

General Features



Properties of the SG01S-5 UV photodiode

- Broad Band UVA+UVB+UVC, PTB tested high chip stability
- Active Area $A = 0,060 \text{ mm}^2$
- large TO39 herm. sealed metal housing, broad viewing angle
- 10 mW/cm^2 peak radiation results a current of approx. 780nA

About the material Silicon Carbide (SiC)

The material SiC provides unique properties looking at visible blindness, dark current, speed and noise. These features make SiC the best currently available material for visible blind semiconductor UV detectors. Some SiC detectors (our HT-series) can be permanently operated at $T=170^\circ\text{C}$ where the temperature coefficient is only $<0,1\%/K$. Because of the low dark current in the fA range also very low radiation intensities can be reliably measured. Please note that this needs suited amplifier circuit (please refer to page 2 and 3 of this datasheet). SiC photodiodes are available as non-filtered broad band devices or with filters e.g. providing an UVA-, UVB-, or UVC-only sensitivity or an erythema-curve compliance.

Specifications

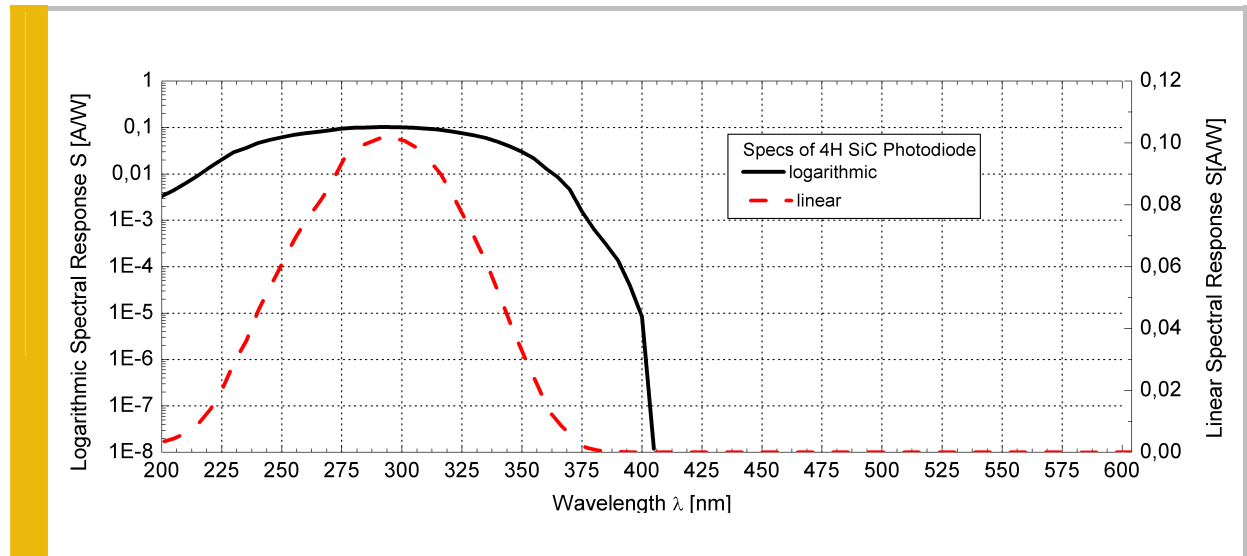
Parameter	Symbol	Value	Unit
Maximum Ratings			
Operating Temperature Range	T_{opt}	$-55 \dots +120$	$^\circ\text{C}$
Storage Temperature Range	T_{stor}	$-55 \dots +120$	$^\circ\text{C}$
Soldering Temperature (3s)	T_{sold}	260	$^\circ\text{C}$
Reverse voltage	V_{Rmax}	20	V
General Characteristics ($T=25^\circ\text{C}$)			
Active Area	A	0,04	mm^2
Dark current (1V reverse bias)	I_{d}	0,2	fA
Capacitance	C	15	pF
Short circuit (10 mW/cm^2 at peak)	I_0	400	nA
Temperature coefficient	Tc	$<-0,1$	$\%/K$
Spectral Characteristics ($T=25^\circ\text{C}$)			
Max. spectral sensitivity	S_{max}	0,130	AW^{-1}
Wavelength of max. spectral sens.	λ_{max}	300	nm
Sensitivity range ($S=0,1 \cdot S_{\text{max}}$)	-	215 ... 365	nm
Visible blindness ($S_{\text{max}} / S_{>400\text{nm}}$)	VB	$>10^{10}$	-

SG01S-5

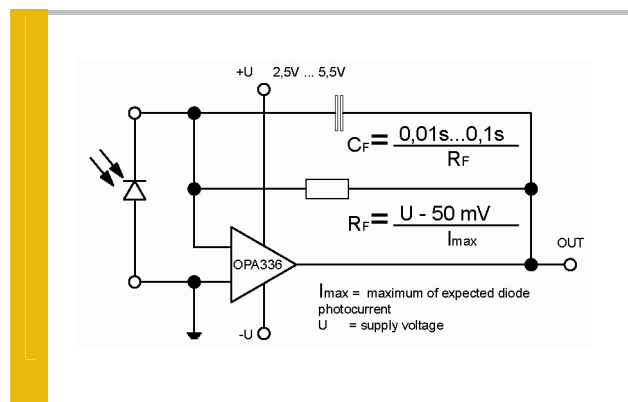
Broad Band SiC based UV photodiode $A = 0,060 \text{ mm}^2$



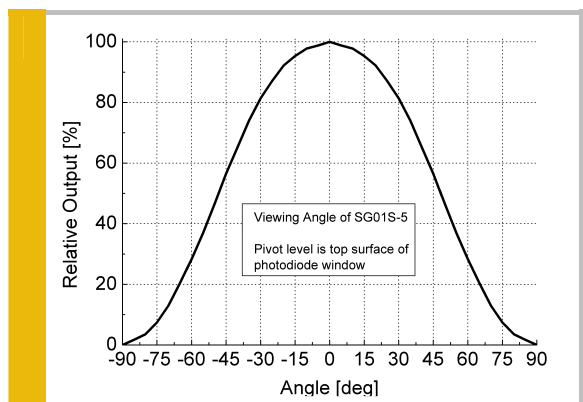
Spectral Response



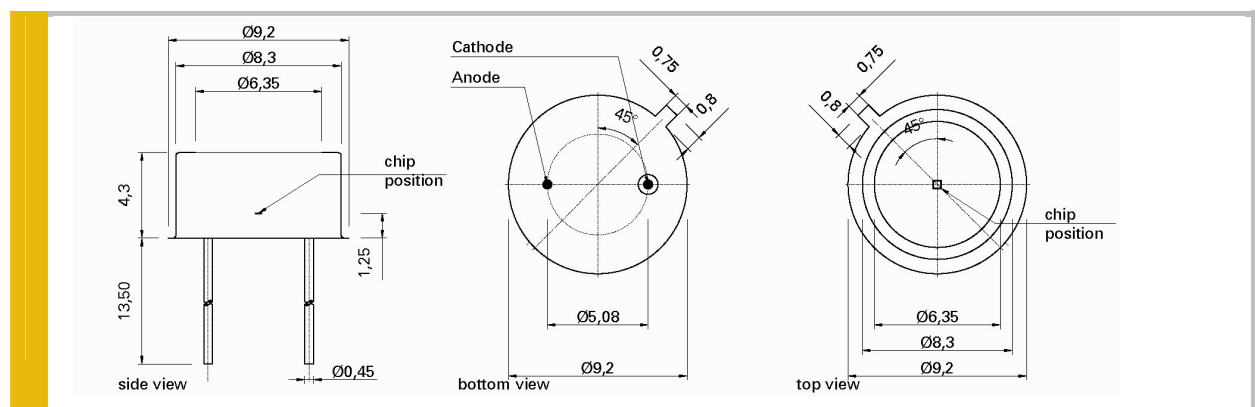
Circuit



Viewing Angle



Drawing

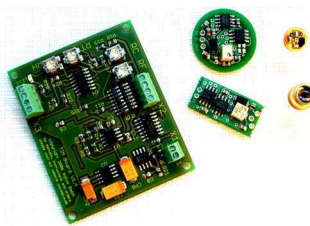


Application Note

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