

TW30SX

Broad Band TiO₂ based UV photodiode A = 4,18mm²



General Features



Properties of the TW30SX UV photodiode

- Broad Band UVA+UVB+UVC photodiode
- Active Area A = 4,18 mm²
- TO18 hermetically sealed metal housing
- 10mW/cm² peak radiation results a current of approx. 8 µA

About the material Titanium Dioxide (TiO₂)

The key benefit of TiO₂ is the opportunity of almost unlimited visible blind active area leading to high photocurrents even if the radiation is very low. A TiO₂ device gives a 50 times higher photocurrent compared to a similar priced SiC photodiode. These features make the TiO₂ photodiodes particularly interesting to measure scattered weak radiation.

Specifications

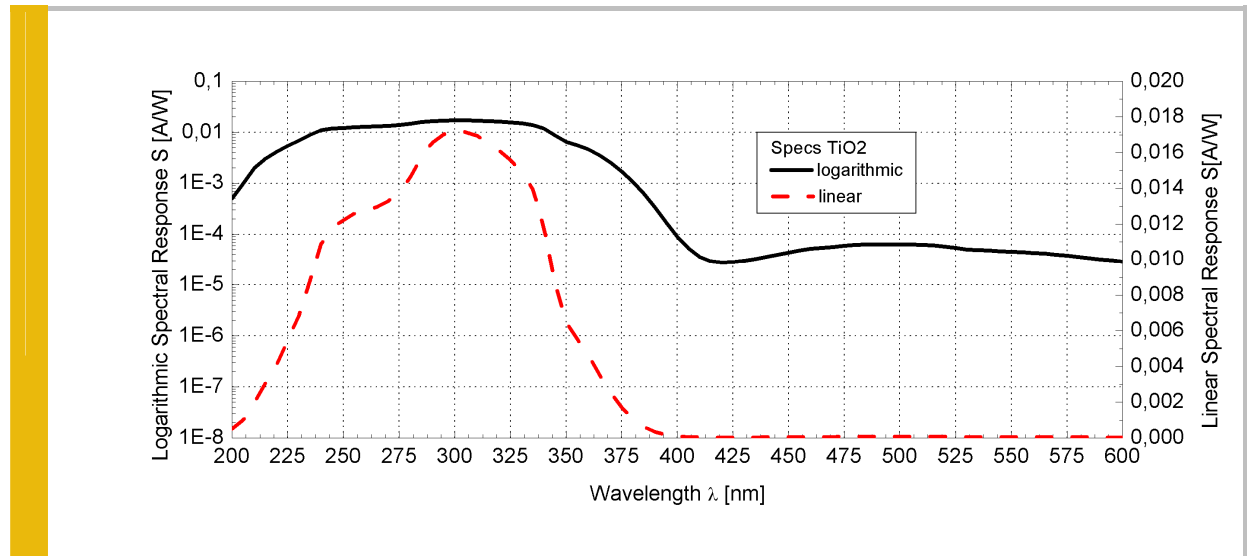
Parameter	Symbol	Value	Unit
Maximum Ratings			
Operating Temperature Range	T_{opt}	-25 ... +70	°C
Storage Temperature Range	T_{stor}	0 ... +100	°C
Soldering Temperature (3s)	T_{sold}	260	°C
Reverse voltage	V_{Rmax}	3	V
General Characteristics (T=25°C)			
Active Area	A	4,18	mm ²
Dark current (1V reverse bias)	I_d	30	pA
Capacitance	C	10	nF
Short circuit (10mW/cm ² at peak)	I_0	8	µA
Temperature coefficient	Tc	<-0,1	%/K
Spectral Characteristics (T=25°C)			
Max. spectral sensitivity	S_{max}	0,021	AW ¹
Wavelength of max. spectral sens.	λ_{max}	300	nm
Sensitivity range (S=0,1*S _{max})	-	215 ... 385	nm
Visible blindness (S _{max} / S _{>400nm})	VB	10 ²	-

TW30SX

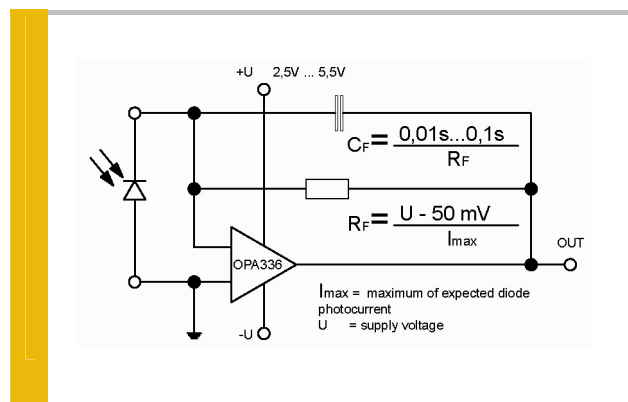
Broad Band TiO₂ based UV photodiode A = 4,18mm²



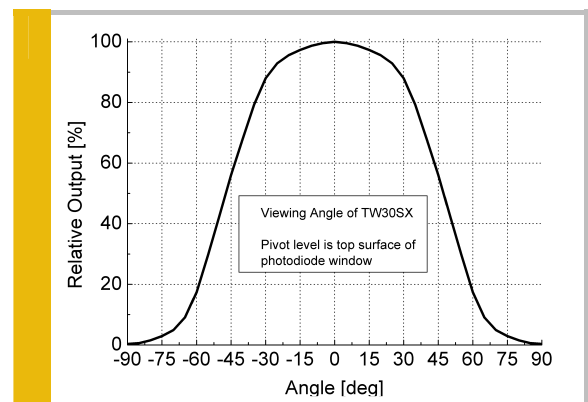
Spectral Response



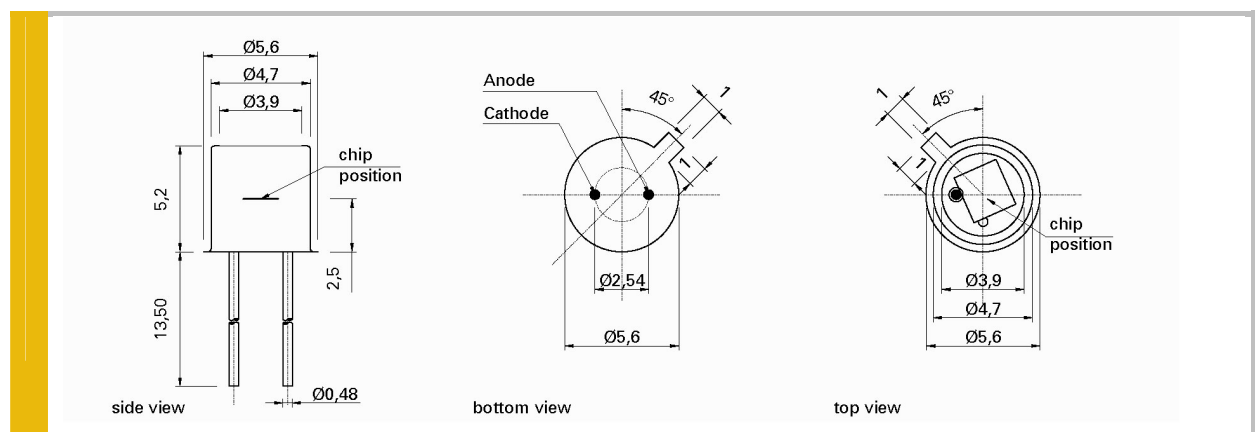
Circuit



Viewing Angle



Drawing

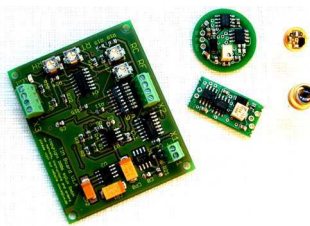


Application Note

For correct reading of the photodiode the current (and NOT the voltage) must be analyzed. This requires a short circuiting of the photodiode. Usual approaches are using a **Picoamperemeter** such as Keithley 617 or a **transimpedance amplifier** circuit as shown on page 2 of this datasheet. Please contact us in case of questions.

The below listed modules help you to get the best measurement information from your photodiode.

Internal & external Photodiode Amplifiers



- stable and reliable photodiode amplification
- TOCON-Series = photodiodes with integrated amplifier
- BOARD-Series = external photodiode amplifiers
- RS Components product numbers: 492-531 and 492-614

UV probes with built in amplifier



- different housings e.g. with cosine response, water pressure proof or Sapphire windows
- different electronic outputs available (voltage, current, USB)
- RS Components product numbers: 492-547 and 492-541

UV Intensity / Dose Monitor / Controller "SENSOR MONITOR"



- two channel photodiode or sensor input
- three user programmable relay outputs
- programmable display, USB/TTY/RS232 data transmission