

1. Description

Ultra low capacitance bidirectional ElectroStatic Discharge (ESD) protection diodes in small Surface Mounted Device (SMD) plastic packages designed to protect one data line from the damage caused by ESD.

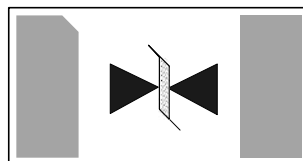
2. Features

- Bidirectional ESD protection of one line
- Ultra low diode capacitance: $C_d=2.9\text{pF}$
- IEC 61000-4-2; level 4 (ESD)
- Ultra low leakage current: $I_{RM}=5\text{nA}$
- ESD protection of up to 10 kV

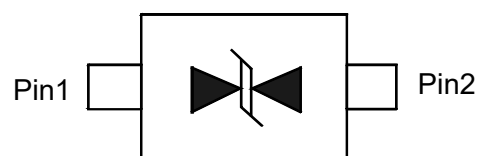
3. Applications

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

4. Pinning information



SOD-882



SOD-323/523

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	$V_R=0\text{V}$, $f=1\text{MHz}$		2.9	3.5	pF



6. Limiting values

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
junction temperature	T_J				150	°C
ambient temperature	T_{amb}		-65		150	°C
storage temperature	T_{STG}		-65		150	°C

7. ESD maximum ratings

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
electrostatic discharge voltage	V_{ESD}	IEC 61000-4-2 (contact discharge) ①②			10	kV
		MIL-STD-883 (human body model)			8	kV

Notes:

- ① Device stressed with ten non-repetitive ESD pulses.
- ② Measured from pin 1 to pin 2.

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

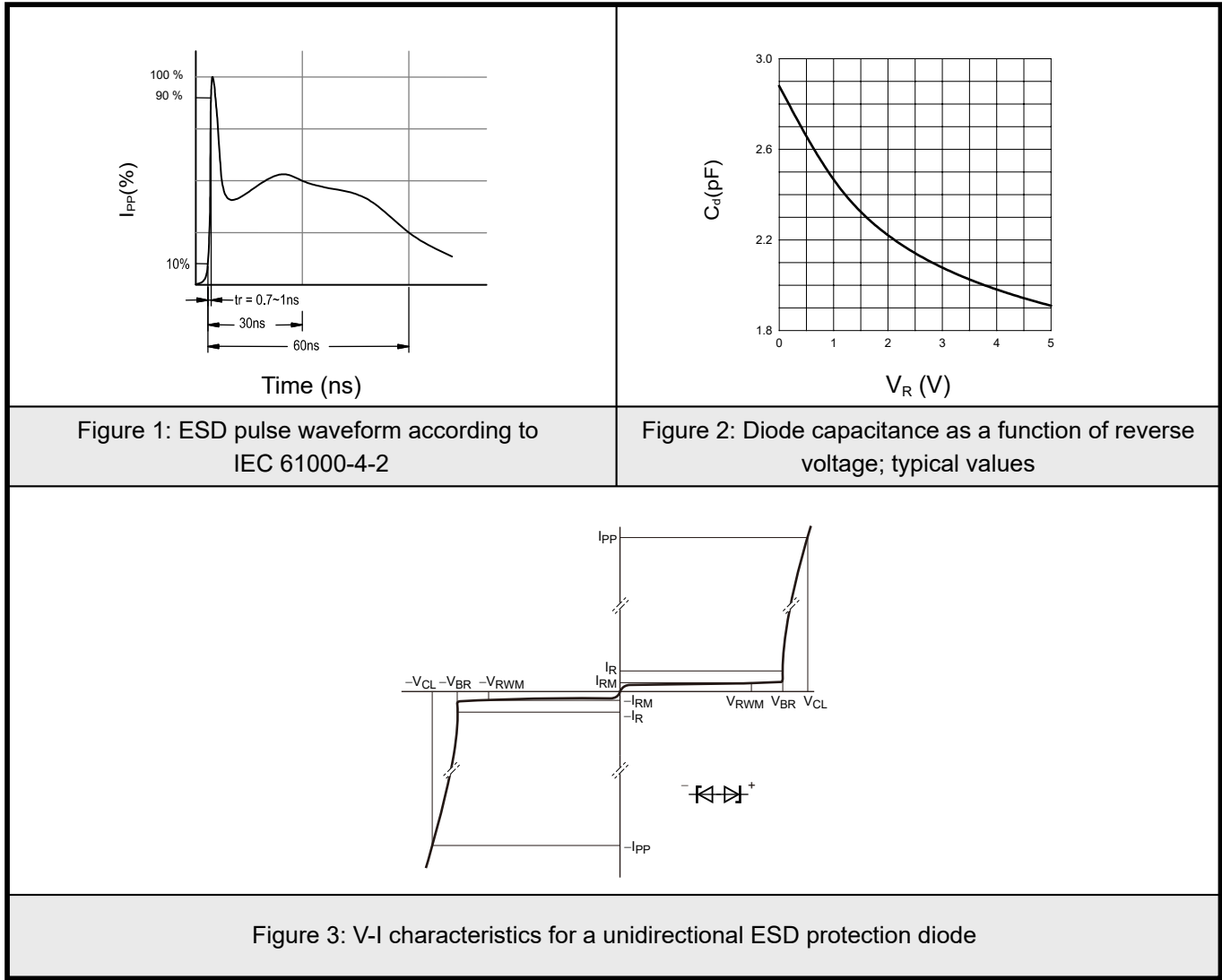


9. Electrical Characteristic ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
reverse standoff voltage	V_{RWM}				5	V
reverse leakage current	I_{RM}	$V_{RWM}=5\text{V}$		5	100	nA
breakdown voltage	V_{BR}	$I_R=5\text{mA}$	5.5	7	9.5	V
diode capacitance	C_d	$f=1\text{MHz}$				
		$V_R=0\text{V}$		2.9	3.5	pF
		$V_R=5\text{V}$		1.9		pF
differential resistance	r_{dif}	$I_R=1\text{mA}$			100	Ω

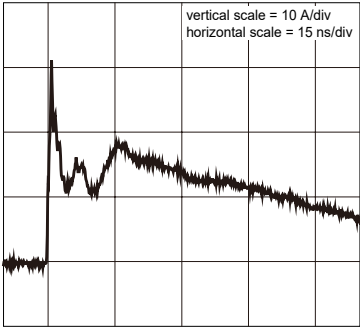
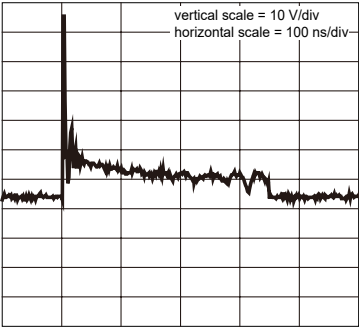
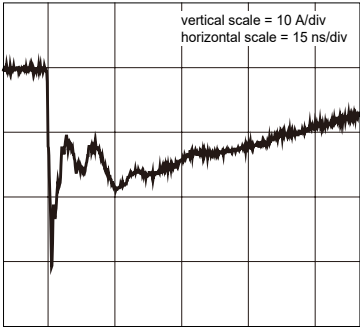
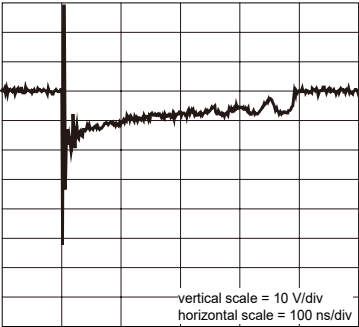


10.1Typical characteristic



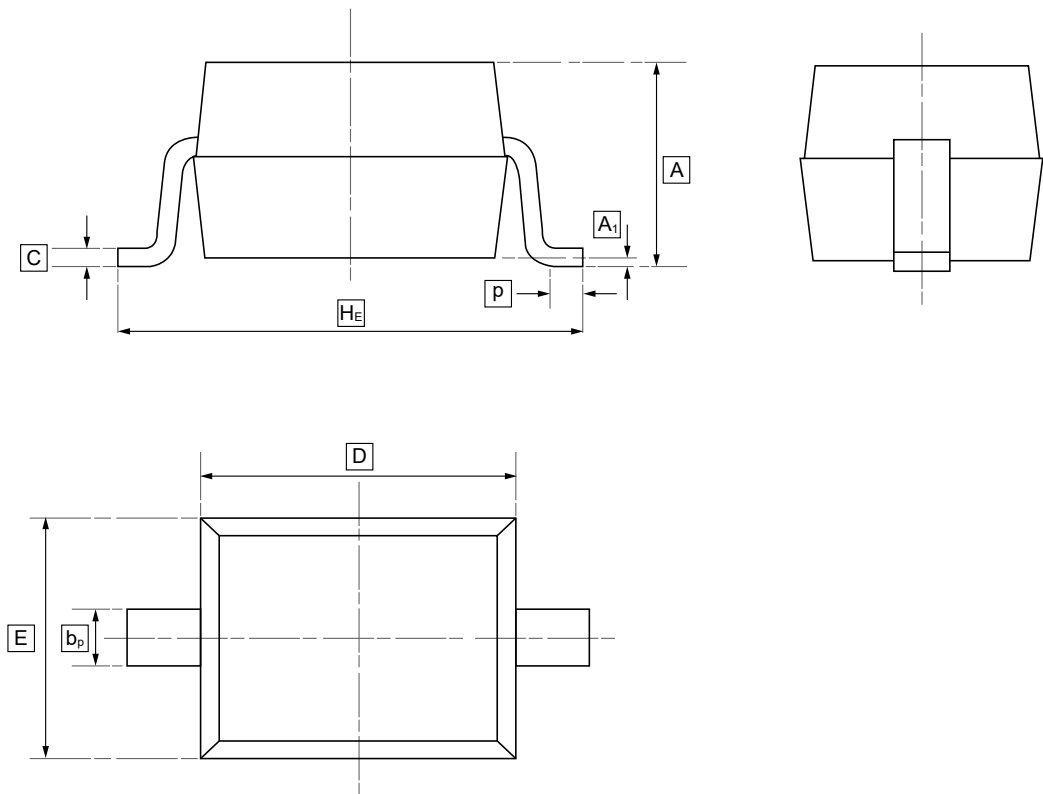


10.2Typical characteristic

GND 	GND 
Figure 4: unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)	Figure 5: clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2
GND 	GND 
Figure 6: unclamped -8 kV ESD pulse waveform (IEC 61000-4-2 network)	Figure 7: clamped -8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2



11.1SOD-323 Package Outline Dimensions

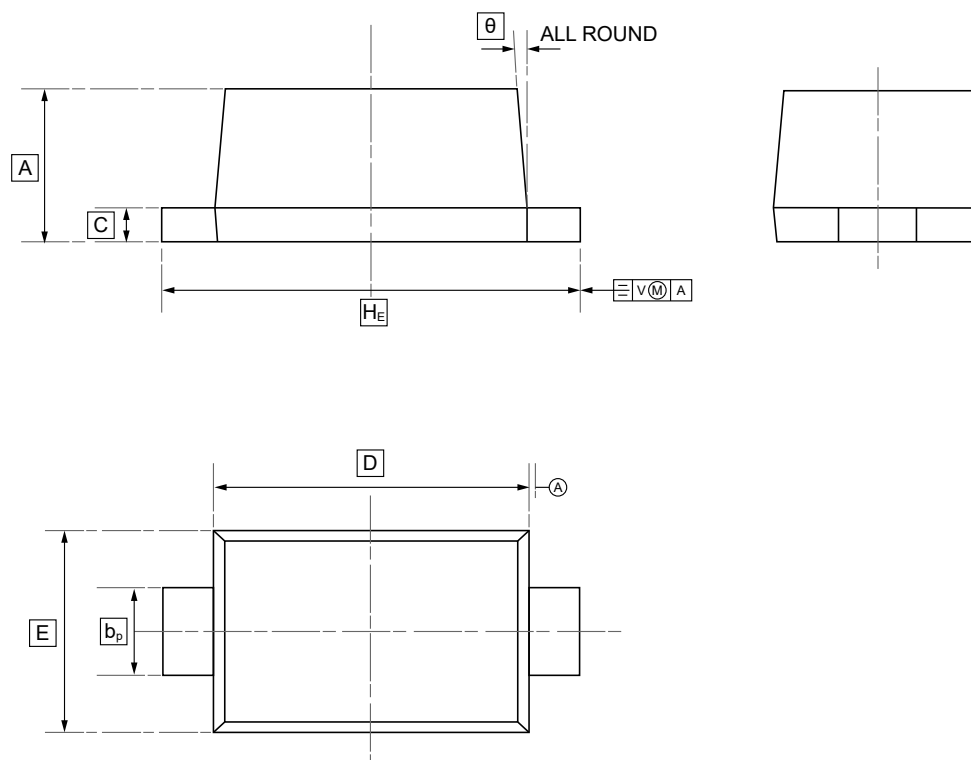


DIMENSIONS (mm are the original dimensions)

Symbol	A	b _p	C	D	E	H _E	A ₁	p
Min	0.90	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

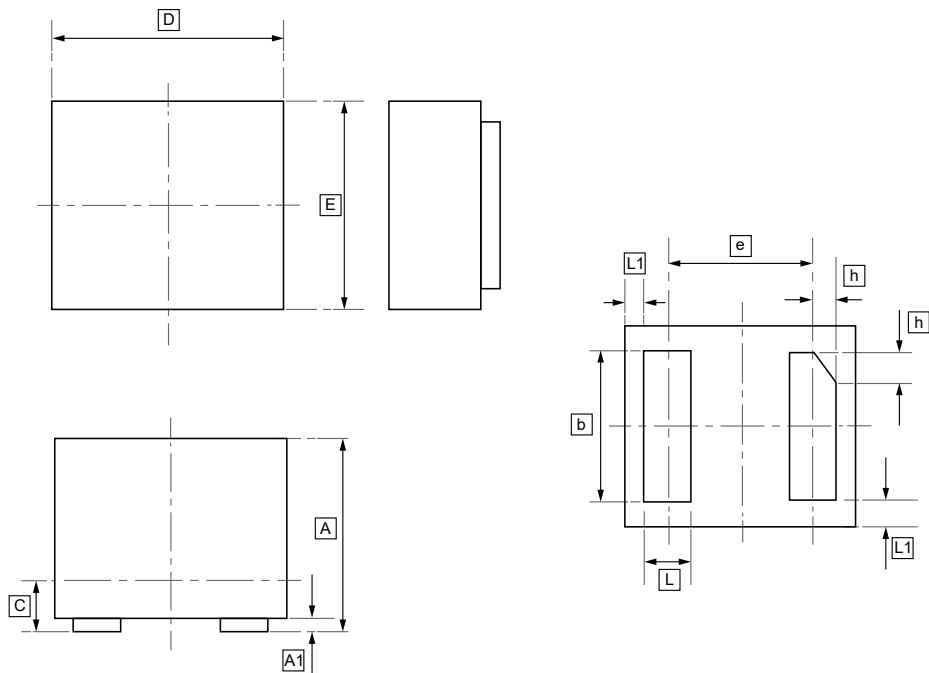


DIMENSIONS (mm are the original dimensions)

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

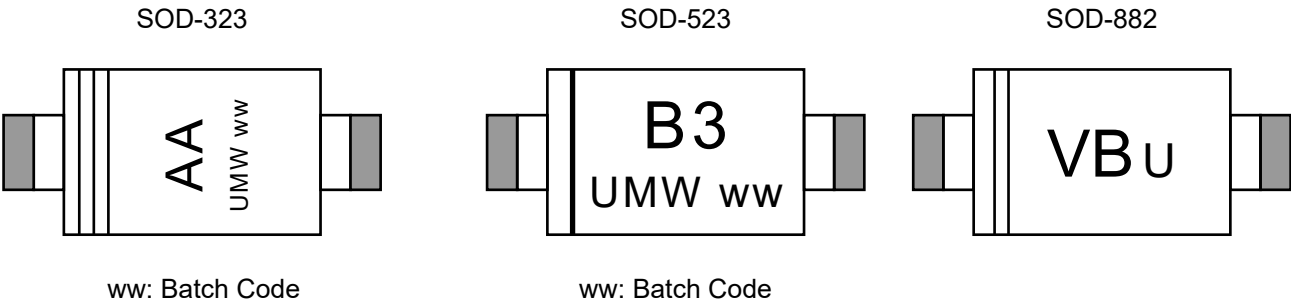


DIMENSIONS (mm are the original dimensions)

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
UMWPESD5V0U1BA	AA	SOD-323	3000	Tape and reel
UMWPESD5V0U1BB	B3	SOD-523	3000	Tape and reel
UMW PESD5V0U1BL	VB	SOD-882	10000	Tape and reel



13.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.