



### Key Features Overview

- 3 x 3 mm<sup>2</sup> Active Area
- 15 μm / 35 μm / 47 μm Microcells
- High Photo Detection Efficiency & Low Noise
- Excellent Timing Properties
- Replacement for PMTs, APDs and PIN Diodes
- Cost Efficient and Robust (MSL1 approved)

### Application Examples

- Single Photon Counting
- Scintillator Readout
- Medical Imaging (PET, SPECT)
- Photon Timestamping
- Handheld and Mobile Devices
- Hazard & Threat Detection
- Biophotonics
- High Energy Physics & Research
- Analytical Instrumentation

### Spectral Response

Photo Detection Efficiency at 5 V Overvoltage

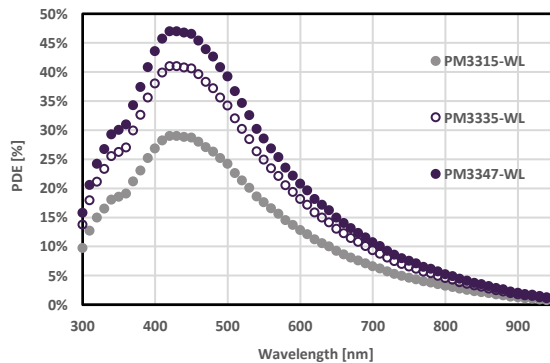
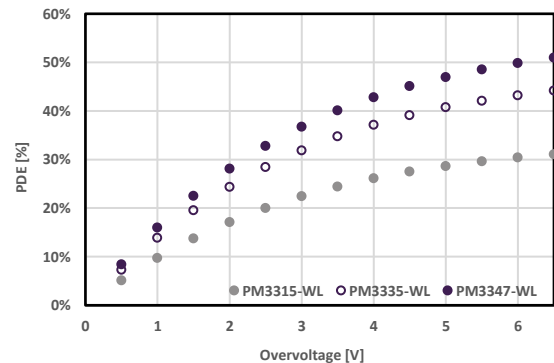
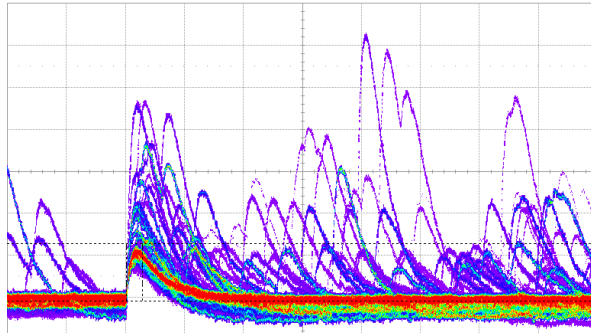


Photo Detection Efficiency vs. Overvoltage at 430 nm

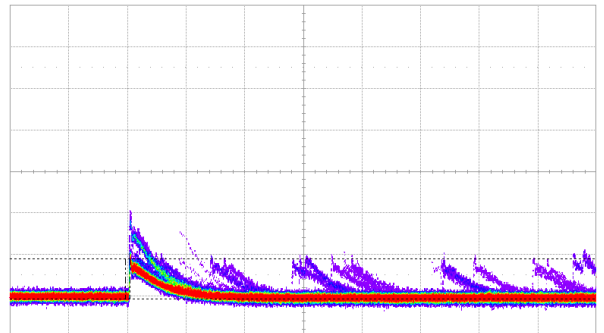


### Noise Improvement compared to WB Series

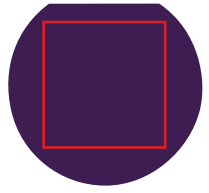
WB Series – previous product\*  
PM3325-WB-D0 at 5.0 V Overvoltage



WL Series\*  
PM3335-WL-A0 at 5.0 V Overvoltage



\* Measurement performed using KETEK SiPM Evaluation Kit (PEVAL-KIT-MCX) and Evaluation PCB (PEPCB-EVAL MCX-P)  
Oscilloscope set to 100 ns/div, 2.00 mV/div, 0.5 p. e. trigger, 0.5 s persistence, 200 MHz bandwidth limit



### General Parameters and Order Information

SiPM Type	Active Area [mm <sup>2</sup> ]	Microcell Size [μm]	No. of Microcells	Dimensions [mm <sup>3</sup> ]	Order-Code
PM3315-WL	3.0 x 3.0	15	38400	3.315 x 3.315 x 0.595	PM3315-WL-A0
PM3335-WL	3.0 x 3.0	35	7396	3.315 x 3.315 x 0.595	PM3335-WL-A0
PM3347-WL	3.0 x 3.0	47	4096	3.315 x 3.315 x 0.595	PM3347-WL-A0

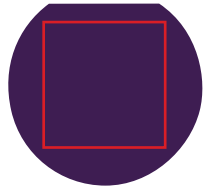
### Main Characteristics

Parameter	Typ.	Unit
Breakdown Voltage ( $V_{BD}$ ) at 21°C	min. 28.75, max. 30.25	V
Breakdown Voltage Variation per Reel	±0.125	V
Recommended Overvoltage ( $V_{OV}$ )	1.0 – 6.5 (max. 7.5)	V
Temperature Dependency of $V_{BD}$	22	mV/K
Temperature Dependency of Gain	0.4% @ 5.0 $V_{OV}$	1/K
Operating Temperature Range	-40 to + 60	°C
Reliability Classification	MSL1	
Index of Refraction of Glass Entrance Window	1.52 @ 430 nm	

### Typical Electrical and Optical Characteristics at 21°C

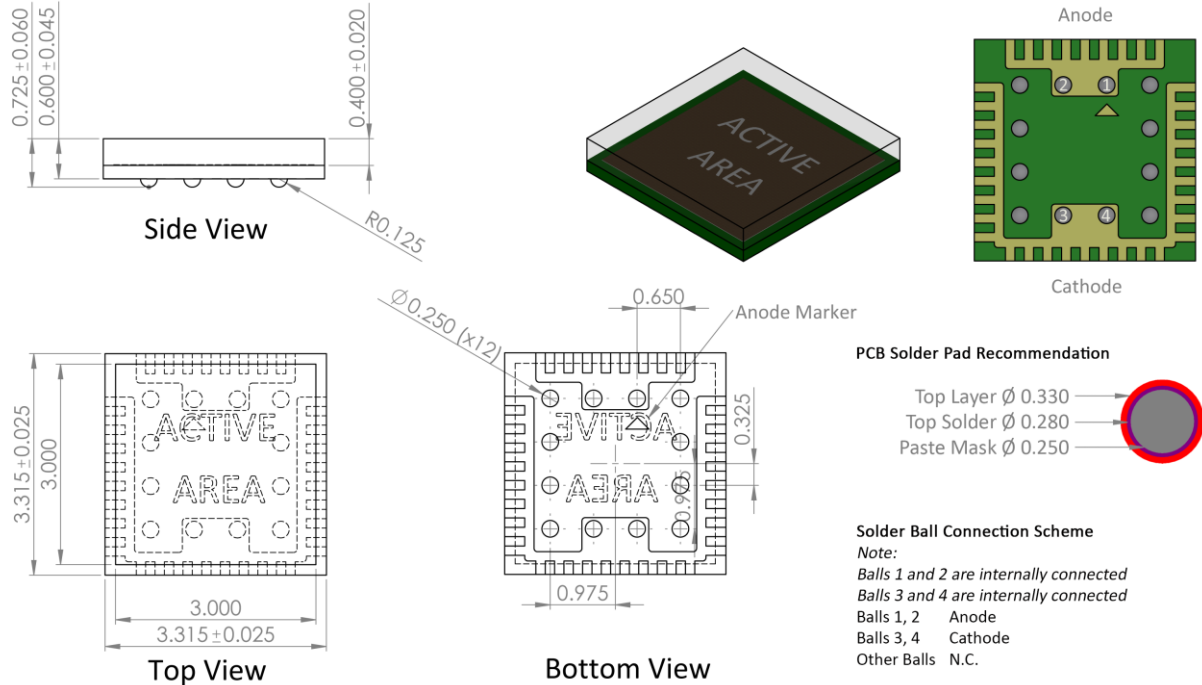
Parameter	PM3315-WL			PM3335-WL			PM3347-WL			Unit
	Overvoltage									
	+2.5 V	+5.0 V	+6.5 V	+2.5 V	+5.0 V	+6.5 V	+2.5 V	+5.0 V	+6.5 V	
Photo Detection Efficiency at 430 nm	20	29	31	29	41	44	33	47	51	%
Dark Count Rate	25	45	60	30	60	80	40	85	110	kHz/mm <sup>2</sup>
Dark Current	0.0141	0.059	0.114	0.085	0.349	0.636	0.207	0.913	1.80	μA
Dark Current – max.	0.0252	0.112	0.322	0.154	0.517	1.21	0.60	2.00	4.25	μA
Gain	0.35	0.70	0.91	2.0	4.0	5.2	3.5	7.0	9.1	x 10 <sup>6</sup>
Crosstalk Probability*	5	14	21	4	10	14	7	18	26	%
Afterpulsing Probability	1	3	5	1	3	5	1	3	5	%
Terminal Capacitance	1			1			1			nF
Recovery Time $\tau$ (at 1 $\Omega$ load)	7			35			95			ns

\* Including delayed crosstalk with a probability < 0.1%



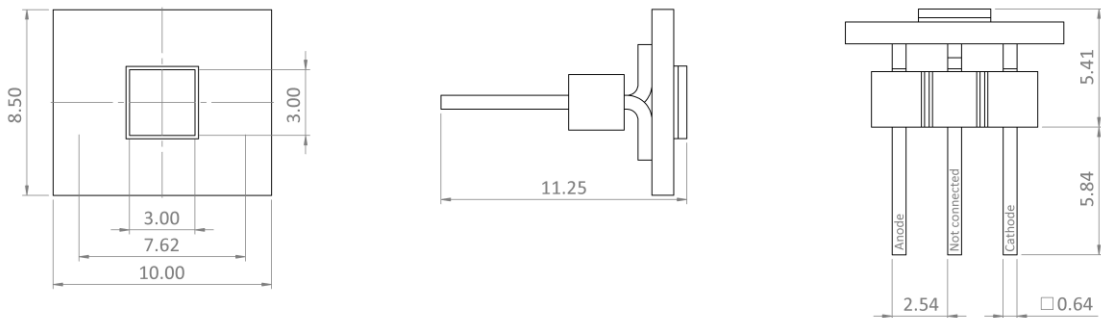
### Mechanical Specifications

#### Dimensions and Recommended Footprint\*



\* Footprint and 3D model are available for download at [www.ketek.net/sipm-downloads/](http://www.ketek.net/sipm-downloads/)

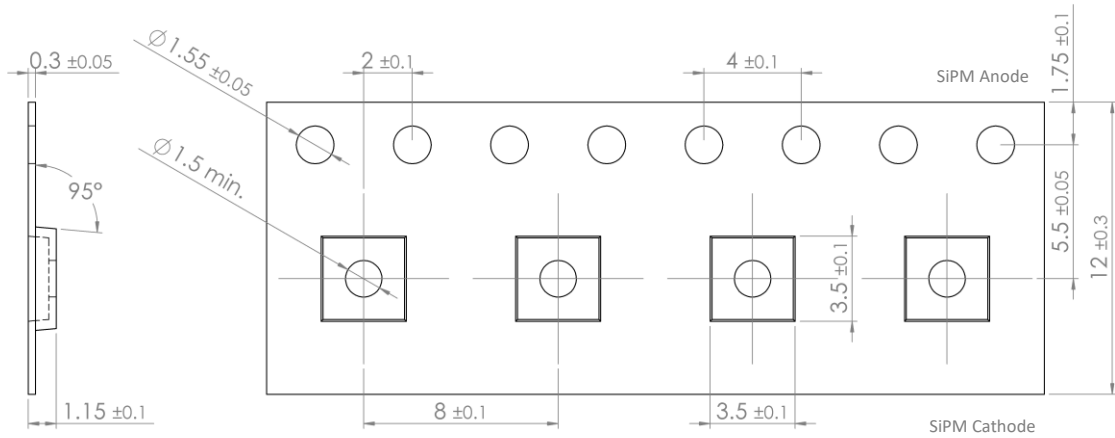
#### PM33xx-WL preassembled on PCB with Pins (available for Evaluation Purposes)\*



\* Mates e.g. with Preci-Dip 801-87-003-10-001101

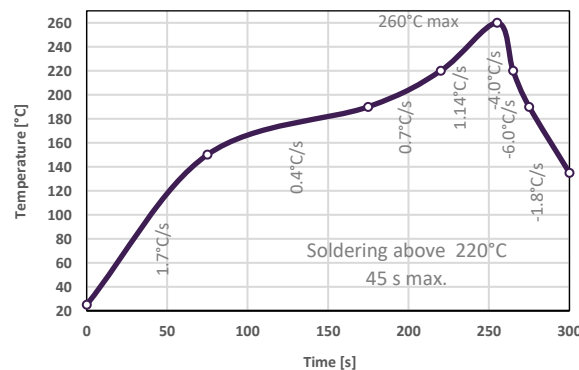
### Assembly Specifications

Tape and Reel\*



\* 1000 pcs per reel, quantities < 1000 pcs delivered as cut tape

### Recommended Reflow Solder Profile\*



\* Lead-free no-clean solder paste type 4 is recommended, e.g. SAC305 ROL0 Nihon Handa PF305-118  
SMD stencil thickness of  $80 \mu\text{m}$  is recommended

### Revision History

Revision and Date	Changes
Rev. 2021-B January 2021	Initial Release of Product Data Sheet
Rev. 2020-A October 2020	Initial Release of Preliminary Product Data Sheet

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