Motorcomm YT8010A Product Brief

100BASE–T1 PHY FOR AUTOMOTIVE ETHERNET

Overview

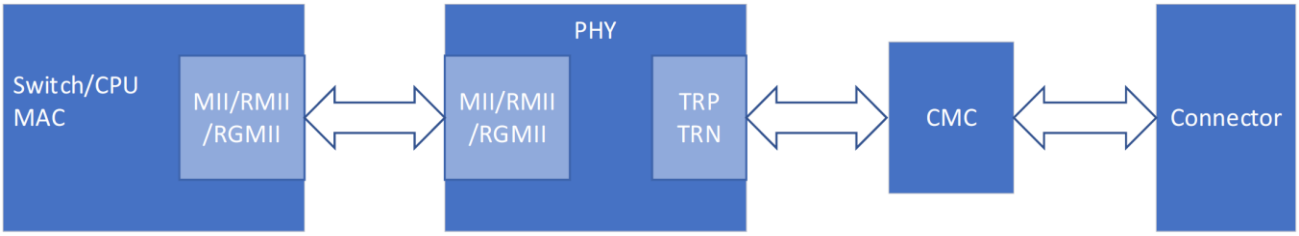
The Motorcomm YT8010A is a single pair Ethernet physical layer transceiver (PHY) which implements the Ethernet physical layer portion of the 100BASE-T1 standard as defined by the IEEE 802.3bw task force. Ideally suited for a wide range of automotive applications, it is manufactured by using a standard digital CMOS process and contains all the active circuitry required to implement the physical layer functions to transmit and receive data on a single balanced twisted pair.

Based on innovative DSP technology, combing adaptive equalizers, echo canceller, ADCs, phase-locked loops, line drivers, encoders/decoders and all other required support circuitry at a 100Mbps data rate to achieve robust performance and exceed automotive electromagnetic interference (EMI) requirements in noisy environments with very low power dissipation.

YT8010A is fully compliant with RGMII, RMII and MII interface specifications, allowing compatibility with industry-standard Ethernet media access controllers (MACs) and switch controllers.

The YT8010A delivers the most comprehensive automotive technology solution required by OEM and Tier 1 suppliers, meeting AEC-Q100 Grade 1 temperature range.

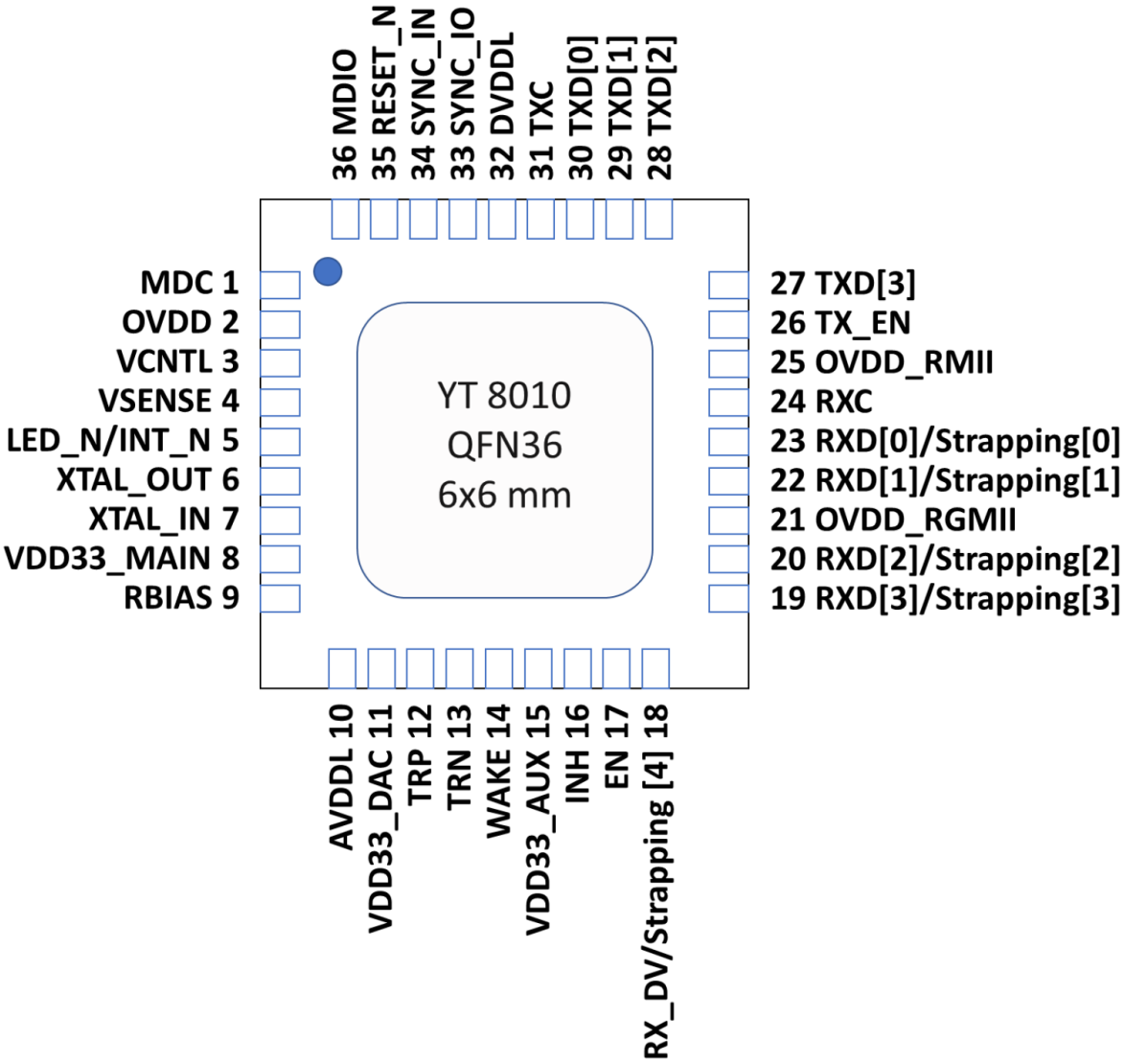
Application Diagram



Key Features

- 100BASE–T1 Transceiver
  - 100BASE–T1 IEEE 802.3bw standards
  - Full duplex
  - Rapid linkup time
- Support auto cable detection and working mode selection.
- MII/RMII/RGMII support
- Selectable 3.3V/2.5V signaling voltage for RGMII/RMII/MII
- RMII/RGMII interface EMI enhancement
- Support latency accommodation of RGMII clock
- Support IEEE 802.1AS
- Support Remote Wake up 3.3V analog supply
- Advanced low–power management with local wake–up support
- Automotive Cable Diagnostics support
- Integrated LDO regulator allowing a single supply
- Internal/external/remote loopback mode for diagnosis
- MDI pins protected against ESD to 6kV HBM
- Jumbo frame supports up to 16 kB
- Polarity detection and auto/manual correction
- Integrated twisted–pair termination resistors
- AEC–Q100 Grade 1 (–40~125° C)
- Trace matched output impedance
- Integrated low pass filter
- Robust cable ESD tolerance
- Package QFN 36, 6x6mm

Pin Assignment



Target Applications

- Automotive Infotainment Systems
- Automotive Diagnostics
- Advanced Driver Assistance Systems
- Vehicle Body Control Electronics
- Domain Control Units
- Automotive Switches