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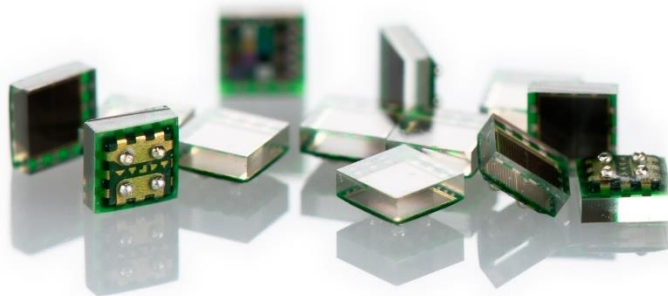
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SiPM

Product Data Sheet SiPM – Silicon Photomultiplier

PM1125-WB-C0



Key Features Overview

- 1 x 1 mm² active area, 25 μm microcells
- High Photo Detection Efficiency
- Excellent Timing Properties
- Replacement for PMTs, APDs and PIN Diodes
- Low Voltage Operation (typ. about 30 V)
- Cost Efficient and Robust (MSL1 approved)

Application Examples

- Single Photon Counting
- High Density SiPM Arrays
- Medical Imaging (PET, SPECT)
- Scintillator Readout
- Handheld and Mobile Devices
- Hazard & Threat Detection
- Biophotonics & Analytics
- High Energy Physics
- Optical Sorting and XRT

Spectral Response

Photo Detection Efficiency
at 5 V Overvoltage

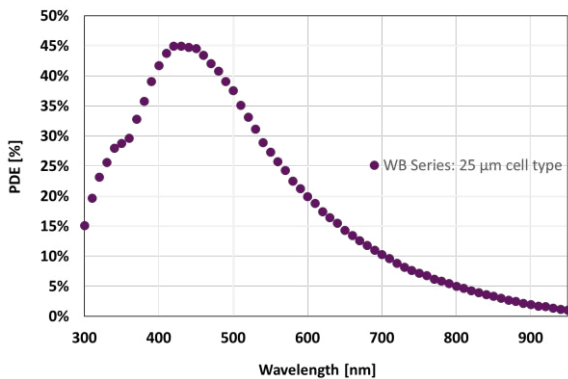
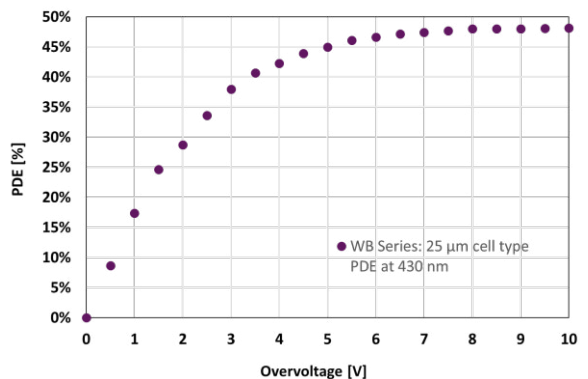


Photo Detection Efficiency vs. Overvoltage
at 21°C



General Parameters and Order Information

SiPM Type	Active Area [mm ²]	Microcell Size [μm]	No. of Microcells	Gain stabilized vs. Temperature	Order-Code
PM1125-WB	1.0 x 1.0	25	1600	1.315 x 1.315 x 0.595	PM1125-WB-C0

Main Characteristics

Parameter	Typ.	Unit
Breakdown Voltage (V _{BD}) at 21°C	min. 23.5, max. 25.5	V
Breakdown Voltage Variation per Reel	±0.300	V
Recommended Overvoltage (V _{OV})	2.0 – 5.0 (max. 6.0)	V
Temperature Dependency of V _{BD}	22.0	mV/K
Temperature Dependency of Gain	0.3% @ 5.0 VOV	1/K
Operating Temperature Range	-40 to +60	°C
Reliability Classification	MSL1	
Index of Refraction of Glass Entrance Window	1.52 @ 430 nm	



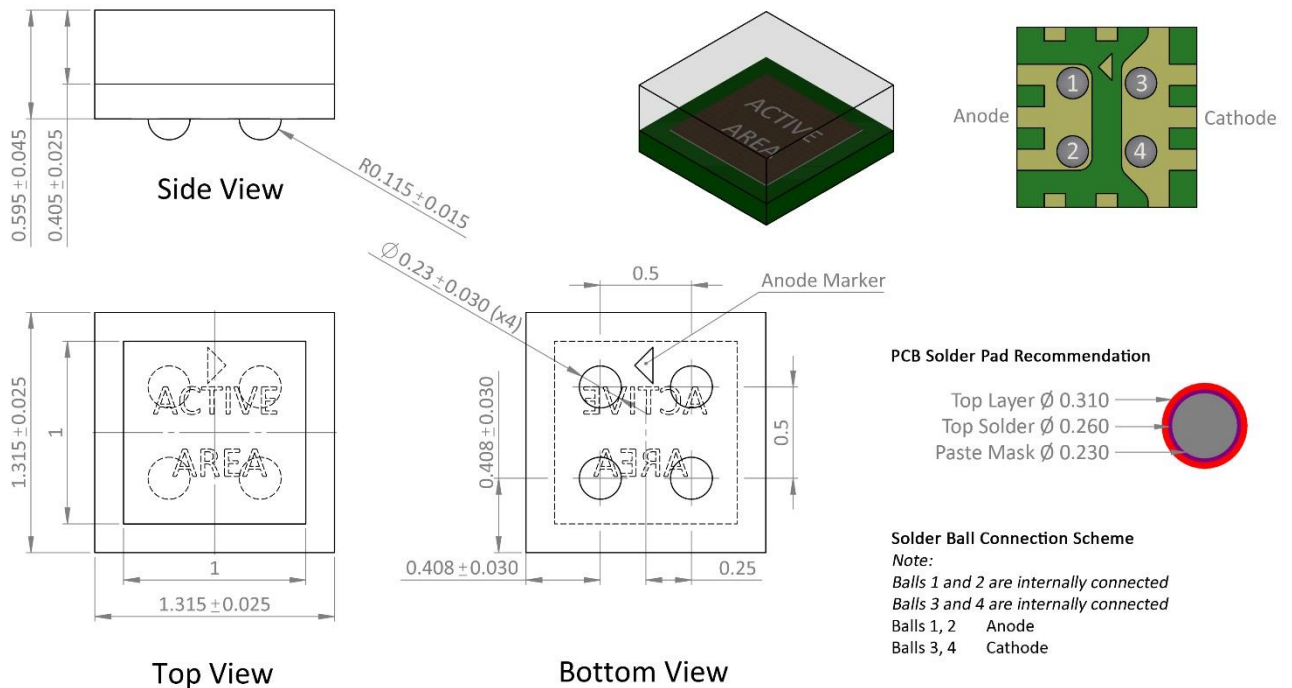
Electrical and Optical Characteristics at 21°C

Parameter	Type	Microcell Size [μm]	Typ. @ 2.5 V _{OV}	Typ. @ 5.0 V _{OV}	Unit
Photo Detection Efficiency at 430 nm	PM11	25	31	45	%
Dark Count Rate	PM11	25	50	125	kHz/mm ²
Dark Current	PM11	25	0.011 (max. 0.04)	0.064 (max. 0.11)	μA
Gain	PM11	25	0.87	1.74	x 10 ⁶
Crosstalk Probability*	PM11	25	7	26	%
Afterpulsing Probability	PM11	25	< 1		%
Terminal Capacitance	PM11	25	125		pF
Recovery Time τ	PM11	25	28 (at 1 Ω load), 33 (at 50 Ω load)		ns
Signal Rise Time	PM11	25	110		ps

* including delayed crosstalk with a probability < 0.1%

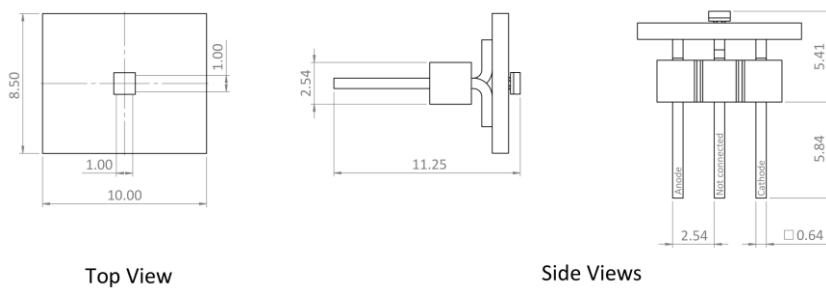
Mechanical Specifications

Dimensions and Recommended Footprint*



* Footprint and 3D model are available for download at www.ketek.net/sipm-downloads/

PM1125-WB preassembled on PCB with Pins (available for Evaluation Purposes)

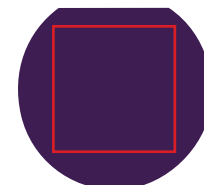




Product Data Sheet

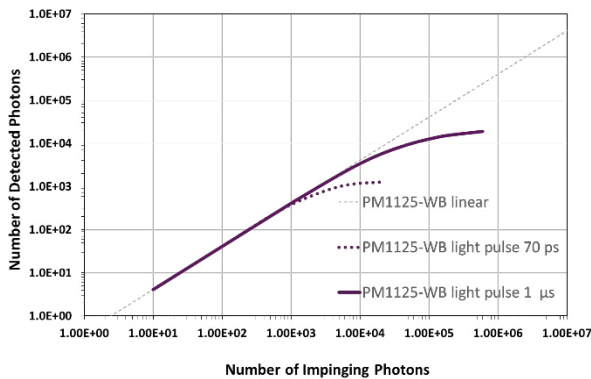
SiPM – Silicon Photomultiplier

PM1125-WB-C0

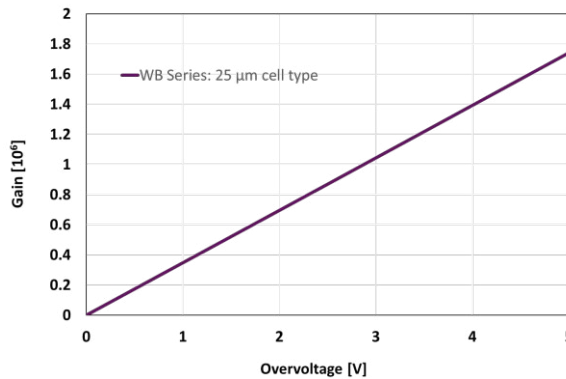


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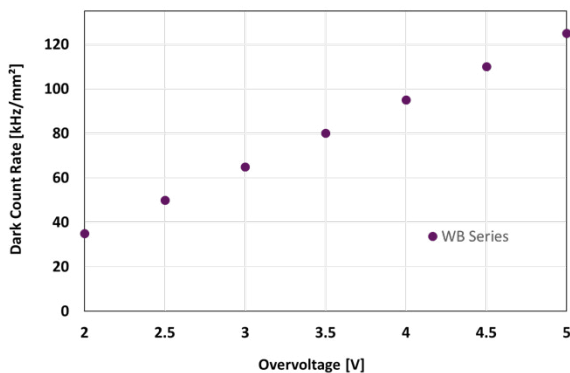
Linearity at 430 nm



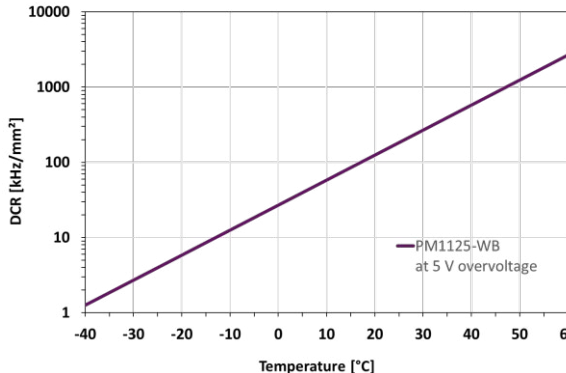
Gain of WB Series



Dark Count Rate at 21°C



Dark Count Rate vs. Temperature



Revision History

Revision and Date	Changes
Rev. 2020-A February 2020	Added "Application Examples" and "Electrical and Optical Characteristics at 21°C and Ctrl = 0.7 V (typ.)" Updated "General Parameters and Order Information" Updated plot design, added "Normalized SiPM Gain vs. Temperature" and "Single Photon Spectrum Example" Updated "Dimensions" technical drawing
Rev. 2019-A December 2019	Initial release

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