# ROITHNER LASERTECHNIK GmbH

## Photodiode                                          EPD-525-5-0.5

20.11.2007          rev. 03

| Wavelength | Type | Technology | Case |
|---|---|---|---|
| Blue-Green | water clear | GaP | 5 mm plastic lens |



### Description

Selective photodiode mounted in standard 5 mm package without standoff. Narrow bandwidth and high spectral sensitivity in the range of max. eye responsivity (480…560 nm).

Note: Special packages with standoff available on request

### Applications

light barriers, automation, optical analytics

### Miscellaneous Parameters

$T_{amb}$ = 25°C, unless otherwise specified

| Parameter | Test conditions | Symbol | Value | Unit |
|---|---|---|---|---|
| Active area | | A | 0.17 | mm² |
| Temperature coefficient of $I_D$ | | $T_C(I_D)$ | 5 | %/K |
| Operating temperature range | | $T_{amb}$ | -20 to +85 | °C |
| Storage temperature range | | $T_{stg}$ | -30 to +100 | °C |
| Soldering Temperature | t ≤ 5 s, 3 mm from case | $T_{sld}$ | 260 | °C |
| Acceptance angle at 50% $S_\lambda$ | | $\varphi$ | 20 | deg. |

### Optical and Electrical Characteristics

$T_{amb}$ = 25°C, unless otherwise specified

| Parameter | Test conditions | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Breakdown voltage[1] | $I_R$ = 10 µA | $V_R$ | 5 | | | V |
| Dark current | $V_R$ = 5 V | $I_D$ | | 5 | 30 | pA |
| Peak sensitivity wavelength | $V_R$ = 0 V | $\lambda_p$ | | 525 | | nm |
| Responsivity at $\lambda_P$ | $V_R$ = 0 V | $S_\lambda$ | | 0.3 | | A/W |
| Sensitivity range at 1% [1] | $V_R$ = 0 V | $\lambda_{min}, \lambda_{max}$ | 410 | | 580 | nm |
| Spectral bandwidth at 50% | $V_R$ = 0 V | $\Delta\lambda_{0.5}$ | | 70 | | nm |
| Shunt resistance | $V_R$ = 10 mV | $R_{SH}$ | | 310 | | GΩ |
| Noise equivalent power | $\lambda$ = 525 nm | NEP | | $4.3 \times 10^{-15}$ | | $W/\sqrt{Hz}$ |
| Specific detectivity | $\lambda$ = 525 nm | D* | | $9.6 \times 10^{12}$ | | $cm \cdot \sqrt{Hz} \cdot W^{-1}$ |
| Junction capacitance | $V_R$ = 0 V | $C_J$ | | 25 | | pF |
| Switching time ($R_L$ = 50 Ω) | $V_R$ = 1 V | $t_r, t_f$ | | 30 | | ns |
| Photocurrent at illuminant A[1,2] | $V_R$ = 0 V  $E_v$ = 1000 lx | $I_{Ph}$ | | 105 | | nA |

[1] for information only
[2] Standard light source with a color temperature of 2856 K
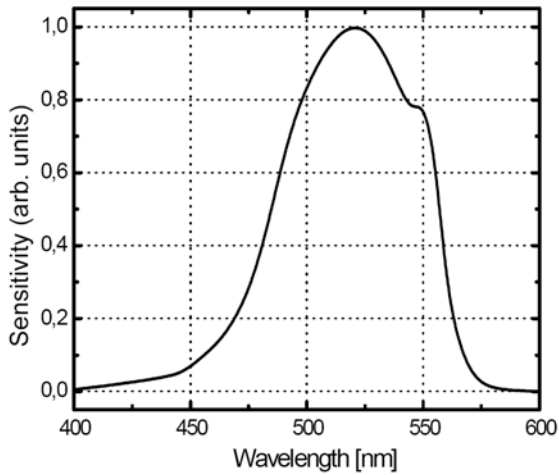
# Photodiode                                          EPD-525-5-0.5
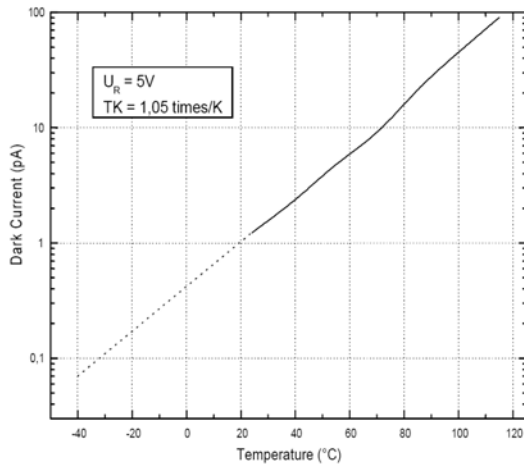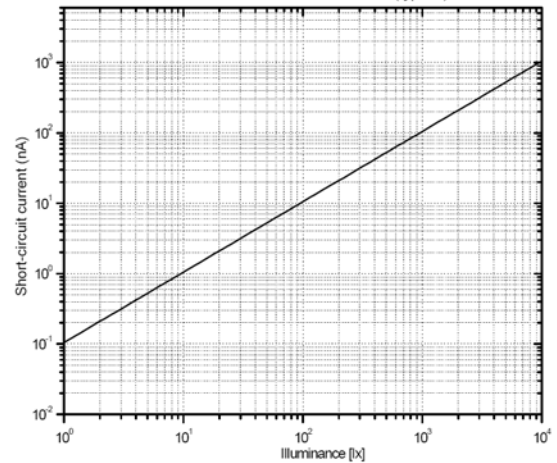
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Responsivity spectrum



Relative Photocurrent vs. Temperature

$U_R = 5V$
TK = 0,25%/K
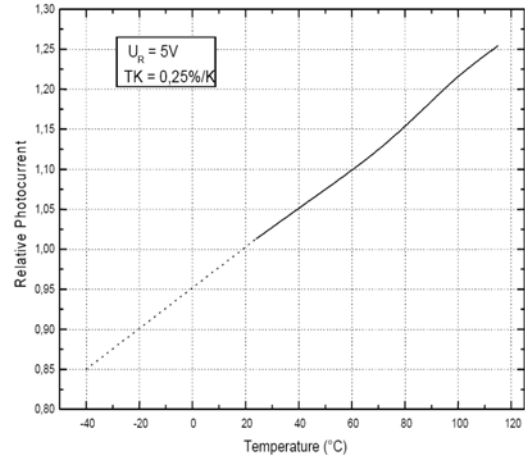


Dark Current vs. Temperature

$U_R = 5V$
TK = 1,05 times/K



Short-circuit current vs. illuminance (typical) [2]

We reserve the right to make changes to improve technical design and may do so without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.