

# TOCON\_NC1F

UVC-only SiC based UV photodetector for fast fire detection

## GENERAL FEATURES



### 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/cm<sup>2</sup>, minimum radiation (resolution limit) is 18 pW/cm<sup>2</sup>
- 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.

# TOCON\_NC1F

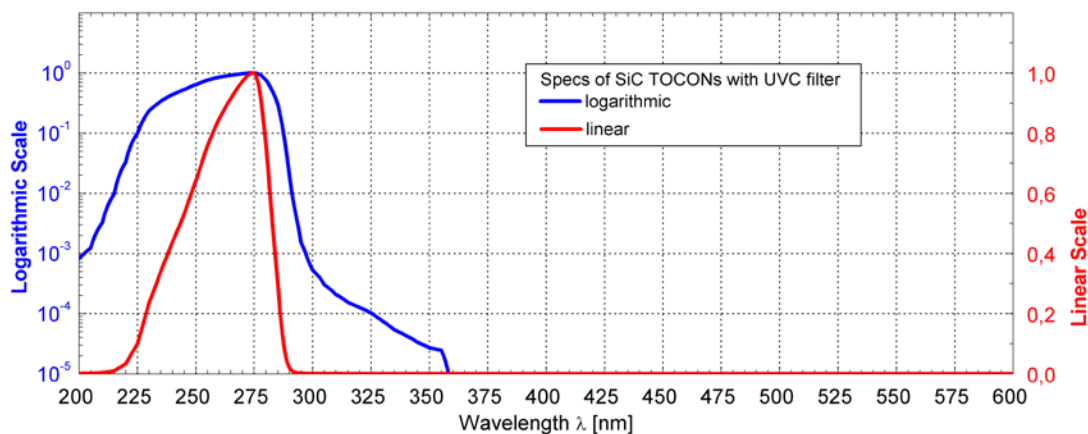
UVC-only SiC based UV photodetector for fire detection



## SPECIFICATIONS

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

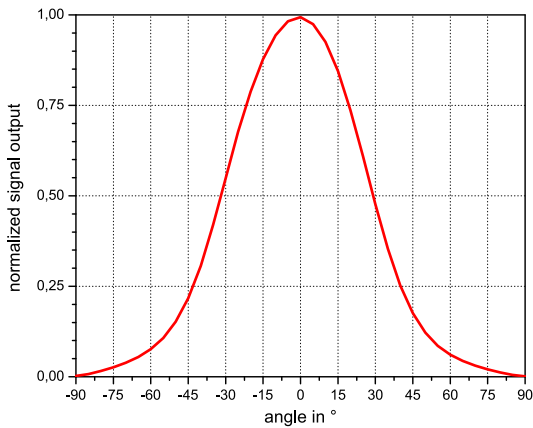
## NORMALIZED SPECTRAL RESPONSIVITY



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## FIELD OF VIEW



pivot level = top surface of the detector window

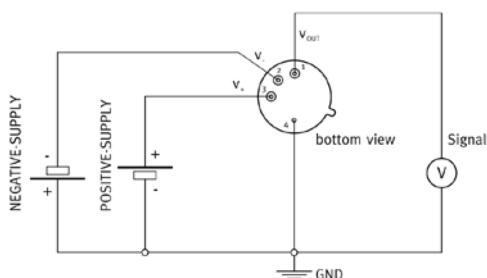
## WIRING INSTRUCTIONS

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.

