

TOCON_fast

3 kHz Bandwidth SiC based UV photodetectors with integrated amplifier

GENERAL FEATURES



Properties of the TOCON_fast

- SiC based UV photodetectors in TO5 housing
- 0...5 V voltage output
- with broadband UV, UVA, UVB or UVC sensitivity
- 3 kHz Bandwidth (-3dB) measurement possible
- Applications: pulsed radiation sources, arc detection

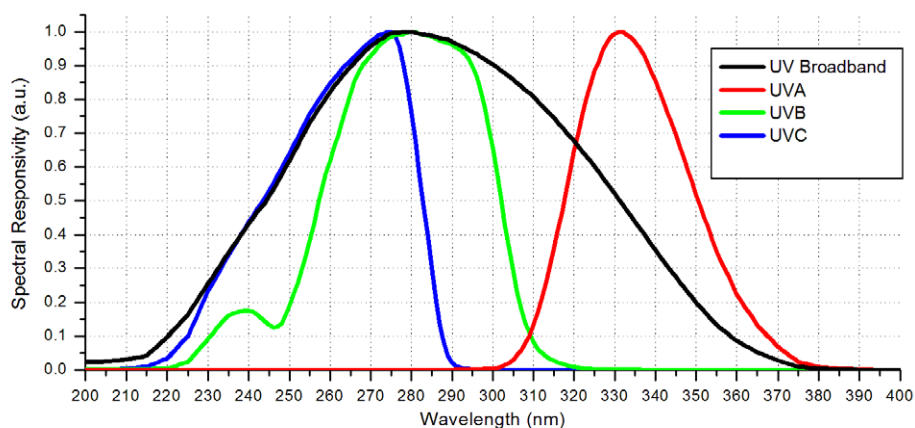
What is a TOCON?

A TOCON is a 5 Volt powered UV photodetector with integrated amplifier converting UV radiation into a 0...5V voltage output. The V_{out} pin of the TOCON can be directly connected to a controller, a voltmeter or any other data analyzing device with voltage input. Highly modern electronic components and a hermetically sealed metal housing with UV glass window eliminates noise caused by parasitic resistance paths inside the package or EMI. The TOCONs are produced as broadband UV sensors or with filters for selective measurement. The **TOCON_fast series consists** of a selection of different TOCONs with higher bandwidth compared to the standard versions.

Silicon Carbide (SiC) detector chip inside

Sophisticated electronics make a TOCON a reliable component in harsh environments. But what makes the TOCON a quasi eternally living sensor is the sglux in-house produced SiC detector chip featured by a PTB-reported extreme radiation hardness.

AVAILABLE SPECTRAL RESPONSIVITIES



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SPECIFICATIONS

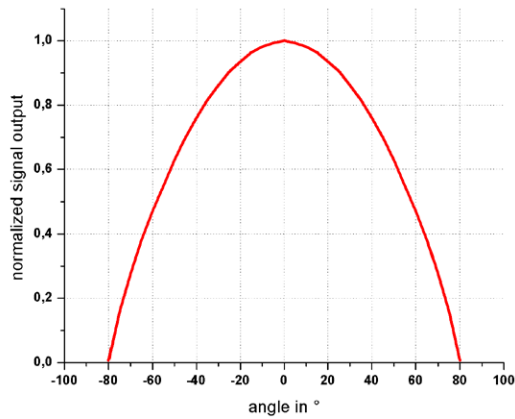
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Parameter	Symbol	Value	Unit
Spectral Characteristics for broadband UV			
Wavelength of max. Spectral Responsivity	λ_{\max}	290	nm
Responsivity Range ($S=0,1 \cdot S_{\max}$)	–	227 ... 360	nm
Visible Blindness ($S_{\max}/S_{>405\text{nm}}$)	VB	$> 10^{10}$	–
Spectral Characteristics for UVA			
Wavelength of max. Spectral Responsivity	λ_{\max}	331	nm
Responsivity Range ($S=0,1 \cdot S_{\max}$)	–	309 ... 367	nm
Visible Blindness ($S_{\max}/S_{>405\text{nm}}$)	VB	$> 10^{10}$	–
Spectral Characteristics for UVB			
Wavelength of max. Spectral Responsivity	λ_{\max}	280	nm
Responsivity Range ($S=0,1 \cdot S_{\max}$)	–	243 ... 303	nm
Visible Blindness ($S_{\max}/S_{>405\text{nm}}$)	VB	$> 10^{10}$	–
Spectral Characteristics for UVC			
Wavelength of max. Spectral Responsivity	λ_{\max}	275	nm
Responsivity Range ($S=0,1 \cdot S_{\max}$)	–	225 ... 287	nm
Visible Blindness ($S_{\max}/S_{>405\text{nm}}$)	VB	$> 10^{10}$	–
General Characteristics ($T=25^{\circ}\text{C}$, $V_{\text{supply}}=+5\text{ V}$)			
Supply Voltage	V_{Supply}	2.5 ... 5	V
Saturation Voltage	V_{Sat}	$V_{\text{Supply}} - 5\%$	V
Dark Offset Voltage	V_{Offset}	700	μV
Temperature Coefficient at Peak	T_c	< -0.3	%/K
Current Consumption	I	150	μA
Bandwidth (-3 dB)	B	3	kHz
Risetime (10-90%)	t_{rise}	0.1	ms
Maximum Ratings			
Operating Temperature	T_{opt}	-40 ... +85	$^{\circ}\text{C}$
Storage Temperature	T_{stor}	-40 ... +100	$^{\circ}\text{C}$
Soldering Temperature (3s)	T_{sold}	300	$^{\circ}\text{C}$

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FIELD OF VIEW

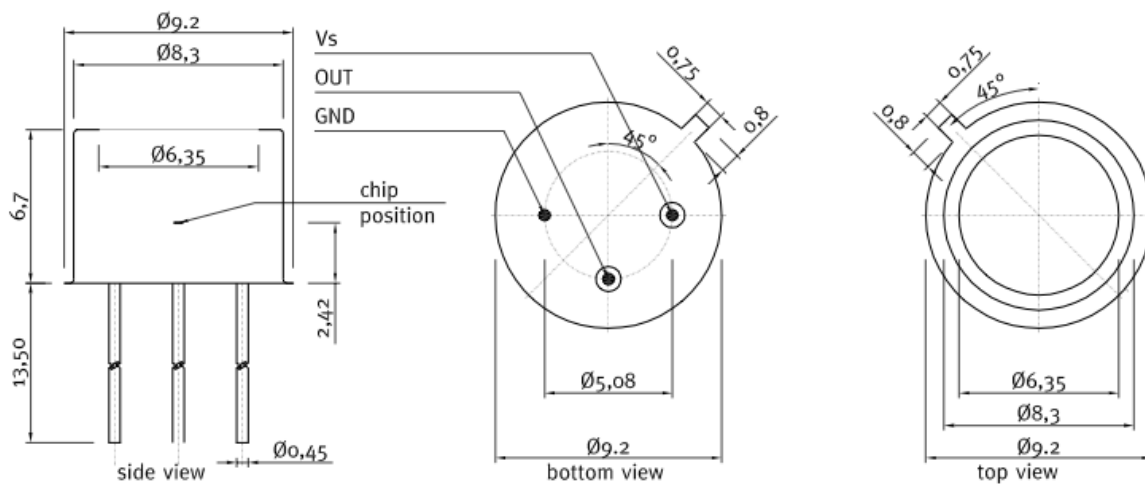


Measurement Setup:

- lamp aperture diameter: 10 mm
- distance lamp aperture to second aperture: 17 mm
- second aperture diameter: 10 mm
- distance second aperture to detector: 93 mm

pivot level = top surface of the detector window

DRAWING



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APPLICATION NOTE FOR TOCONs

The TOCONs need a supply voltage of $V_{\text{supply}} = 2.5 \dots 5V_{\text{DC}}$ and can be directly connected to a controller or voltmeter. Please note that the theoretic maximum signal output is always a little less (approx. 5%) than the supply voltage. To learn more about perfect use of the TOCONs please refer to the TOCON FAQ list published at www.sglux.com.

CAUTION! Wrong wiring leads to destruction of the device.

For easy setup of the device please ask for a TOCON starter kit.



Miniature steel housing with M12x1 thread for the TOCON series

- Optional feature for all TOCON detectors
- Robust stainless steel M12x1 thread body, length 32 mm
- Integrated sensor connector (Binder 4-Pin plug) with 2m connector cable
- Easy to mount and to connect



Miniature PTFE housing with M12x1 thread for the TOCON series

- Optional feature for all TOCON detectors without concentrator lens
- Teflon (PTFE) M12x1 thread body, length 31 mm
- Wide field of view, dirt-repellant, water proof at wet side (IP 68)
- Integrated sensor connector (Binder 4-Pin plug) with 2m connector cable
- Easy to mount and connect, cleanable

THE PTFE HOUSING REDUCES THE SIGNAL OUTPUT BY APPROX. 95%. PLEASE CONSIDER THIS WHILE SELECTING THE TOCON'S SENSITIVITY RANGE.



Plastic probes

- Optional feature for all TOCON detectors
- UV probes in small plastic housings with a TOCON inside
- Customized housings available
- Easy to mount and to connect
- Integrated sensor connector (Binder 4-Pin plug)
- Cable available



Water pressure proof TOCON housing

- Optional feature for all TOCON detectors without concentrator lens
- G1/4" thread, 10 bar water pressure proof
- Customized housings available
- Easy to mount and to connect
- Integrated sensor connector (Binder 5-Pin plug)
- Cable available

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