TOCON_C1

A single UVC UV detector based on silicon carbide (SiC) with an integrated amplifier

general characteristic

Characteristics of TOCON_C1

- Single UVC UV detector based on silicon carbide (SiC), TO5 housing
- 0~5V voltage output
- The peak wavelength appears at 275 nm
- The maximum radiation (saturation limit) at 275 nm is 135 nW/ ^{2} , cm and the minimum radiation (resolution limit) is 14 pW/cm ^{2}
- Application: UVA blind fire detection

What is TOCON?

The TOCON is a 5V-powered UV detector featuring an integrated amplifier that converts UV radiation into 0-5V voltage. Its V-out pin enables direct connection to controllers, voltmeters, or any voltage-input data acquisition devices. The device combines cutting-edge electronics with a gas-tight metal housing containing a UV glass window, effectively reducing noise and EMI generated by parasitic resistance paths within the package. As an ideal solution for industrial UV detection applications ranging from pW class (parts per watt) flame-rated systems to W/cm ^{2} UV curing lamp controls, the TOCON offers 13 orders of magnitude coverage across sensitivity-differentiated measurement tiers. Typically manufactured as either a universal UV broadband sensor or specialized filter-equipped units, it delivers precise performance through optimized design.

Internal silicon carbide (SiC) detection chip

Precision electronic components make TOCON a reliable choice for harsh environments and extreme UV radiation conditions. The key factor behind TOCON's quasi-permanent reliability lies in the SiC detection chips manufactured at sglux's facility, which are characterized by strong radiation resistance as reported by PTB.

naming

TOCON_

ABC, A, B, C, blue or GaP	1 … 10
spectral response	**Irradiance limit (V_{supply}= 5V, $\lambda = \lambda_{peak}$)**
ABC= broadband λ_{max} = 290 nm $\lambda_{S10\%}$ = 227 nm ... 360 nm	1 = 1,8 pW/cm² … 18 nW/cm²
A = UVA λ max = 331 nm $\lambda_{S10\%}$ = 309 nm ... 367 nm	2 = 18 pW/cm² … 180 nW/cm²
B = UVB λ max = 280 nm $\lambda_{S10\%}$ = 243 nm ... 303 nm	3 = 180 pW/cm² … 1,8 µW/cm²
C = UVC λ max = 275 nm $\lambda_{S10\%}$ = 225 nm ... 287 nm	4 = 1,8 nW/cm² … 18 µW/cm²
Blue λ_{max} = 445 nm $\lambda_{S10\%}$ = 390 nm ... 515 nm	5 = 18 nW/cm² … 180 µW/cm²
Gap λ_{max} = 445 nm $\lambda_{S10\%}$ = 190 nm ... 570 nm	6 = 180 nW/cm² … 1,8 mW/cm²
	7 = 1,8 µW/cm² … 18 mW/cm²
	8 = 18 µW/cm² … 180 mW/cm²
	9 = 180 µW/cm² … 1,8 W/cm²
	10 = 1,8 mW/cm² … 18 W/cm²
E=UV index number Based on the spectral response of CIE087	2 = 0 UVI … 30 UVI

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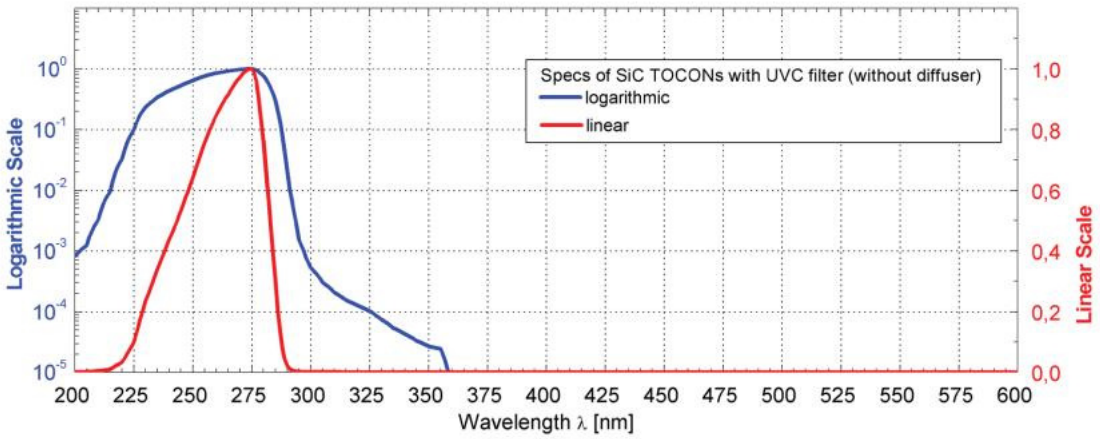
specifications

Parameter symbol		numeric value	unit
Typical response at spectral characteristic wavelength 275 nm	S_{max}	21	mV/nW/cm2
Maximum spectral response wavelength	λ_{max}	275	nm
Response range (S = 0, 1* max)	–	225 … 287	nm
Visually impaired (S max/ S> 405nm)	VB	> 10_{10}	–
General characteristics (T= 25 ° C, V supply = +5 V)			
service voltage	V_{Supply}	2,5 … 5	V
saturation voltage	V_{Sat}	V_{Supply} - 5%	V
Dark compensation voltage	V_{Offset}	50	µV
Peak temperature compensation coefficient	T_c	< -0,3	%/K
current consumption	I	150	µA
Bandwidth (-3 dB)	B	15	Hz
Rise time (10 - 90%) (other rise times are available on demand)	t_{rise}	0,075	s
Maximum rated operating temperature	T_{opt}	–25 … +85	°C
Storage temperature	T_{stor}	–40 … +100	°C
welding temperature (3s)	T_{sold}	300	°C

Standardized spectral responsivity



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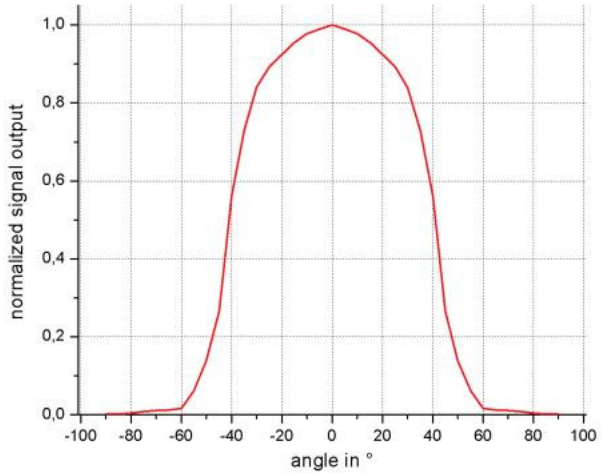
field of view



Measurement Settings:

Lamp hole diameter: 10 mm

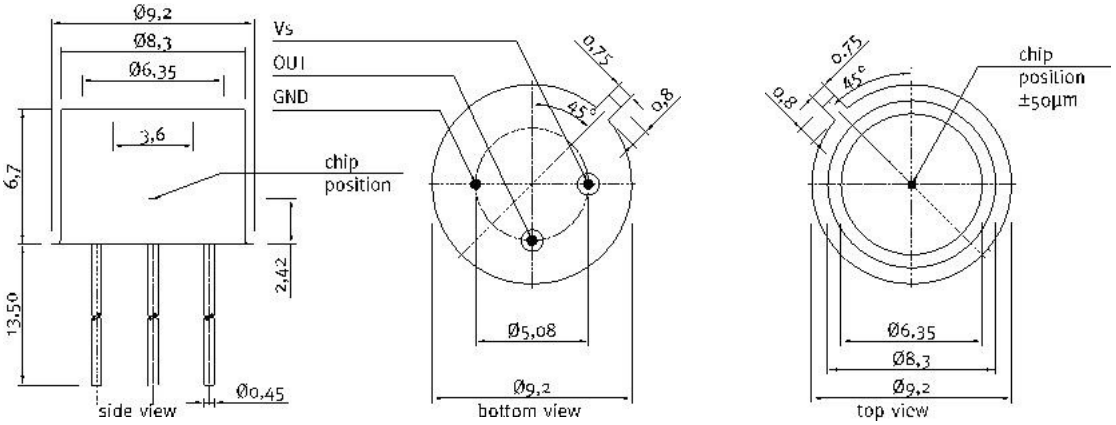
Distance from the second lamp hole to the second lamp hole: 17 mm

Second lamp hole diameter: 10 mm

Distance from the second lamp hole to the detector: 93 mm

Support point level = top surface of detector window

diagrammatic sk-etch



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