

MARVELL® 88Q1010 100BASE-T1 PHY

100Mbps IEEE 802.3bw compliant Automotive Ethernet PHY

PRODUCT OVERVIEW

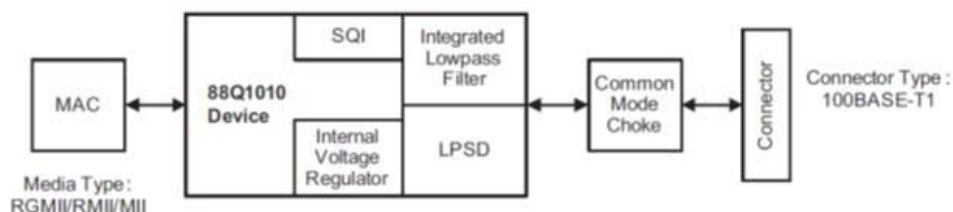
The Marvell® 88Q1010 solution is a single pair Ethernet physical layer transceiver (PHY) which implements the Ethernet physical layer portion of the 100BASE-T1 standard as defined by the IEEE 802.3bw task force. Ideally suited for a wide range of automotive applications, it is manufactured using a standard 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.

88Q1010 integrates media dependent interface (MDI) termination resistors into the PHY which simplifies the board layout and reduces board cost by reducing the number of external components. It has an integrated linear voltage regulator to generate all required voltages so the device can run off a single 3.3V supply. The solution supports 1.8V, 2.5V, and 3.3V LVCMOS I/O standards.

In addition, 88Q1010 uses advanced mixed-signal processing to perform equalization, echo, data recovery, and error correction at a 100Mbps data rate to achieve robust performance and exceed automotive electromagnetic interference (EMI) requirements in noisy environments with very low power dissipation.

Finally, 88Q1010 is compatible to the footprint of the 88Q2110 100/1000BASE-T1 Ethernet PHY transceiver to ensure an upward path to 1Gbps designs.

BLOCK DIAGRAM



Marvell 88Q1010 00BASE-T1 PHY

KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
802.1AS and 1-step PTP	Support for Precision time protocol (PTP)
Signal quality indicator (SQI)	Signal quality indicator (SQI) tool provides signal-to-noise ratio (SNR) data
Integrated Virtual Cable Tester	VCT tool used for cable diagnostics
Integrated passive filter network	Reduced BOM/board space
Integrated LDO	3.3V only operation
Low power signal detect (LPSD)	Capable of energy detect mode which consumes < 30 μA
Automotive Package	40-QFN, 6.0x6.0 mm, 0.5 mm pitch, wettable flanks
Automotive Qualified	- AEC-Q100 - Automotive Grade 1 (-40 °C to +125 °C)

TARGET APPLICATIONS

- Automotive infotainment systems
- Automotive diagnostics
- Advanced driver assist systems
- Body electronics

STANDARDS



Marvell is a SIG Adopter member of the Open Alliance, a non-profit, open industry alliance of automotive industry and technology providers collaborating to encourage wide scale adoption of Ethernet-based networks as the standard in automotive networking applications.



Marvell® 88Q1010 solution is compliant with the IEEE 802.3bw standards.



ABOUT MARVELL: Marvell first revolutionized the digital storage industry by moving information at speeds never thought possible. Today, that same breakthrough innovation remains at the heart of the company's storage, networking, and connectivity solutions. With leading intellectual property and deep system-level knowledge, Marvell's semiconductor solutions continue to transform the enterprise, cloud, automotive, industrial, and consumer markets. For more information, visit www.marvell.com.