

TOCON_NC1F

UVC-only SiC based UV photodetector for fast fire detection

GENERAL FEATURES

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Properties of the TOCON_NC1F

- UVC-only SiC based UV photodetector for fast fire detection
- 0 ... 5 V voltage output
- Peak wavelength at 275 nm
- Max. radiation (saturation limit) at 254 nm is 180 nW/cm², minimum radiation (resolution limit) is 18 pW/cm²
- Suitable for fire detection when sunlight is absent
- High temperature usability up to 120°C available on request

About the TOCON_NC1F for fast fire detection

A TOCON is a UV photodetector with integrated amplifier converting UV radiation into a voltage. 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. Modern electronic components and a hermetically sealed metal housing with UV glass window eliminates noise caused by parasitic paths inside the package and EMI.

The TOCON_NC1F is designed for fast fire detection. It works with an additional negative power supply that eliminates the turn-on dead-time.

Please note that the TOCON_NC1F must not be used when sunlight could hit the sensor. This would result a false alarm. Prior to use as a fire detection device a thorough evaluation process needs to be carried out.

Powering of the TOCON_NC1F needs a negative and positive power supply. For details please refer to page 3 of this datasheet. The product evaluation process of the TOCON_NC1F can be simplified using the optional "TOCON_N steel" housing.

This housing is powered with a 7 ...24 VDC single power supply, the negative supply is generated internally. The below picture shows a TOCON_N steel housing.



Properties of the TOCON_N steel

- 7 – 24 V supply voltage with integrated bias generator
- Robust stainless steel M12x1 thread body, length 39.5 mm
- Integrated sensor connector (Binder 4-Pin plug) with 2m connector cable
- For further details please refer to the datasheet of the TOCON_N steel housing.

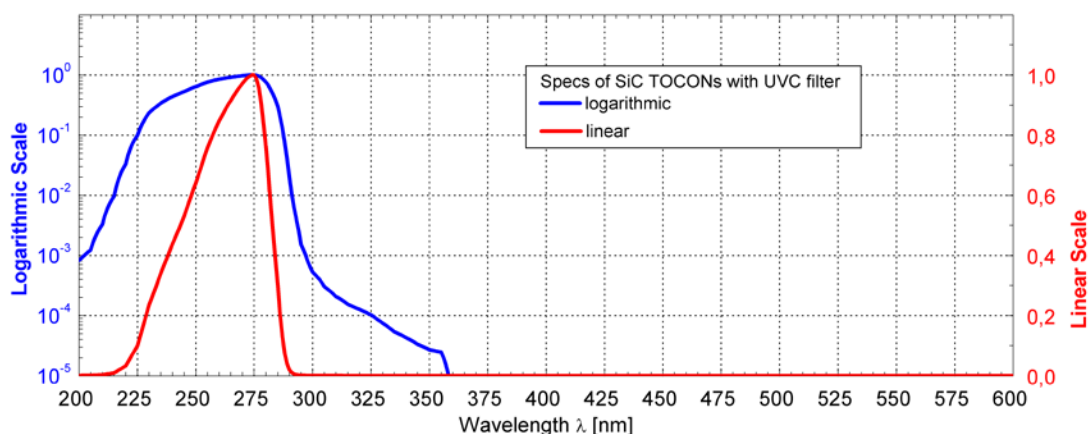
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SPECIFICATIONS

Parameter	Symbol	Value	Unit
Spectral Characteristics			
Typical Responsivity at Wavelength 254 nm	S_{max}	28	mV/nW/cm ²
Wavelength of max. Spectral Responsivity	λ_{max}	275	nm
Responsivity Range ($S=0.1 \cdot S_{max}$)	–	225 ... 287	nm
Visible Blindness ($S_{max}/S_{>405nm}$)	VB	$> 10^{10}$	–
General Characteristics (T=25°C, V_{supply} =+5 V)			
Supply Voltage	V _{Supply}	see p. 3	
Typical temperature Coefficient at Peak	T _c	< + 0.3	%/K
Current Consumption	I	35	µA
Bandwidth (-3 dB)	B	3.5 Hz	Hz
Risetime (10-90%)	t _{rise}	100	ms
Maximum Ratings			
Operating Temperature	T _{opt}	-40 ... +85	°C
Storage Temperature	T _{stor}	-40 ... +100	°C
Maximum soldering temperature (for 3 seconds)	T _{sold}	300	°C

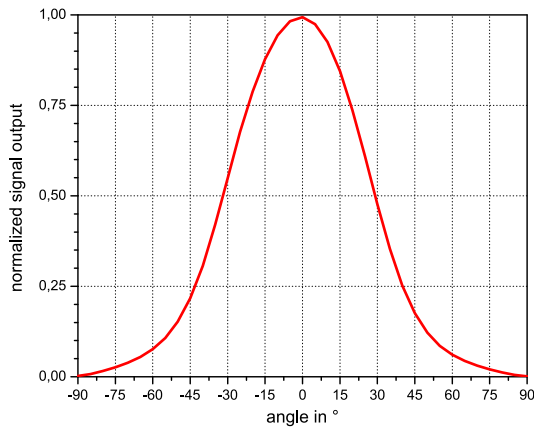
NORMALIZED SPECTRAL RESPONSIVITY



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FIELD OF VIEW



pivot level = top surface of the detector window

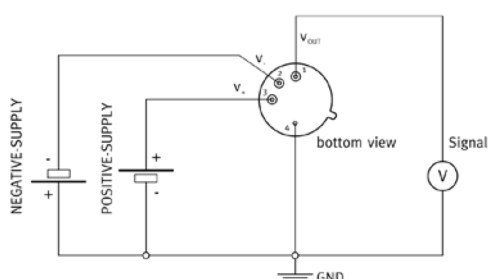
WIRING INSTRUCTIONS

Caution: Wrong wiring or too high voltage lead to immediate destruction of the device. Please take care of ESD-safe handling.

PIN	Description
1	V_{OUT} Sensor output voltage (0 ... V_+), referenced to GND
2	V_- (typ -0.23V), allowed range -0.15 ... $-(5.5V - V_+)$. The negative supply voltage can be generated with a negative bias generator .
3	V_+ (typ. 5V, allowed range 1.8 ... 5.35V

The total voltage between Pin V_- and V_+ must not exceed 5.5V.

BASIC WIRING



NOISE REDUCTION IN CASE OF LONG WIRES

For reduction of noise and disturbance at the circuit output, e.g. caused by wires longer than 0.5m the following circuit is recommended.

