
Features

- Single photon counting module
- USB control with software
- Digital and analog output
- Fiber coupling available

Description

User friendly USB-controlled silicon photomultiplier kit with analog and counter output, including voltage supply.

Application

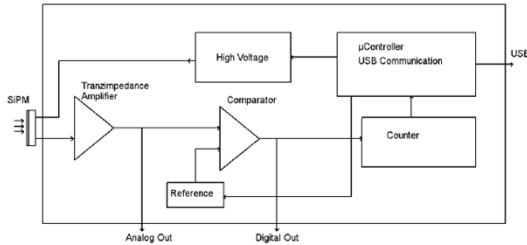
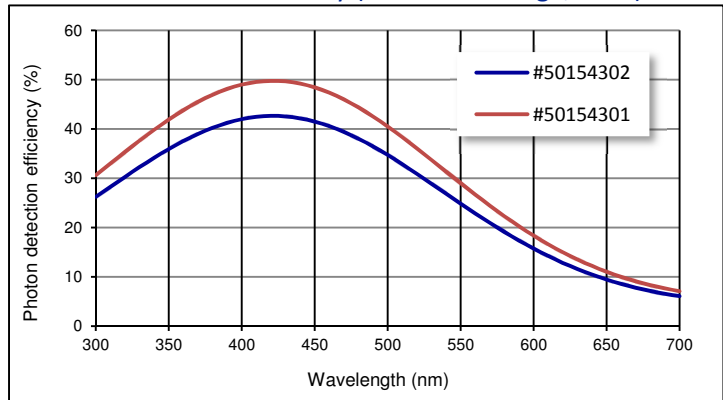
- SiPM evaluation
- Photon counting
- Measurement of very weak light sources

RoHS

2002/95/EC


Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-20	80	°C
T_{OP}	Operating temp	-10	70	°C

Block diagram

Photon detection efficiency (20% overvoltage, 23°C)

Electro-optical characteristics @ 23 °C

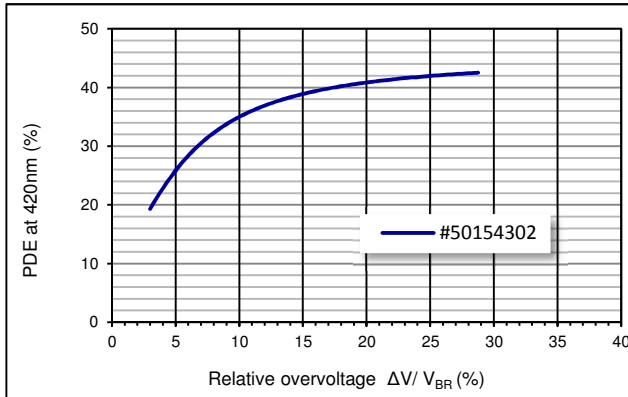
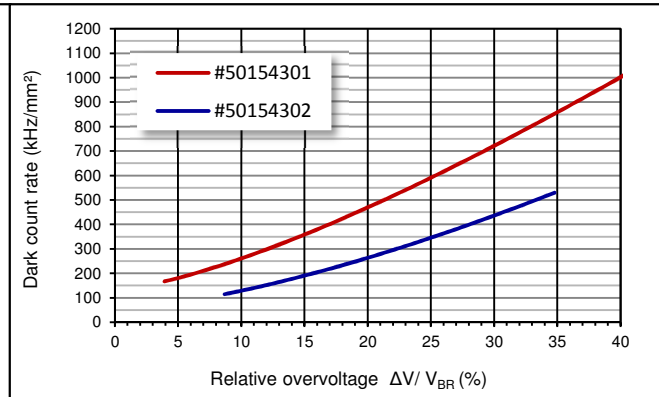
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area			3.0 x 3.0		mm ²
	Micropixel size			50 x 50		μm ²
	Number of micropixels			3600		
	Geometrical efficiency	Std. type, # 50154301		70		%
		Trench type, # 50154302		63		%
PDE	Photon detection efficiency	Std. type, # 50154301; λ = 420 nm	50			%
		Trench type, # 50154302; λ = 420 nm	40			%
M	Gain	at 20% overvoltage (OV)		2 E6		
T_k	Temperature coefficient	w.r.t breakdown voltage		22		mV/K
	Dark rate	Std. type, # 50154301; λ = 420 nm			500	kHz/mm ²
		Trench type, # 50154302; λ = 420 nm			300	mm ²
	Cross talk	Std. type, # 50154301; λ = 420 nm; 20 % OV		35		%
		Trench type, # 50154302; λ = 420 nm; 20 % OV		20		%
V_{BR}	Breakdown voltage	Std. type, # 50154301		27		V
		Trench type, # 50154302		23		V

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PDE as fct of overvoltage (420 nm, 23 °C)

Dark rate as fct of overvoltage (23 °C)

Characteristics of module (*specifications are subject to SiPM type or may be varied on customer demand)

Part	Characteristic	Test Condition	Min	Typ	Max	Unit
Module	Power and control connector		USB 2.1 interface (Mini USB Type B)			
Module	Signal connector		SMB			
Module	Supply voltage	via USB	4.75	5	5.25	V
Module	Supply current	via USB		100		mA
Module	User-interface		Labview runtime based Windows software			
Measurement characteristics						
Power Sup.	BIAS range		15		35*	V
Power Sup.	Temperature stability of analog output	25 ± 10 °C		± 5		%
Amplifier	Output impedance			50		Ω
Amplifier	Output voltage	Analog		100		mV/p.e.
Comparator	Threshold voltage		0		2500	mV
Comparator	Output voltage	Digital	TTL compatible			
Counter	Integrating time		0.1		60	s
Counter	Cut-off frequency	-3db		40*		MHz
* Dynamic behaviour limited by recovery time of SiPM to 10 MHz						
Mechanical characteristics						
Module	Dimensional outline - width			24		mm
Module	Dimensional outline - length			80		mm
Module	Dimensional outline - height			55		mm
Module	Weight			110		g
Module	Housing material		Aluminum (black anodized)			

Hint: For more information please refer to the document: "User manual SiPM-KIT FIS"

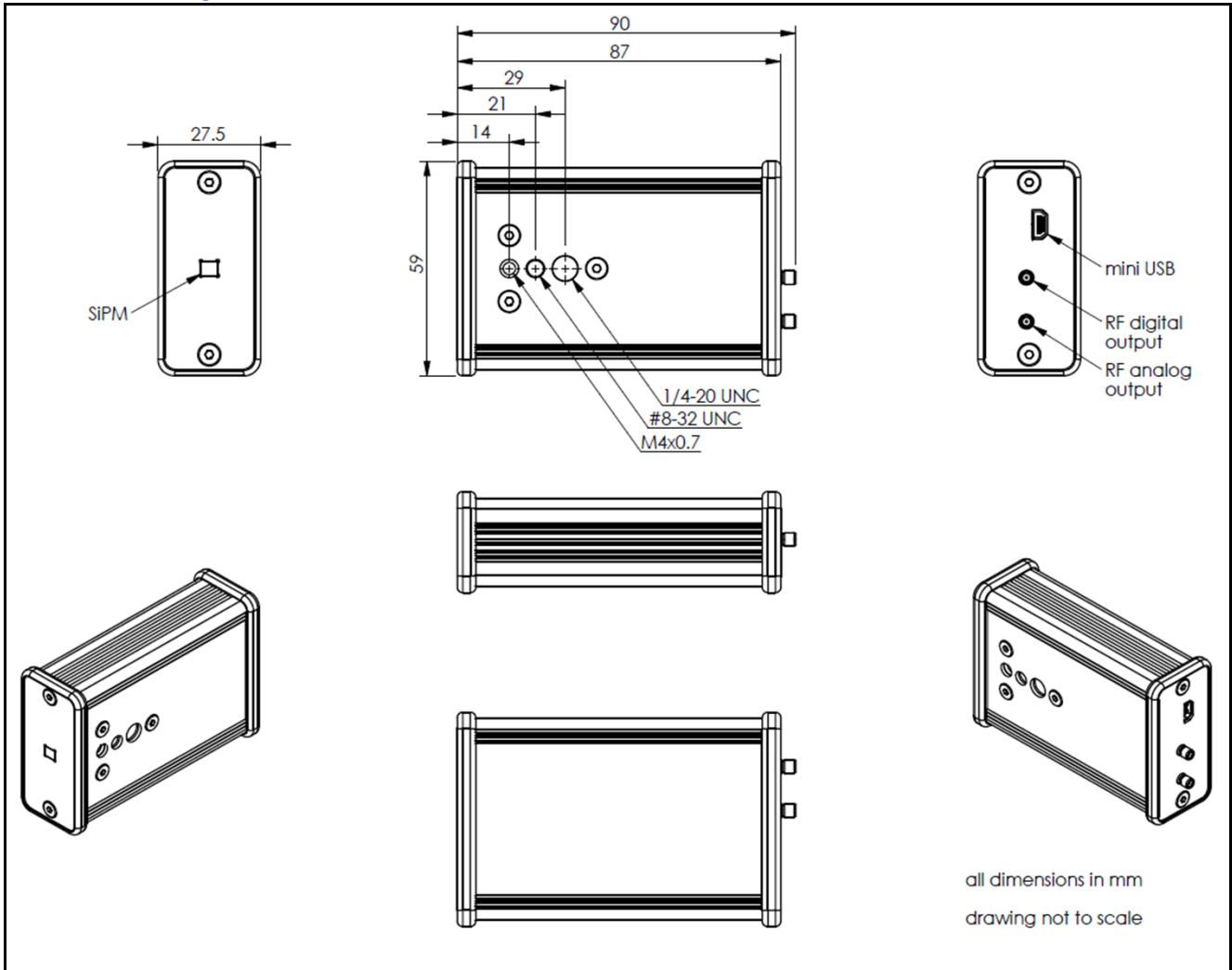
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Technical Drawing SiPM-Kit



Hint: For more information please refer to the document: "User manual SiPM-KIT FIS"

Disclaimer: Due to our strive for continuous improvement, specifications are subject to change within our PCN policy according to JESD46C.

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