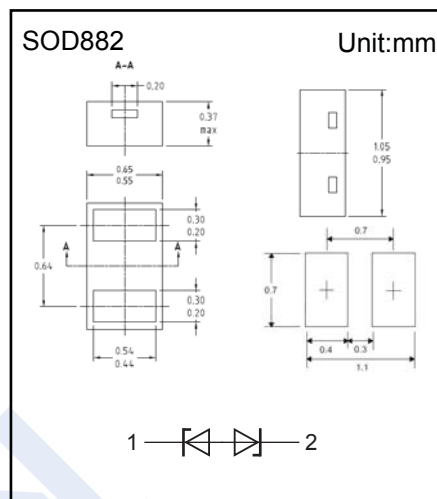


ESD Protection Diodes

PESD5V0V1BL

■ Features

- Bidirectional ESD protection of one line
- Very low diode capacitance: $C_d = 11$ pF
- Max. peak pulse power: $PPP = 45$ W
- Low clamping voltage: $V_{CL} = 12.5$ V
- Ultra low leakage current: $I_{RM} < 1$ nA
- ESD protection up to 30 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); $I_{PP} = 4.8$ A

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Parameter		Symbol	Value	Unit
Peak Pulse Power	$t_p = 8/20 \mu\text{s}$	PPP	45	W
Peak Pulse Current	$t_p = 8/20 \mu\text{s}$	I _{PP}	4.8	A
Electrostatic Discharge Voltage	IEC 61000-4-2 Contact	V _{ESD}	30	KV
	Machine Model		2	
	MIL-STD-883 HBM		16	
Junction and Storage Temperature Range		T _j , T _{stg}	-55 to +150	°C

■ Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{RWM}				5	V
Breakdown voltage	V _{BR}	I _R = 5mA	5.8	6.8	7.8	
Reverse leakage current	I _{RM}	V _{RWM} = 5 V			10	nA
Diode capacitance	C _d	V _R = 0 V, f = 1 MHz		11	13	pF
Clamping voltage ^{*1}	V _{CL}	I _{PP} = 4.8 A			12.5	V
Dynamic resistance ^{*2}	r _{dyn}	I _R = 10 A		0.2		Ω
Differential resistance	r _{dif}	I _R = 5 mA			35	

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

*2 Non-repetitive current pulse, Transmission Line Pulse (TLP) $t_p = 100$ ns; square pulse; ANSI/ESD STM5.1-2008.

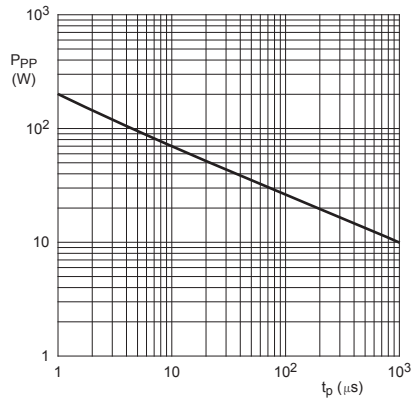
■ Marking

Marking	X1
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ESD Protection Diodes

PESD5V0V1BL

■ Typical Characteristics



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

Fig 1. Peak pulse power as a function of exponential pulse duration; typical values

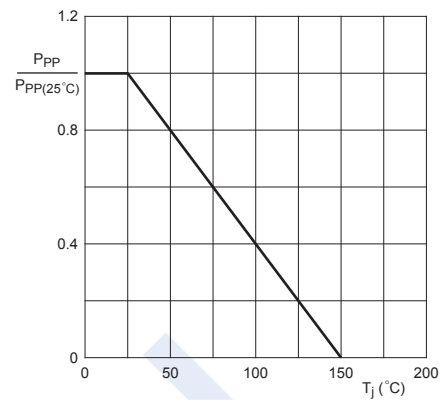
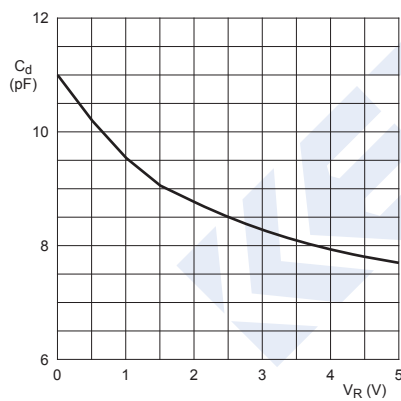


Fig 2. Relative variation of peak pulse power as a function of junction temperature; typical



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

Fig 3. Diode capacitance as a function of reverse voltage; typical values

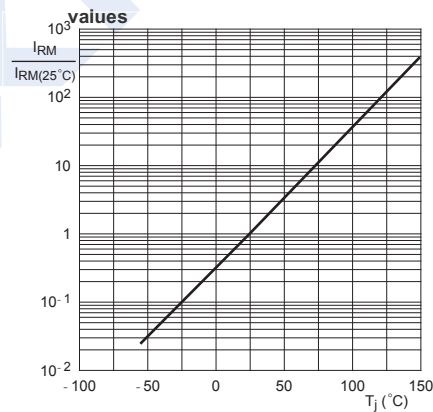


Fig 4. Relative variation of reverse leakage current as a function of junction temperature; typical values

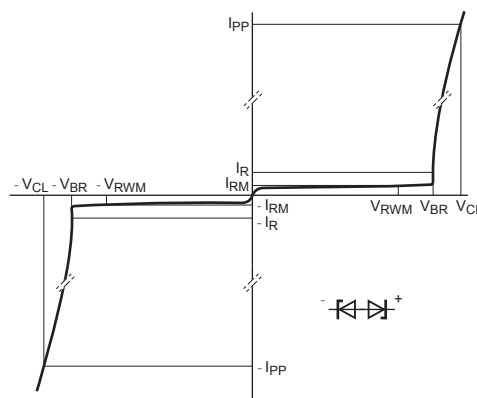


Fig 5. V-I characteristics for a bidirectional ESD protection diode