



ROITHNER LASERTECHNIK GmbH

 WIEDNER HAUPTSTRASSE 76
 TEL. +43 1 586 52 43 -0, FAX. -44, OFFICE@ROITHNER-LASER.COM

1040 VIENNA

AUSTRIA



Photodiode

EPD-440-0/2.5

Preliminary

11.04.2007

rev. 03/07

Wavelength	Type	Technology	Case
UV	Schottky Contact	GaP	TO-39 + UV-glass

	<p>Description</p> <p>Wide bandwidth and high spectral sensitivity in the UV and visible range (190 nm - 570 nm), mounted in hermetically sealed TO-39 package with UV-glass window</p> <p>Applications</p> <p>Medical engineering (dermatology), output check of UV - lamps and oil or gas burner flame, measurement and control of ecological parameters, radiation control for a solarium, UV water purification facilities</p>
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Miscellaneous Parameters

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

Parameter	Test conditions	Symbol	Value	Unit
Active area		A	4.8	mm ²
Temperature coefficient of I_D		$T_C(I_D)$	7.0	%/K
Operating temperature range		T_{amb}	-40 to +125	°C
Storage temperature range		T_{stg}	-40 to +125	°C
Acceptance angle at 50% S_{λ}		φ	135	deg.

Optical and Electrical Characteristics

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

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Breakdown voltage ¹⁾	$I_R = 10 \mu\text{A}$	V_R	5			V
Dark current	$V_R = 5 \text{ V}$	I_D		15	40	pA
Peak sensitivity wavelength	$V_R = 0 \text{ V}$	λ_p		440		nm
Responsivity at λ_p	$V_R = 0 \text{ V}$	S_{λ}		0.17		A/W
Sensitivity range at 1%	$V_R = 0 \text{ V}$	$\lambda_{min}, \lambda_{max}$	190		570	nm
Spectral bandwidth at 50%	$V_R = 0 \text{ V}$	$\Delta\lambda_{0.5}$		180		nm
Shunt resistance	$V_R = 10 \text{ mV}$	R_{SH}	80	100		G Ω
Noise equivalent power	$\lambda = 440 \text{ nm}$	NEP		1.3×10^{-14}		W/ $\sqrt{\text{Hz}}$
Specific detectivity	$\lambda = 440 \text{ nm}$	D^*		1.7×10^{13}		cm $\cdot\sqrt{\text{Hz}} \cdot \text{W}^{-1}$
Junction capacitance	$V_R = 0 \text{ V}$	C_J		1000		pF
Switching time ($R_L = 50 \Omega$)	$V_R = 5 \text{ V}$	t_r, t_f		1/60		ns
Photo current at $\lambda = 440 \text{ nm}$ ^{1,2)}	$V_R = 0 \text{ V}$ $E_e = 1 \text{ mW/cm}^2$	I_{Ph}		6.5		μA

¹⁾for information only

²⁾measured with common halogen lamp source and appropriate filter



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Typical responsivity

EPD-440-0

