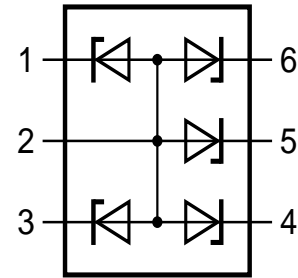


Description

Low capacitance unidirectional fivefold ElectroStatic Discharge (ESD) protection diode arrays in small Surface-Mounted Device (SMD) plastic packages designed to protect up to five unidirectional signal lines from the damage caused by ESD and other transients.



Features

- ESD protection of up to five lines
- Low diode capacitance
- Max. peak pulse power: $P_{PP} = 25\text{ W}$
- Low clamping voltage: $V_{CL} = 12\text{ V}$
- Ultra low leakage current: $I_{RM} = 5\text{ nA}$
- ESD protection up to 20 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); $I_{PP} = 2.5\text{ A}$

Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- Portable electronics
- Subscriber Identity Module (SIM) card protection

Quick reference data

Quick reference data

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V_{RWM}	reverse standoff voltage					
	PESD3V3L5UF		-	-	3.3	V
	PESD3V3L5UV					
	PESD3V3L5UY					
	PESD5V0L5UF		-	-	5.0	V
	PESD5V0L5UV					
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0\text{ V}$				
	PESD3V3L5UF		-	22	28	pF
	PESD3V3L5UV					
	PESD3V3L5UY					
	PESD5V0L5UF		-	16	19	pF
	PESD5V0L5UV					
	PESD5V0L5UY					

Limiting values

Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
P _{PP}	peak pulse power	t _p = 8/20 μs	[1][2] -	25	W
I _{PP}	peak pulse current	t _p = 8/20 μs	[1][2] -	2.5	A
Per device					
T _j	junction temperature		-	150	°C
T _{amb}	ambient temperature		-65	+150	°C
T _{stg}	storage temperature		-65	+150	°C

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

[2] Measured from pin 1, 3, 4, 5 or 6 to pin 2.

ESD maximum ratings

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V _{ESD}	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	[1][2] -	20	kV
		MIL-STD-883 (human body model)	-	10	kV

[1] Device stressed with ten non-repetitive ESD pulses.

[2] Measured from pin 1, 3, 4, 5 or 6 to pin 2.

ESD standards compliance

Standard	Conditions
Per diode	
IEC 61000-4-2; level 4 (ESD)	> 15 kV (air); > 8 kV (contact)
MIL-STD-883; class 3 (human body model)	> 4 kV

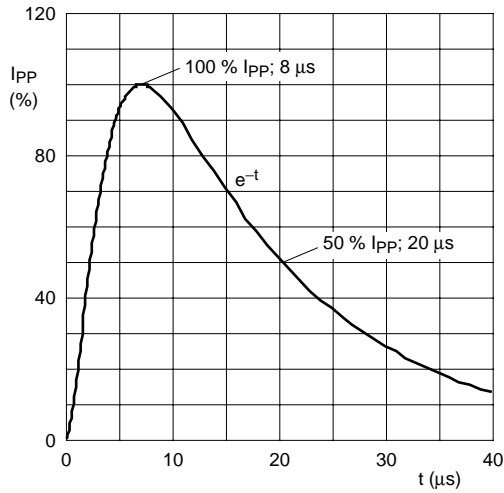


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

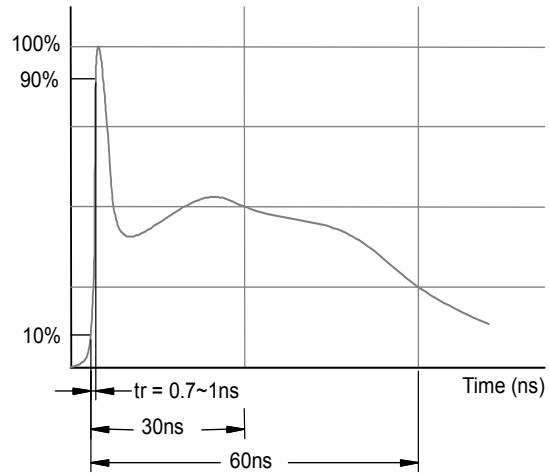


Fig 2. ESD pulse waveform according to IEC 61000-4-2

Characteristics

Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V _{RWM}	reverse standoff voltage					
	PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY		-	-	3.3	V
	PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY		-	-	5.0	V
I _{RM}	reverse leakage current					
	PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY	V _{RWM} = 3.3 V	-	75	300	nA
	PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY	V _{RWM} = 5.0 V	-	5	25	nA
V _{BR}	breakdown voltage	I _R = 1 mA				
	PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY		5.3	5.6	5.9	V
	PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY		6.4	6.8	7.2	V

Characteristics ...continued

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit						
C _d	diode capacitance	f = 1 MHz; V _R = 0 V	-	22	28	pF						
							PESD3V3L5UF					
							PESD3V3L5UV PESD3V3L5UY					
			-	16	19	pF						
							PESD5V0L5UF					
							PESD5V0L5UV PESD5V0L5UY					
V _{CL}	clamping voltage					[1][2]						
							I _{PP} = 1 A	-	-	10	V	
												PESD3V3L5UF
												PESD3V3L5UV PESD3V3L5UY
							I _{PP} = 2.5 A	-	-	12	V	
												PESD3V3L5UF
												PESD3V3L5UV PESD3V3L5UY
							I _{PP} = 1 A	-	-	10	V	
												PESD5V0L5UF
												PESD5V0L5UV PESD5V0L5UY
							I _{PP} = 2.5 A	-	-	12	V	
												PESD5V0L5UF
PESD5V0L5UV PESD5V0L5UY												
r _{dif}	differential resistance	I _R = 1 mA	-	-	200	Ω						
							PESD3V3L5UF					
							PESD3V3L5UV PESD3V3L5UY					
			-	-	100	Ω						
							PESD5V0L5UF					
							PESD5V0L5UV PESD5V0L5UY					

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

[2] Measured from pin 1, 3, 4, 5 or 6 to pin 2.

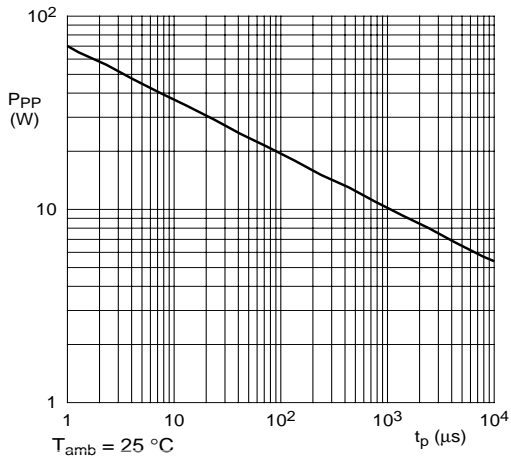


Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

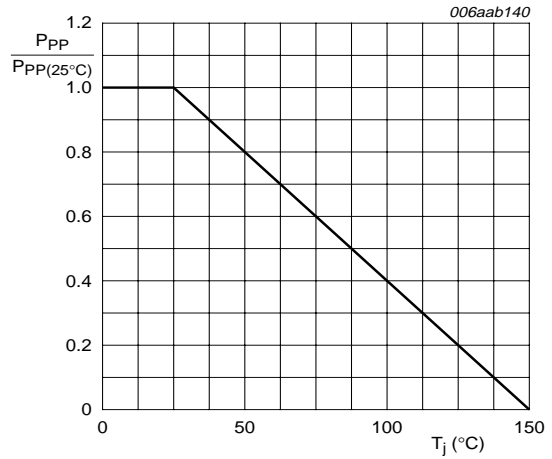
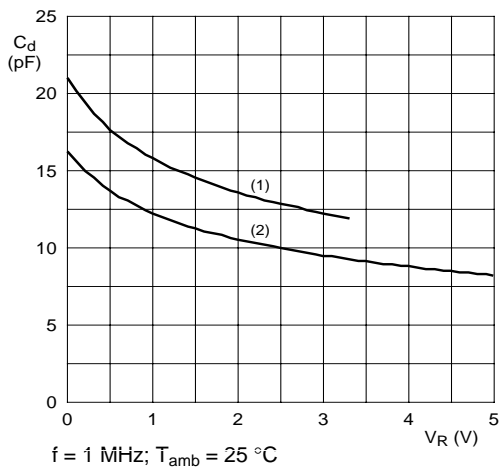


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values



- (1) PESD3V3L5UF; PESD3V3L5UV; PESD3V3L5UY
- (2) PESD5V0L5UF; PESD5V0L5UV; PESD5V0L5UY

Fig 5. Diode capacitance as a function of reverse voltage; typical values

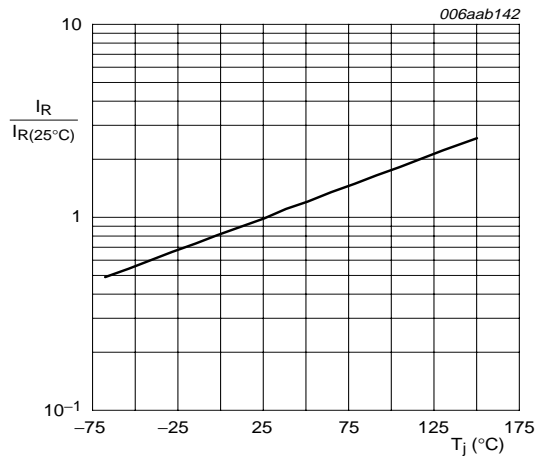


Fig 6. Relative variation of reverse current as a function of junction temperature; typical values

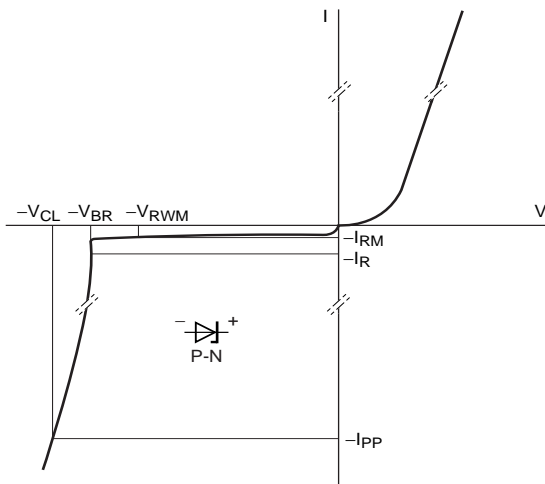


Fig 7. V-I characteristics for a unidirectional ESD protection diode

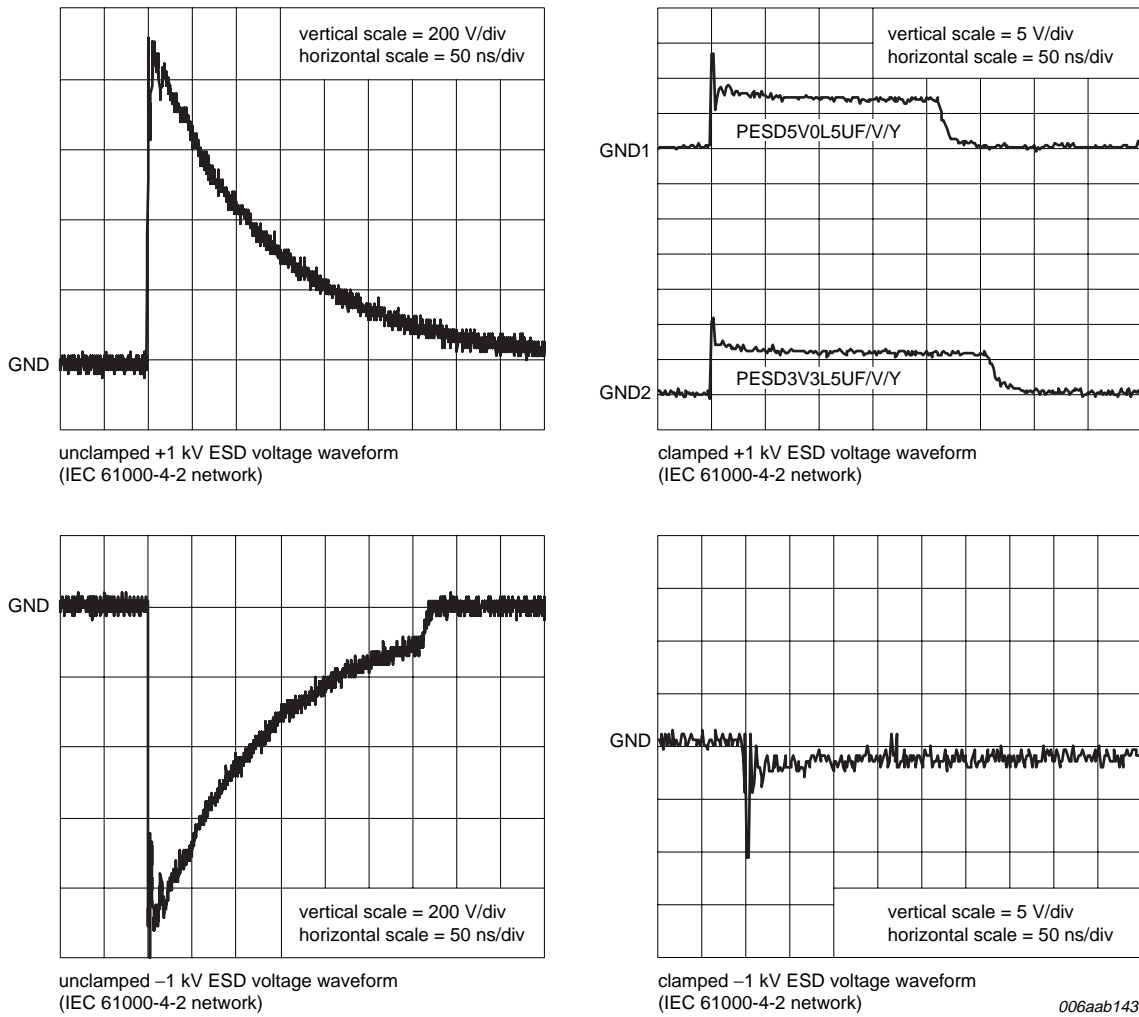
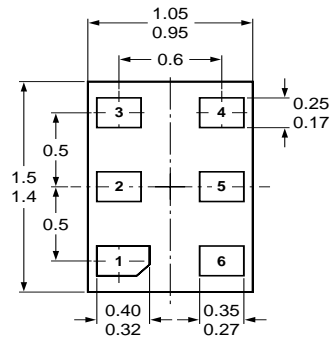
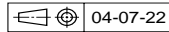


Fig 8. ESD clamping test setup and waveforms

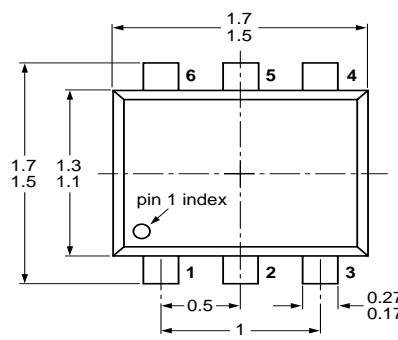
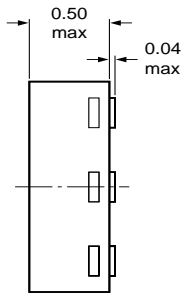
SOT-886/SOT-666/SOT-363 PACKAGE OUTLINE DIMENSIONS



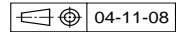
Dimensions in mm



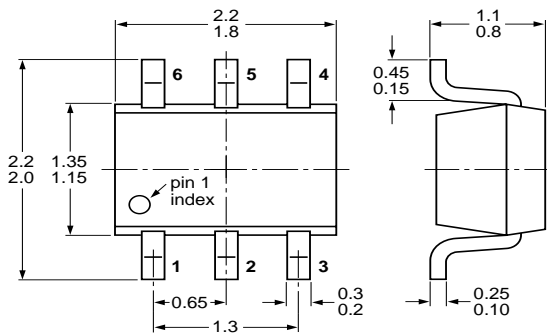
PESDxL5UF (SOT886)



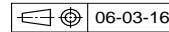
Dimensions in mm



PESDxL5UV (SOT666)

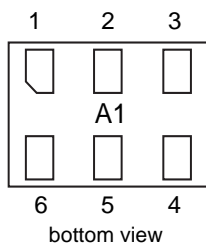


Dimensions in mm

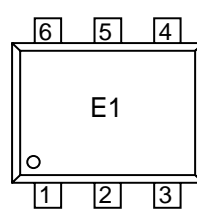


PESDxL5UY (SOT363/SC-88)

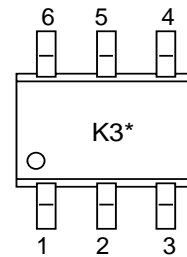
Marking



bottom view
SOT-886



SOT-666



SOT-363

1.*代表周期

Ordering information

Order code	Marking code	Package	Baseqty	Deliverymode
UMW PESD3V3L5UF	A1	SOT-886	5000	Tape and reel
UMW PESD5V0L5UF	A2	SOT-886	5000	Tape and reel
UMW PESD3V3L5UV	E1	SOT-666	4000	Tape and reel
UMW PESD5V0L5UV	E2	SOT-666	4000	Tape and reel
UMW PESD3V3L5UY	K3*	SOT-363	3000	Tape and reel
UMW PESD5V0L5UY	K4*	SOT-363	3000	Tape and reel

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[3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [JANTX1N6126A](#) [JANTX1N6462](#) [JANTX1N6465](#) [USB50805e3/TR7](#)
[D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [DRTR5V0U4SL-7](#) [SCM1293A-04SO](#) [ESD200-B1-CSP0201 E6327](#) [SM12-7](#) [SM1605E3/TR13](#)
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