



## Kyoto Semiconductor Announces High Sensitivity Avalanche Photodiode for OTDR

KP-A avalanche photodiode "KPDEA003-T" has achieved high sensitivity, high gain, and low noise suitable for OTDR

TOKYO, Japan, January 19, 2022 – Kyoto Semiconductor Co., Ltd. (President and CEO Tsuneo Takahashi, Head office: Fushimi-ku, Kyoto city), a leading optical device solution manufacturer with world-class technologies and Japanese quality, has announced KP-A avalanche photodiode (APD) <sup>\*1</sup>, KPDEA003-T. The new product achieved high sensitivity, high gain, and low noise suitable for OTDR (Optical Time Domain Reflectometer) <sup>\*2</sup> that is essential in deploying optical fiber networks.

As the optical fiber deployment is increasing in accordance with the expansion of 5G networks, there have been growing requests for high sensitivity, high gain, and low noise in APDs used in OTDRs to quickly detect faults in optical fibers.

KP-A avalanche photodiode "KPDEA003-T" was developed for sensing optical fibers. This product is a module in which a single-mode fiber with an SC optical connector is coaxially integrated so that it is easily connected to the optical device. Compared to a Kyoto Semiconductor's existing product, KPDEA003-T has achieved higher sensitivity<sup>\*3</sup> with a multiplication of 2 times<sup>\*4</sup>, and the noise is a fifth as low<sup>\*5</sup> thanks to the company's unique wafer structure.

These characteristics allow "KPDEA003-T" to sense the weak light that can not be detected with PIN photodiodes or existing APDs. The product is expected to be used not only in testing optical fibers but also in medical or analytical equipment.

Tsuneo Takahashi, President and CEO, Kyoto Semiconductor, says, "There have been strong demand for high sensitivity APD suitable for OTDR among test equipment manufacturers worldwide. We expect our new APD, KPDEA003-T, meet the requirements with its world-class performance."

The mass production of KP-A avalanche photodiode KPDEA003-T is scheduled to start on September 30, 2022.

For more information

<https://www.kyosemi.co.jp/en/products/kpdea003-t/>

KPDEA003-T





**KYOTO SEMICONDUCTOR Co.,Ltd.**

\*1 Avalanche photodiode: A semiconductor photodiode with photocurrent amplification by applying a reverse bias voltage. This photocurrent amplification produces much more current than a normal photodiode. It is used in applications that require high sensitivity.

\*2 OTDR: Optical Time Domain Reflectometer. An OTDR is an optical test device that detects faults in optical fibers used in high-speed communication.

\*3 Sensitivity:  $R = 1.1 \text{ A / W}$  Measurement conditions: Input emission wavelength  $\lambda = 1550 \text{ nm}$  Current multiplication factor  $M = 1$

\*4 Comparison with the existing product "KPDEA005-56F" Current multiplication factor:  $M = 56$  Measurement conditions: Input emission wavelength  $\lambda = 1310 \text{ nm}$ ,  $V_R = V_{BR}$  (at  $I_D = 1 \mu\text{A}$ )

\*5 Comparison with the existing product "KPDEA005-56F" Dark current:  $I_D = 2 \text{ nA}$  Measurement conditions: Reverse voltage  $V_R = \text{Breakdown voltage } V_{BR} \times 0.9$

### **About Kyoto Semiconductor**

Kyoto Semiconductor was established in 1980 in Kyoto as a dedicated manufacturer of optical semiconductors. The semiconductors manufactured offer superlative performance and precision, suited for use in optical transmission. They are manufactured end-to-end, including pre- and post-processing, and together with Kyoto Semiconductor's unique packaging technology, at our location in Japan and made available to customers around the world. Kyoto Semiconductor leads the industry with world-standard technologies for optical device solutions based on Japanese quality and attention to production detail.

**Company Website:** <https://www.kyosemi.co.jp/>

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