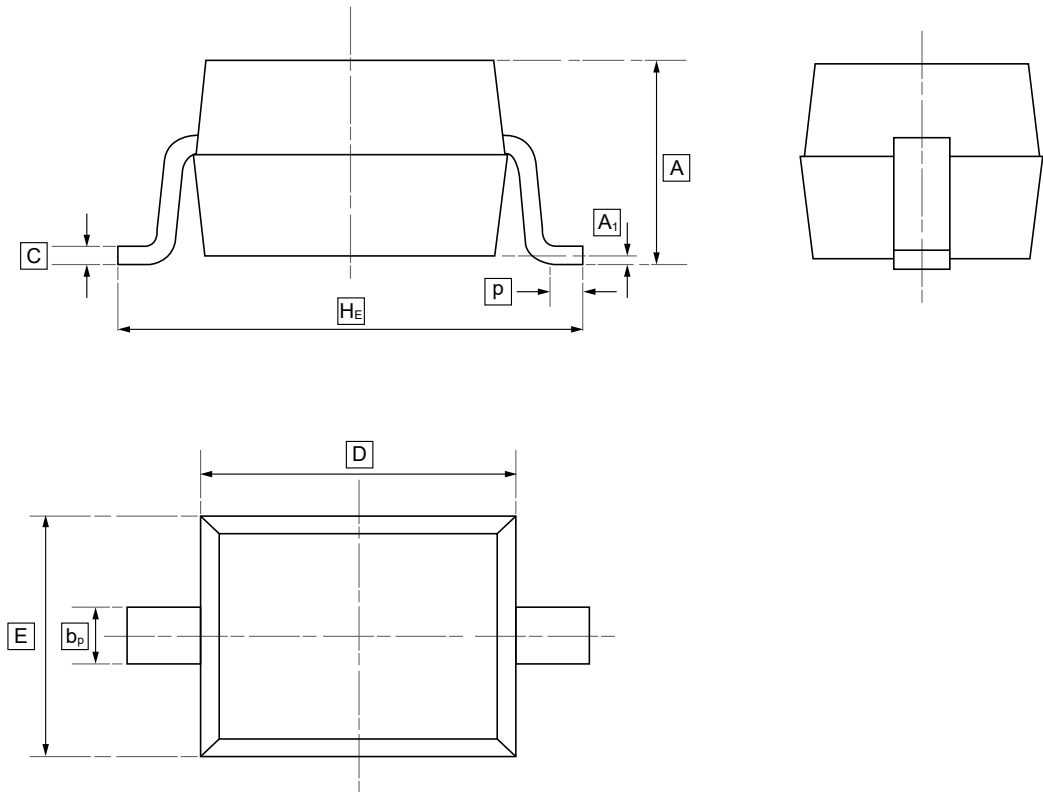


9.2 Typical characteristic

GND 	GND 
Figure 5: unclamped +1 kV ESD voltage waveform (IEC61000-4-2 network)	Figure 6: clamped +1 kV ESD voltage waveform (IEC61000-4-2 network)
GND 	GND 
Figure 7: unclamped -1 kV ESD voltage waveform (IEC61000-4-2 network)	Figure 8: clamped -1 kV ESD voltage waveform (IEC61000-4-2 network)



10.1 SOD-323 Package Outline Dimensions

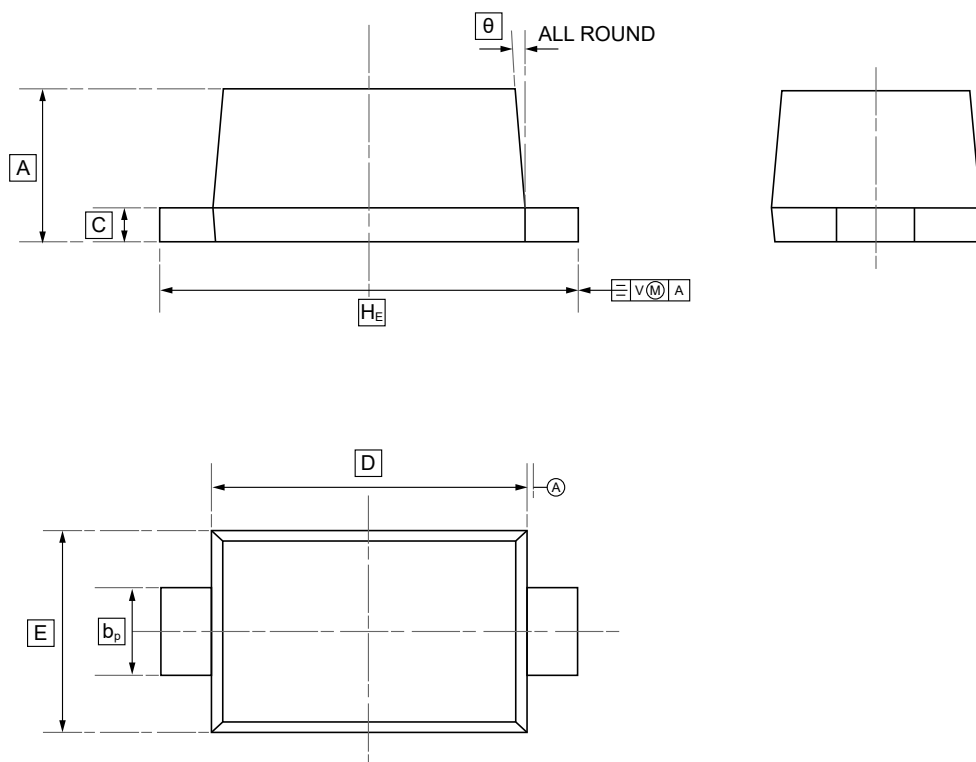


DIMENSIONS (mm are the original dimensions)

Symbol	A	bp	C	D	E	HE	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



10.2 SOD-523 Package Outline Dimensions

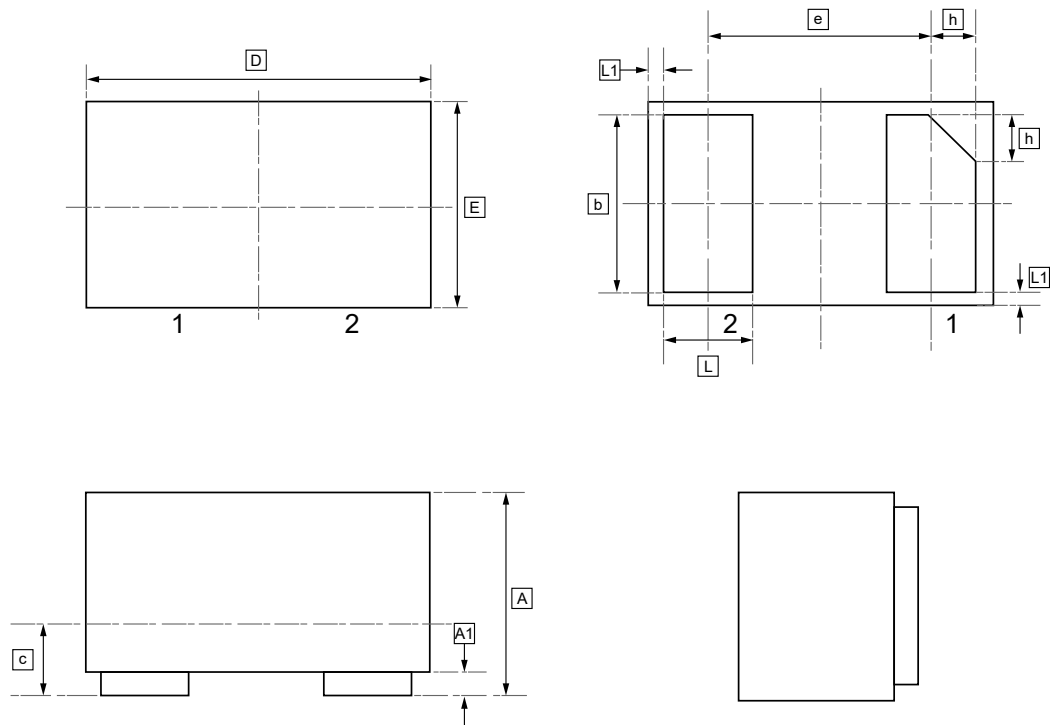


DIMENSIONS (mm are the original dimensions)

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	



10.3 SOD-882 Package Outline Dimensions

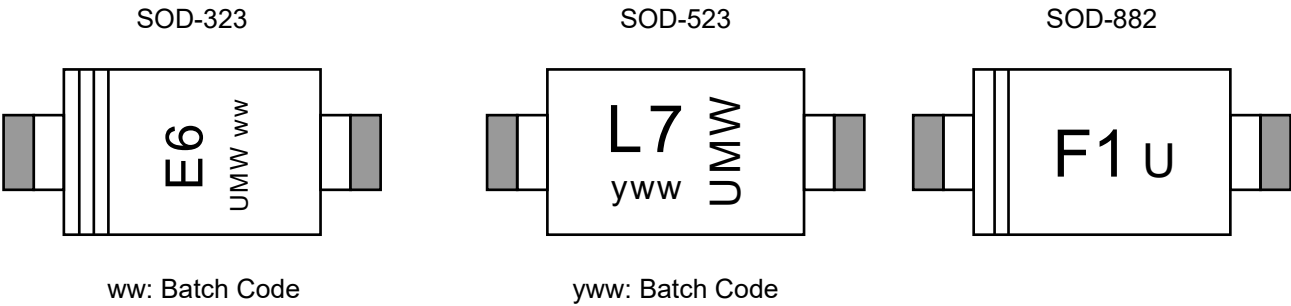


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	b	c	D	e	E	L	L1	h
Min	0.45	0.00	0.45	0.12	0.95	0.65	0.55	0.20	0.05	0.07
Max	0.55	0.05	0.55	0.18	1.05	BSC	0.65	0.30	REF	0.17



11.Ordering Information



Order Code	Marking	Package	Base QTY	Delivery Mode
UMW PESD5V0S1BA	E6	SOD-323	3000	Tape and reel
UMW PESD5V0S1BB	L7	SOD-523	3000	Tape and reel
UMW PESD5V0S1BL	F1	SOD-882	10000	Tape and reel



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