

Product Overview

C-SERIES SiPM: Silicon Photomultiplier Sensors, C-Series (SiPM)

For complete documentation, see the [data sheet](#).

ON Semiconductor's C-Series silicon photomultiplier (SiPM) sensors feature industry-leading low dark count rates of 30 kHz/mm², in combination with exceptional breakdown voltage uniformity of ± 250 mV. The high photon detection efficiency (PDE) extends far into the blue part of the spectrum using a high-volume, CMOS process.

C-Series sensors are available in 1 mm, 3 mm and 6 mm sizes and a variety of microcell sizes. They are packaged in a tileable molded lead frame (MLP) package that is compatible with industry standard, lead-free, reflow soldering processes. C-Series also feature a unique fast output for fast timing applications.

Features

- >40% PDE at 420 nm, and extended sensitivity to 300 nm for improved UV sensitivity
- Ultra-low dark count rates of 30 kHz/mm²
- Exceptional breakdown voltage uniformity of ± 250 mV over all C-Series products
- Temperature stability of 21.5 mV/°C
- Ultra-fast rise times of 300 ps with 600 ps pulse width from a unique 'fast output' terminal
- Bias voltage of <30 V
- 1 mm, 3 mm, and 6 mm sensor sizes

Benefits

- Solid state alternative to the legacy PMT for a wide range of applications
- High gain of 10⁶ leads to single photon sensitivity
- Best V_{br} uniformity in the industry
- Compact, robust packaging
- Evaluation boards with either SMA connectors or pins are available for easy evaluation

Applications

- Medical Imaging
- Hazard & Threat
- 3D Ranging & Sensing
- Biophotonics & Sciences
- High Energy Physics

Part Electrical Specifications

Product	Compliance	Status	Type	Active Area Dimensions	Microcell Size (μm)	Optimized Wavelength (nm)	PDE @ Max Overvoltage (%)	DCR @ Typical Overvoltage (KHz/mm)	Package Type
MICROFC-10010-SMT-TR	Pb-free	NEW	Single	1 mm x 1 mm	10	420	18	30	CWDFN-4
	Halide free								
MICROFC-10010-SMT-TR1	Pb-free	NEW	Single	1 mm x 1 mm	10	420	18	30	CWDFN-4
	Halide free								
MICROFC-10020-SMT-TR	Pb-free	NEW	Single	1 mm x 1 mm	20	420	31	30	CWDFN-4
	Halide free								
MICROFC-10020-SMT-TR1	Pb-free	NEW	Single	1 mm x 1 mm	20	420	31	30	CWDFN-4
	Halide free								
MICROFC-10035-SMT-TR	Pb-free	NEW	Single	1 mm x 1 mm	35	420	41	30	CWDFN-4
	Halide free								
MICROFC-10035-SMT-TR1	Pb-free	NEW	Single	1 mm x 1 mm	35	420	41	30	CWDFN-4
	Halide free								
MICROFC-30020-SMT-TR	Pb-free	NEW	Single	3 mm x 3 mm	20	420	31	30	CWDFN-4
	Halide free								
MICROFC-30020-SMT-TR1	Pb-free	NEW	Single	3 mm x 3 mm	20	420	31	30	CWDFN-4
	Halide free								
MICROFC-30035-SMT-TR	Pb-free	NEW	Single	3 mm x 3 mm	35	420	41	30	CWDFN-4
	Halide free								
MICROFC-30035-SMT-TR1	Pb-free	NEW	Single	3 mm x 3 mm	35	420	41	30	CWDFN-4
	Halide free								
MICROFC-30050-SMT-TR	Pb-free	NEW	Single	3 mm x 3 mm	50	420	47	30	CWDFN-4
	Halide free								
MICROFC-30050-SMT-TR1	Pb-free	NEW	Single	3 mm x 3 mm	50	420	47	30	CWDFN-4
	Halide free								
MICROFC-60035-SMT-TR	Pb-free	NEW	Single	6 mm x 6 mm	35	420	41	30	CWDFN-4
	Halide free								
MICROFC-60035-SMT-TR1	Pb-free	NEW	Single	6 mm x 6 mm	35	420	41	30	CWDFN-4
	Halide free								

For more information please contact your local sales support at www.onsemi.com.

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