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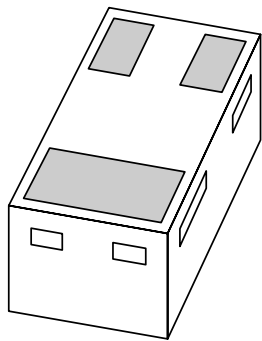
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Kind regards,

Team Nexperia

DATA SHEET



PESDxL2UM series Low capacitance double ESD protection diode

Product specification
Supersedes data of 2003 Aug 05

2005 May 23

Low capacitance double ESD protection diode

PESDxL2UM series

FEATURES

- Uni-directional ESD protection of two lines or bi-directional ESD protection of one line
- Reverse standoff voltage 3.3 and 5 V
- Low diode capacitance
- Ultra low leakage current
- Leadless ultra small SOT883 surface mount package (1 × 0.6 × 0.5 mm)
- Board space 1.17 mm² (approx. 10% of SOT23)
- ESD protection >15 kV
- IEC 61000-4-2; level 4 (ESD); 15 kV (air) or 8 kV (contact).

APPLICATIONS

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

MARKING

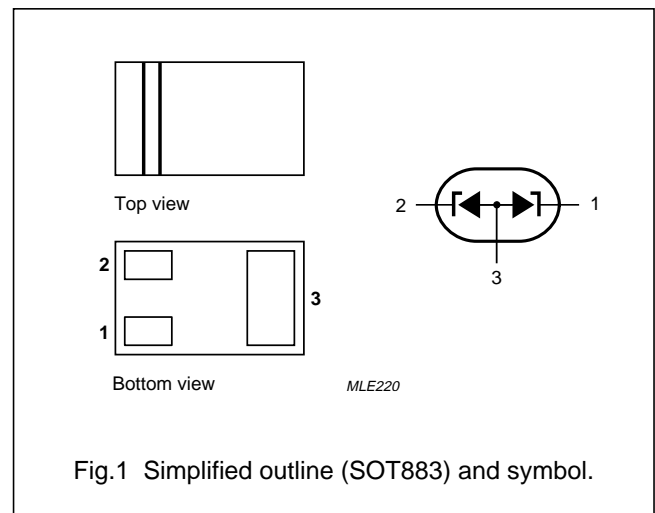
TYPE NUMBER	MARKING CODE
PESD3V3L2UM	F2
PESD5V0L2UM	F1

DESCRIPTION

Low capacitance ESD protection diode in a three pad SOT883 leadless ultra small plastic package designed to protect up to two transmission or data lines from ElectroStatic Discharge (ESD) damage.

PINNING

PIN	DESCRIPTION
1	cathode 1
2	cathode 2
3	common anode



Low capacitance double ESD protection diode

PESDxL2UM series

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
I _{pp}	peak pulse current	8/20 μs pulse; notes 1, 2 and 3	–	3	A
	PESD3V3L2UM			2.5	A
	PESD5V0L2UM				
P _{pp}	peak pulse power	8/20 μs pulse; notes 1, 2 and 3	–	30	W
I _{FSM}	non-repetitive peak forward current	t _p = 1 ms; square pulse	–	3.5	A
I _{ZSM}	non-repetitive peak reverse current	t _p = 1 ms; square pulse	–	0.9	A
	PESD3V3L2UM			0.8	A
	PESD5V0L2UM				
P _{tot}	total power dissipation	T _{amb} = 25 °C; note 4	–	250	mW
P _{ZSM}	non-repetitive peak reverse power dissipation	t _p = 1 ms; square pulse; see Fig.4	–	6	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
ESD	electrostatic discharge	IEC 61000-4-2 (contact discharge)	15	–	kV
		HBM MIL-Std 883	10	–	kV

Notes

1. Non-repetitive current pulse 8/20 μs exponential decay waveform; see Fig.5.
2. Pins 1 and 3 or 2 and 3.
3. Pins 1 and 2.
4. Device mounted on standard printed-circuit board.

ESD standards compliance

IEC 61000-4-2, level 4 (ESD)	>15 kV (air); >8 kV (contact)
HBM MIL-Std 883, class 3	>4 kV

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	all diodes loaded; note 1	500	K/W
		one diode loaded; note 2	290	K/W

Notes

1. Refer to SOT883 standard mounting conditions (footprint), FR4 with 60 μm copper strip line.
2. FR4 single-sided copper 1 cm².

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PESDxL2UM series

ELECTRICAL CHARACTERISTICST_j = 25 °C unless otherwise specified.

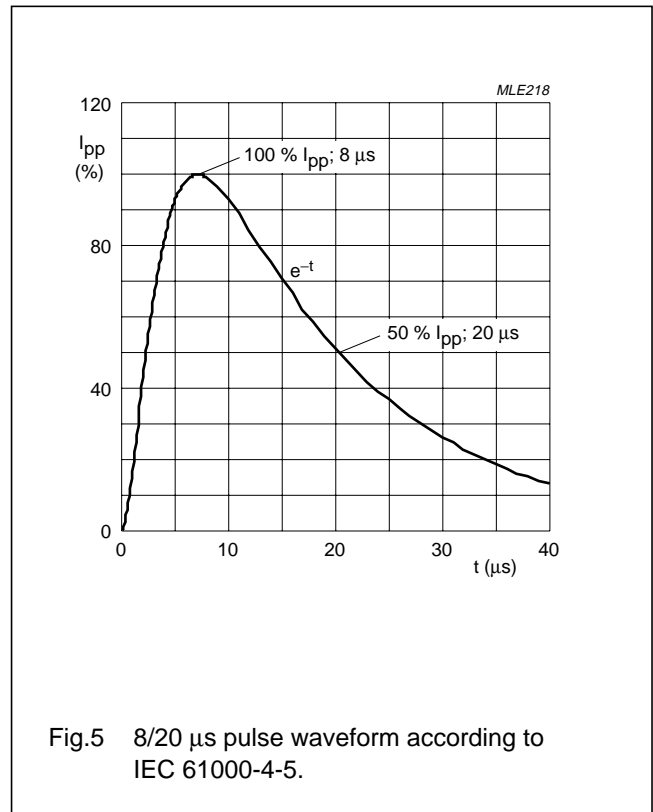
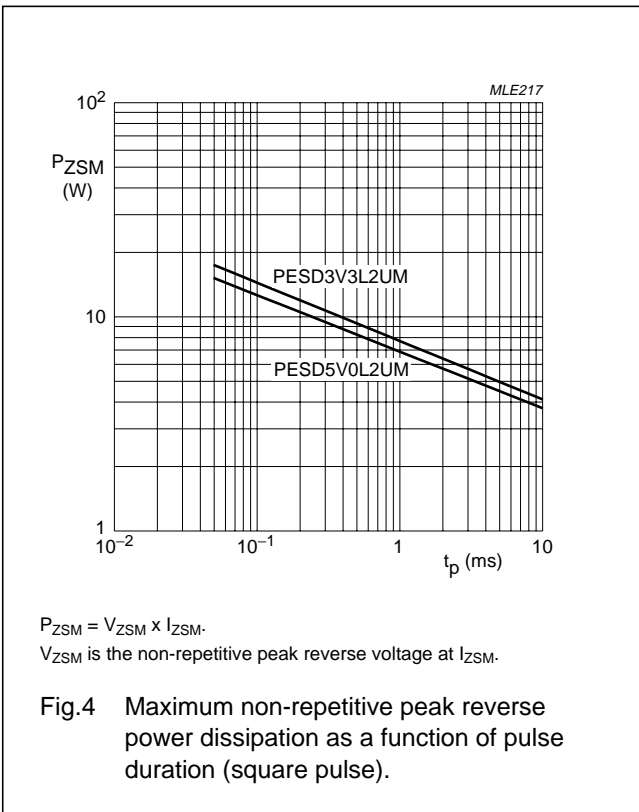
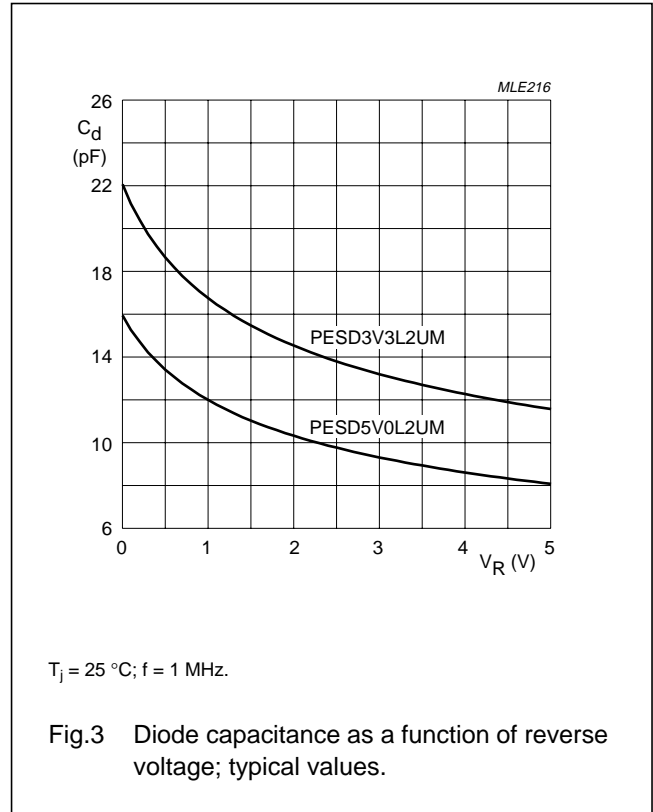
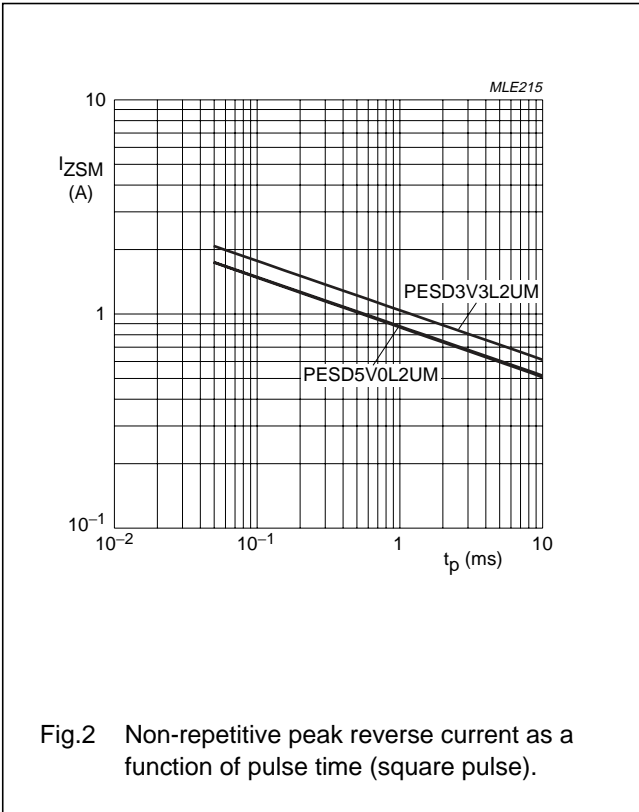
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per diode						
V _F	forward voltage	I _F = 200 mA	–	1	1.2	V
V _{RWM}	reverse stand-off voltage					
	PESD3V3L2UM		–	–	3.3	V
	PESD5V0L2UM		–	–	5	V
I _{RM}	reverse leakage current					
	PESD3V3L2UM	V _R = 3.3 V	–	75	300	nA
	PESD5V0L2UM	V _R = 5 V	–	5	25	nA
V _{(CL)R}	clamping voltage	8/20 μs pulse				
	PESD3V3L2UM	I _{pp} = 1 A; notes 1 and 2	–	–	8	V
		I _{pp} = 3 A; notes 1 and 2	–	–	12	V
		I _{pp} = 1 A; notes 1 and 3	–	–	9	V
		I _{pp} = 3 A; notes 1 and 3	–	–	13	V
	PESD5V0L2UM	I _{pp} = 1 A; notes 1 and 2	–	–	10	V
		I _{pp} = 2.5 A; notes 1 and 2	–	–	13	V
		I _{pp} = 1 A; notes 1 and 3	–	–	11	V
		I _{pp} = 2.5 A; notes 1 and 3	–	–	15	V
V _{BR}	breakdown voltage	I _Z = 1 mA				
	PESD3V3L2UM		5.32	5.6	5.88	V
	PESD5V0L2UM		6.46	6.8	7.14	V
S _Z	temperature coefficient	I _Z = 1 mA				
	PESD3V3L2UM		–	1.3	–	mV/K
	PESD5V0L2UM		–	2.9	–	mV/K
r _{diff}	differential resistance	I _R = 1 mA				
	PESD3V3L2UM		–	–	200	Ω
	PESD5V0L2UM		–	–	100	Ω
C _d	diode capacitance					
	PESD3V3L2UM	f = 1 MHz; V _R = 0	–	22	28	pF
		f = 1 MHz; V _R = 5	–	12	17	pF
	PESD5V0L2UM	f = 1 MHz; V _R = 0	–	16	19	pF
		f = 1 MHz; V _R = 5	–	8	11	pF

Notes

1. Non-repetitive current pulse 8/20 μs exponential decay waveform; see Fig.5.
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3. Pins 1 and 2.

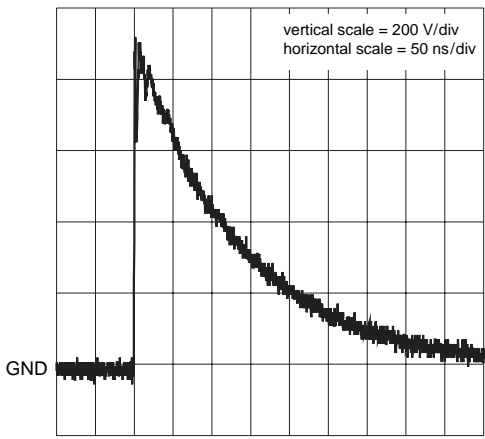
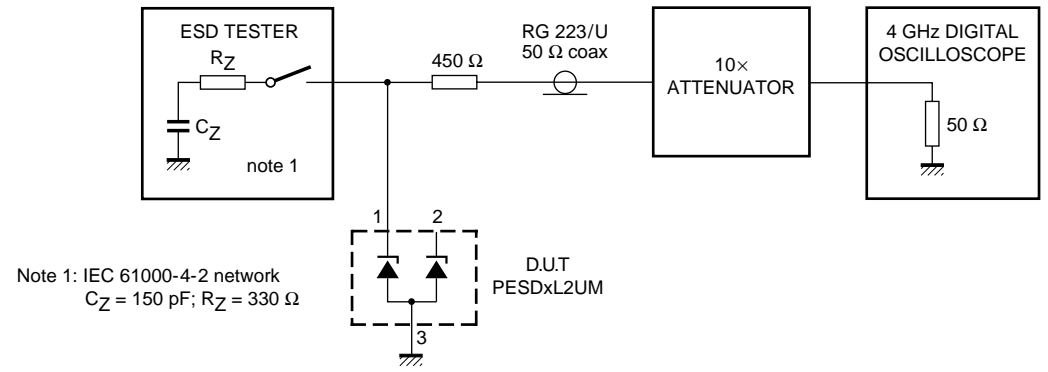
Low capacitance double ESD protection diode

PESDxL2UM series

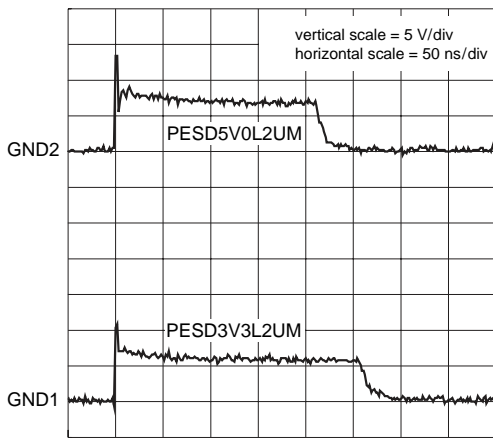


Low capacitance double ESD protection diode

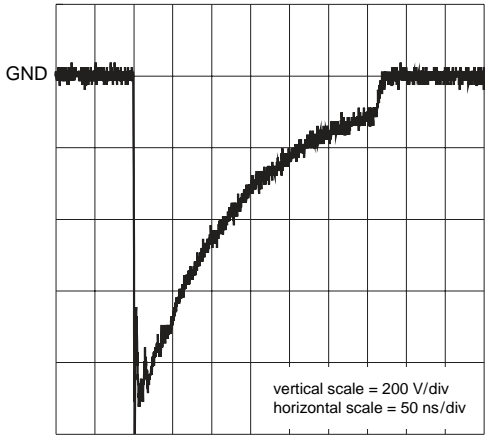
PESDxL2UM series



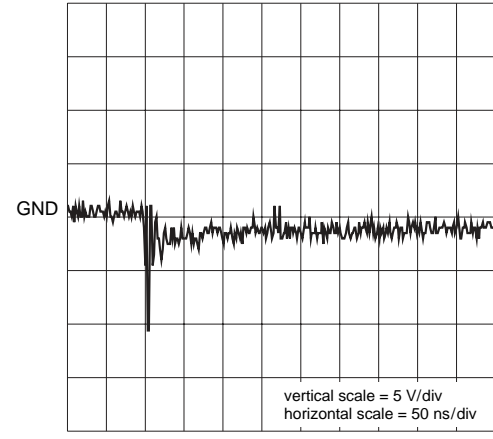
unclamped +1 kV ESD voltage waveform
(IEC 61000-4-2 network)



clamped +1 kV ESD voltage waveform
(IEC 61000-4-2 network)



unclamped -1 kV ESD voltage waveform
(IEC 61000-4-2 network)



clamped -1 kV ESD voltage waveform
(IEC 61000-4-2 network)

MLE219

Fig.6 ESD clamping test set-up and waveforms.

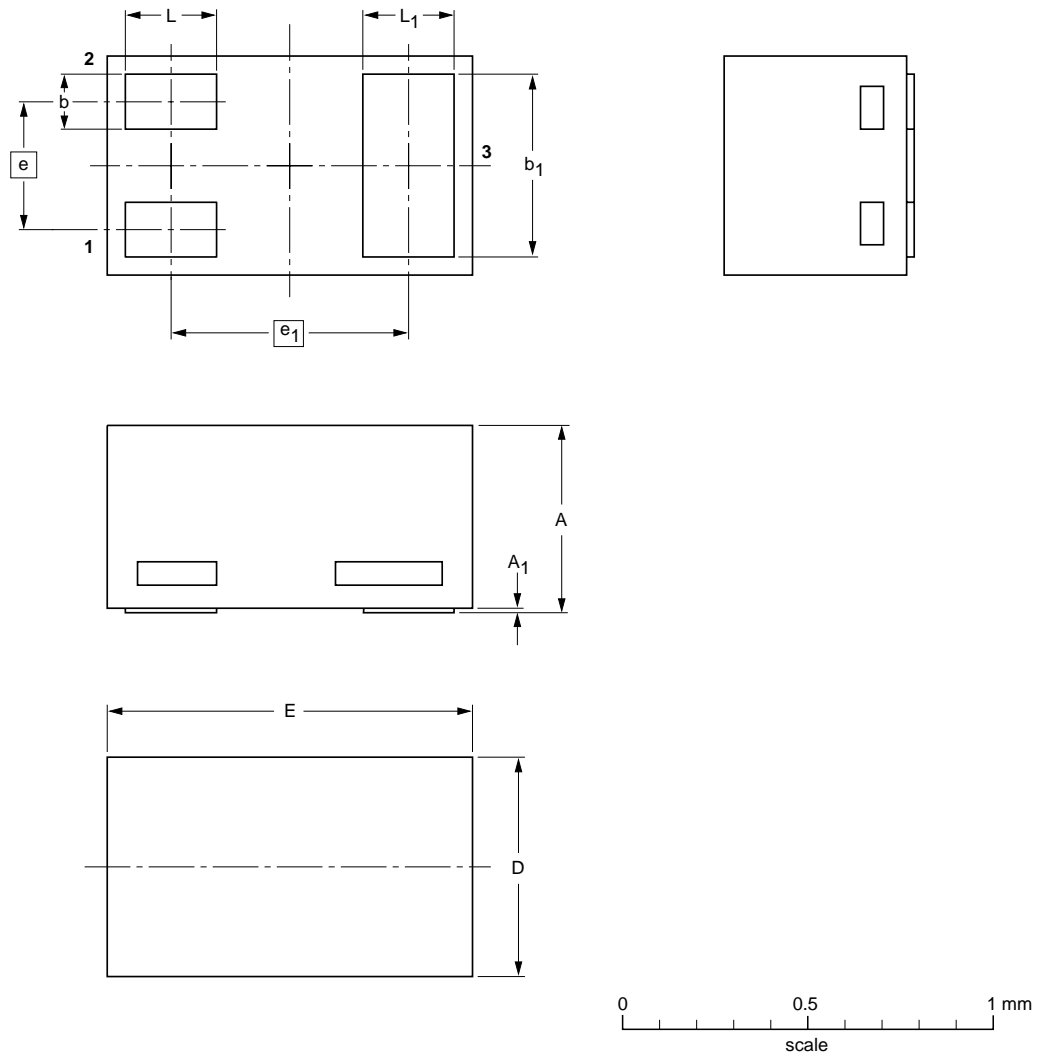
Low capacitance double ESD protection diode

PESDxL2UM series

PACKAGE OUTLINE

Leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm

SOT883



DIMENSIONS (mm are the original dimensions)

UNIT	A ⁽¹⁾	A ₁ max.	b	b ₁	D	E	e	e ₁	L	L ₁
mm	0.50 0.46	0.03	0.20 0.12	0.55 0.47	0.62 0.55	1.02 0.95	0.35	0.65	0.30 0.22	0.30 0.22

Note

1. Including plating thickness

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT883			SC-101		03-02-05 03-04-03

Low capacitance double ESD protection diode

PESDxL2UM series

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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SCA76

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