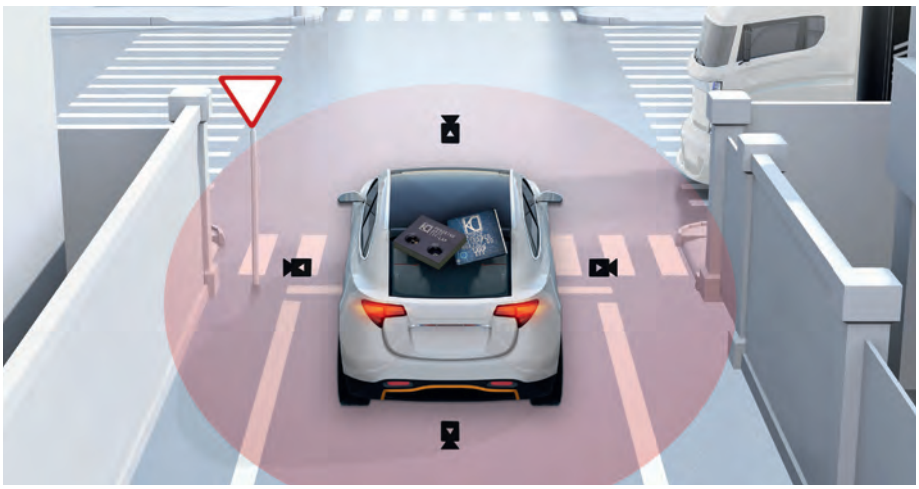
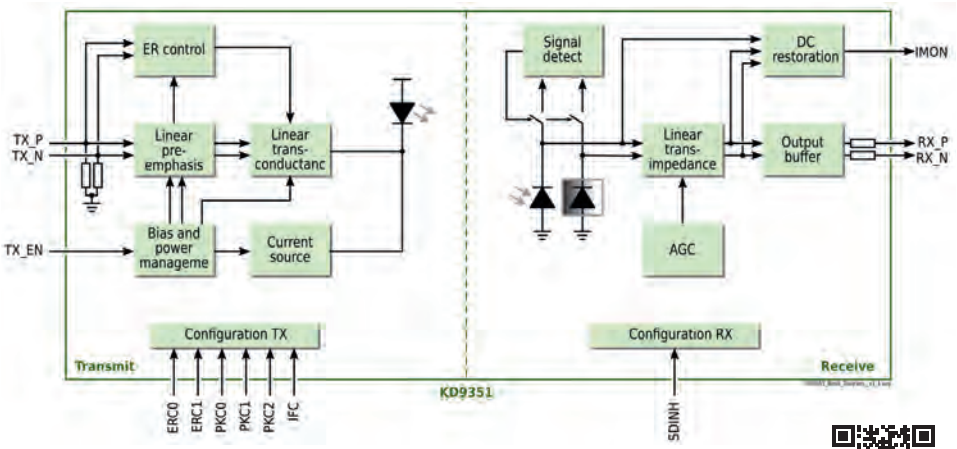
Optical High-speed Connectivity



The KD9351 integrated Fiber Optic Transceiver (FOT) complements the KD1053 IC, providing competitive pricing for EMC critical or galvanic isolated critical links in automotive networks. Optimized for low power, reduced BOM and a small footprint, the KD1053 and KD9351 devices are targeted for automotive applications that use optical Ethernet over Plastic Optical Fiber (POF) for the communications in vehicle data networks. Interconnection of infotainment and Advanced Driver Assistance Systems (ADAS) ECUs are two of the key applications where POF is the best choice.

KD9351 – Automotive 1000BASE-RHC PMD Integrated Transceiver



OVERVIEW

The KD9351 is a Fiber Optic Transceiver that implements the Physical Medium Dependent Sublayer (PMD) of a 1000BASE-RHC PHY, compliant with the specifications of IEEE Std 802.3bv™-2017 standard for gigabit optical communications over POF. The KD9351 connects with the KDPOF KD1053 transceiver, which implements a Physical-Coding Sublayer (PCS) and a Physical Medium Attachment (PMA) sublayer, to form a complete automotive 1000BASE-RHC physical layer. With its integrated EMC shielding, the KD9351 transceiver guarantees the highest component-level EMC compliance without the need for any external additions. It can operate either at 1 Gb/s or 100 Mb/s.

FEATURES

- 1 Gb/s operation mode, 1000BASE-RHC Physical Medium Dependent (PMD) sublayer according to the IEEE Std 802.3bv™-2017
- 100 Mb/s operation for applications requesting low data rates and high optical link margin
- Optimized for multimode plastic optical fiber with the channel characteristics specified by IEEE Std 802.3bv™-2017 Clause 115
- Wake-up & Sleep support as per ISO 21111
- Guaranteed BER < 10^{-12} for 1 Gb/s and 100 Mb/s operation modes, when operating with KD1053 PCS-PMA transceiver
- Single 3.3 V supply
- Low power consumption (see below)
- Low-cost bill of materials (BOM)
- Integrated EMC shielding, compliant with CISPR25 Class-5 at component level
- Automotive AEC-Q100 grade 2
- -40 to +105 °C operating ambient temperature
- 36-pin LGA (7 x 8 mm) package

TRANSMITTER SIDE

- High and controlled Extinction-Ratio (ER) for link budget maximization: 15 dB (typ.)
- Linear pre-emphasis circuitry for LED acceleration
- Designed to be connected to a differential, current steering DAC, with two interface possibilities (typical values):
  - DAC full-scale current 6 mA, DAC source single ended termination 50 Ω
- Current consumption (normal operation mode, typ. value): 74.9 mA

RECEIVER SIDE

- Integrated trans-impedance amplifier (TIA) and differential photo-diode
- DC restoration
- Automatic gain control (AGC) to guarantee a constant voltage amplitude regardless of the received photo-current
- Signal-detection signaling
- Current consumption (normal operation mode, typ. value): 37.3 mA

KD9000 FAMILY

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