



# ROITHNER LASERTECHNIK GmbH

WIEDNER HAUPTSTRASSE 76 IO40 VIENNA AUSTRIA  
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## Photodiode

## EPD-440-0/1.4

Preliminary

6/21/2007

rev. 03/07

Wavelength	Type	Technology	Case
UV	Schottky Contact	GaP	TO-46 + UV-glass

<p>Dimensions: 2.54, 13.4<sup>+1.0</sup>/<sub>-1.0</sub>, 0.23<sup>+0.05</sup>, 5.1<sup>+0.1</sup>/<sub>-0.1</sub>, 0.2<sup>+0.02</sup>/<sub>-0.02</sub>, 0.475<sup>+0.01</sup>/<sub>-0.01</sub>, 0.533<sup>+0.005</sup>/<sub>-0.005</sub>, 0.531, 4.22, TO-46, Chip Location</p>	<p><b>Description</b>                  Wide bandwidth and high spectral sensitivity in the UV and visible range (190 nm - 570 nm), mounted in hermetically sealed TO-46 package with UV-glass window</p> <p><b>Applications</b>                  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<sub>amb</sub> = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Active area		A	1.2	mm <sup>2</sup>
Temperature coefficient of I <sub>D</sub>		T <sub>C</sub> (I <sub>D</sub> )	7.0	%/K
Operating temperature range		T <sub>amb</sub>	-40 to +125	°C
Storage temperature range		T <sub>stg</sub>	-40 to +125	°C
Acceptance angle at 50% S <sub>λ</sub>		φ	50	deg.

### Optical and Electrical Characteristics

T<sub>amb</sub> = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Breakdown voltage <sup>1)</sup>	I <sub>R</sub> = 10 μA	V <sub>R</sub>	5			V
Dark current	V <sub>R</sub> = 5 V	I <sub>D</sub>		10	30	pA
Peak sensitivity wavelength	V <sub>R</sub> = 0 V	λ <sub>p</sub>		440		nm
Responsivity at λ <sub>p</sub>	V <sub>R</sub> = 0 V	S <sub>λ</sub>		0.17		A/W
Sensitivity range at 1%	V <sub>R</sub> = 0 V	λ <sub>min</sub> , λ <sub>max</sub>	190		570	nm
Spectral bandwidth at 50%	V <sub>R</sub> = 0 V	Δλ <sub>0.5</sub>		180		nm
Shunt resistance	V <sub>R</sub> = 10 mV	R <sub>SH</sub>	150	200		GΩ
Noise equivalent power	λ = 440 nm	NEP		1.1x10 <sup>-14</sup>		W/√Hz
Specific detectivity	λ = 440 nm	D*		1.0x10 <sup>12</sup>		cm·√Hz·W <sup>-1</sup>
Junction capacitance	V <sub>R</sub> = 0 V	C <sub>J</sub>		300		pF
Switching time (R <sub>L</sub> = 50 Ω)	V <sub>R</sub> = 5 V	t <sub>r</sub> , t <sub>f</sub>		1/20		ns
Photo current at λ = 440 nm <sup>1,2)</sup>	V <sub>R</sub> = 0 V E <sub>e</sub> = 1 mW/cm <sup>2</sup>	I <sub>ph</sub>		1.55		μA

<sup>1)</sup>for information only

<sup>2)</sup>measured with common halogen lamp source and appropriate filter



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Typical responsivity

EPD-440-0

