
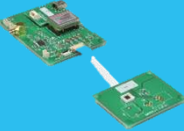






Online Store: Standard MPPC Lineup

Product	Type	Part Number	Active Area Per Channel	Pixel Pitch	Configuration
High Precision Series For Scientific Measurement	Single Element	S13360-1350CS 	1.3 x 1.3 mm	50 μm	-
		S13360-3050CS 	3 x 3 mm		
		S13360-6050CS 	6 x 6 mm		
	Evaluation Kit	C12332-01 	Compatible with S13360-xxxxCS	-	MPPC sold separately
	Array	S13361-3050AE-04 	3 x 3 mm	50 μm	4 x 4 (16ch)
		S13361-3050AE-08 	3 x 3 mm		8 x 8 (64ch)
		S13361-6050AE-04 	6 x 6 mm		4 x 4 (16ch)
Low Voltage Series For PET (Radiation)	Single Element	S14160-3050HS 	3 x 3 mm	50 μm	-
		S14160-4050HS 	4 x 4 mm		
		S14160-6050HS 	6 x 6 mm		
	Array	S14161-3050HS-04 	3 x 3 mm	50 μm	4 x 4 (16ch)
		S14161-3050HS-08 	3 x 3 mm		8 x 8 (64ch)

Please contact Hamamatsu for custom detector and module solutions.

Online Store: Standard Module Lineup

Product	Part Number	Active Area	Type	Bandwidth	Photoelectric Sensitivity
Si PD Module	C10439-03 	10 x 10 mm	High-sensitivity type	H: DC-10Hz L: DC-1kHz	H: 5×10^8 V/W L: 5×10^6 V/W
	C10439-09 	10 x 10 mm	High-speed type	H: DC-1kHz L: DC-100kHz	H: 5×10^5 V/W L: 5×10^3 V/W
Si APD Module	C12702-04 	Φ 3 mm	Near-infrared type	4kHz-80MHz	-2.3×10^4 V/W
	C12702-12 	Φ 3 mm	Short-wavelength type	4kHz-40kHz	-1.9×10^4 V/W
	C12703 	Φ 1.5 mm	High-sensitivity type	DC-10MHz	1.5×10^6 V/W
	C12703-01 	Φ 3 mm		DC-100kHz	-1.5×10^3 V/W
MPPC Module	C13365-1350SA 	1.3 x 1.3 mm	High-precision series	DC-5MHz	1×10^9 V/W
	C13365-3050SA 	3 x 3 mm	High-precision series	DC-5MHz	1×10^9 V/W
	C13367-1350EA 	1.3 x 1.3 mm	High-precision series w flex cable	DC-5MHz	1×10^9 V/W
	C13367-3050EA 	3 x 3 mm	High-precision series w flex cable	DC-5MHz	1×10^9 V/W
SPPC Module	C13001-01 	Φ 50 μm	FC fiber-coupled type	-	Digital TTL

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General Characteristics

Characteristics	Si PD	Si APD	MPPC	PMT
Quantum Efficiency	Highest	High	Medium	Low
Gain	1 (No gain)	10^2	$\sim 10^6$	$\sim 10^7$
Operation Voltage	5 V	100 – 500 V	30 – 60 V	800 – 1000 V
Large Area	No	No	No	Yes
Readout Circuit	Complex	Complex	Simple	Simple
Output Uniformity	Excellent	Good	Excellent	Good
Temperature Sensitivity	Low	High	Medium	Low
Compact & Lightweight	Yes	Yes	Yes	No

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Integrated Optical Solutions

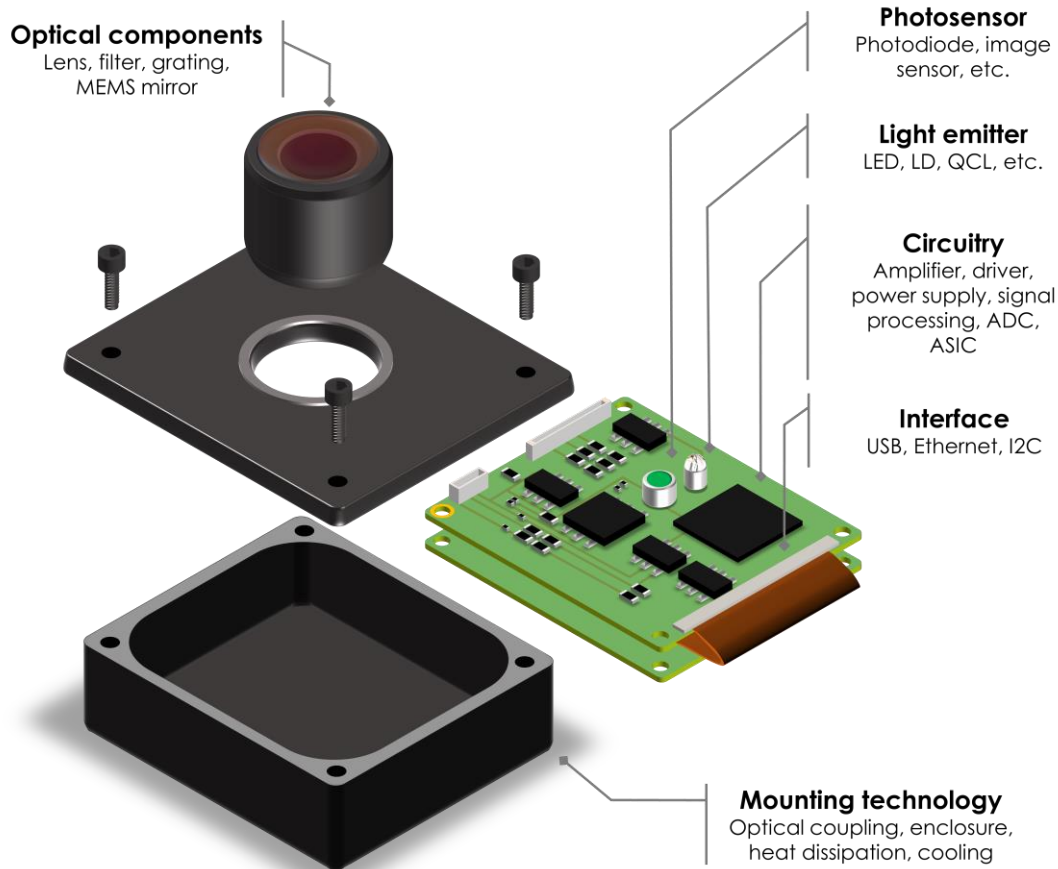
Module Customization

In addition to offering standard opto-semiconductor modules, Hamamatsu can also provide custom modules designed to the customer's specification.

Choose from a wide lineup of opto-semiconductors from Hamamatsu or request a custom-designed sensor and light source.

We'll simulate and design the optics, integrate the sensor with circuits optimized for optical devices, and package the assembly in a custom-designed housing.

USB, Ethernet, or other interfaces available with custom software.



Design

Simulation

Testing

Evaluation

Mass
Production

Please contact Hamamatsu for custom detector and module solutions.

Hamamatsu Opto-semiconductors

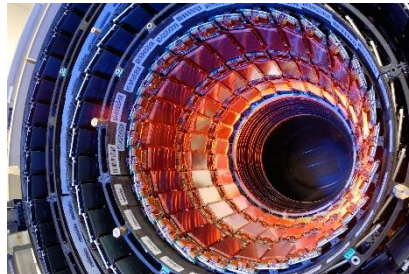
Product

- Wide variety of detectors and light sources
- From small devices to integrated modules and units
- Unique optical devices using MEMS



Experience

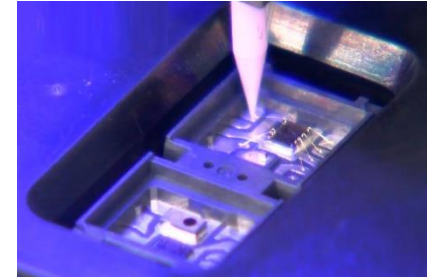
- Over 60 years of producing opto-semiconductors
- Providing products for a variety of markets and applications (medical, industrial, consumer, automotive, and academic research)



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Quality

- High quality through in-house design and manufacturing
- High-reliability product design
- Proprietary production management system



Production

- High-mix, low-volume production (optimized for custom-designed products)
- Capable of mass production
- Modularization is possible



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