

Product Overview

RDM 1X12 SiPM ARRAY: NIR-enhanced for LiDAR Applications, Automotive Qualified

For complete documentation, see the data sheet.

The Silicon Photomultiplier (SiPM) is a high gain, single photon-sensitive sensor used for detection of visible to NIR wavelengths. The ArrayRDM-0112A20-QFN is a monolithic 1 × 12 array of SiPM pixels based on our market-leading RDM SiPM CMOS process. The RDM process has been specifically developed to create products that achieve high PDE (photon detection efficiency) at the NIR wavelengths of 905/940nm which are typically used for LiDAR and 3D dToF ranging applications.

The array is packaged in a robust QFN package that gives access to the 12 individual pixels. In order to meet the requirements for automotive LiDAR applications, this product will be qualified to AEC-Q102 and has been developed in accordance with IATF 16949. An evaluation board (ArrayRDM-0112A20-GEVB) is also available for this product.

It is recommended that those new to SiPM sensors consult the Introduction to Silicon Photomultipliers application note.

Note: Automotive qualification and PPAP in process. Contact sales for additional information.

Features

- High gain and detection efficiency
- Automotive qualified
- 1 x 12 pixel array format
- PDE of 16% at 905 nm
- 30 V bias supply
- 0.47 mm x 1.12 mm pixel size
- QFN package (10 mm x 5.2 mm)

Benefits

- Responsivity >100 kA/W @ 905 nm
- AEC-Q102 qualified and developed in accordance with IATF 16949
- Ideal for LiDAR applications using either mechanical or MEMs scanning.
- Market leading sensitivity to enable detection of LiDAR return signals from low reflectivity objects at long range.
- Simplifies biasing circuitry

Applications

- 3D Ranging & Sensing
- Automotive LiDAR
- Industrial LiDAR
- Consumer 3D imaging
- Robotics

End Products

- Scanning LiDAR systems

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Type	Array Format	Active Area Dimensions	Microcell Size (µm)	Optimized Wavelength (nm)	PDE @ Max Overvoltage (%)	DCR @ Typical Overvoltage (KHz/mm ²)	Package Type
ARRAYRDM-0112A20-QFN-TR		AEC Qualified PPAP Capable Pb-free Halide free	Product Preview	Array	1 x 12	1.12 mm x 0.47 mm	20	905	16	500 kcps (per pixel)	QFN-28
ARRAYRDM-0112A20-QFN-TR-E		Pb-free Halide free non AEC-Q and PPAP	Active	Array	1 x 12	1.12 mm x 0.47 mm	20	905	16	500 kcps (per pixel)	QFN-28
ARRAYRDM-0112A20-QFN-TR1		AEC Qualified PPAP Capable Pb-free Halide free	Product Preview	Array	1 x 12	1.12 mm x 0.47 mm	20	905	16	500 kcps (per pixel)	QFN-28

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

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