

Marvell® Brightlane™ 88Q2110/88Q2112 100/1000BASE-T1 PHY

100/1000Mbps IEEE 802.3bp compliant Automotive Ethernet PHY

Overview

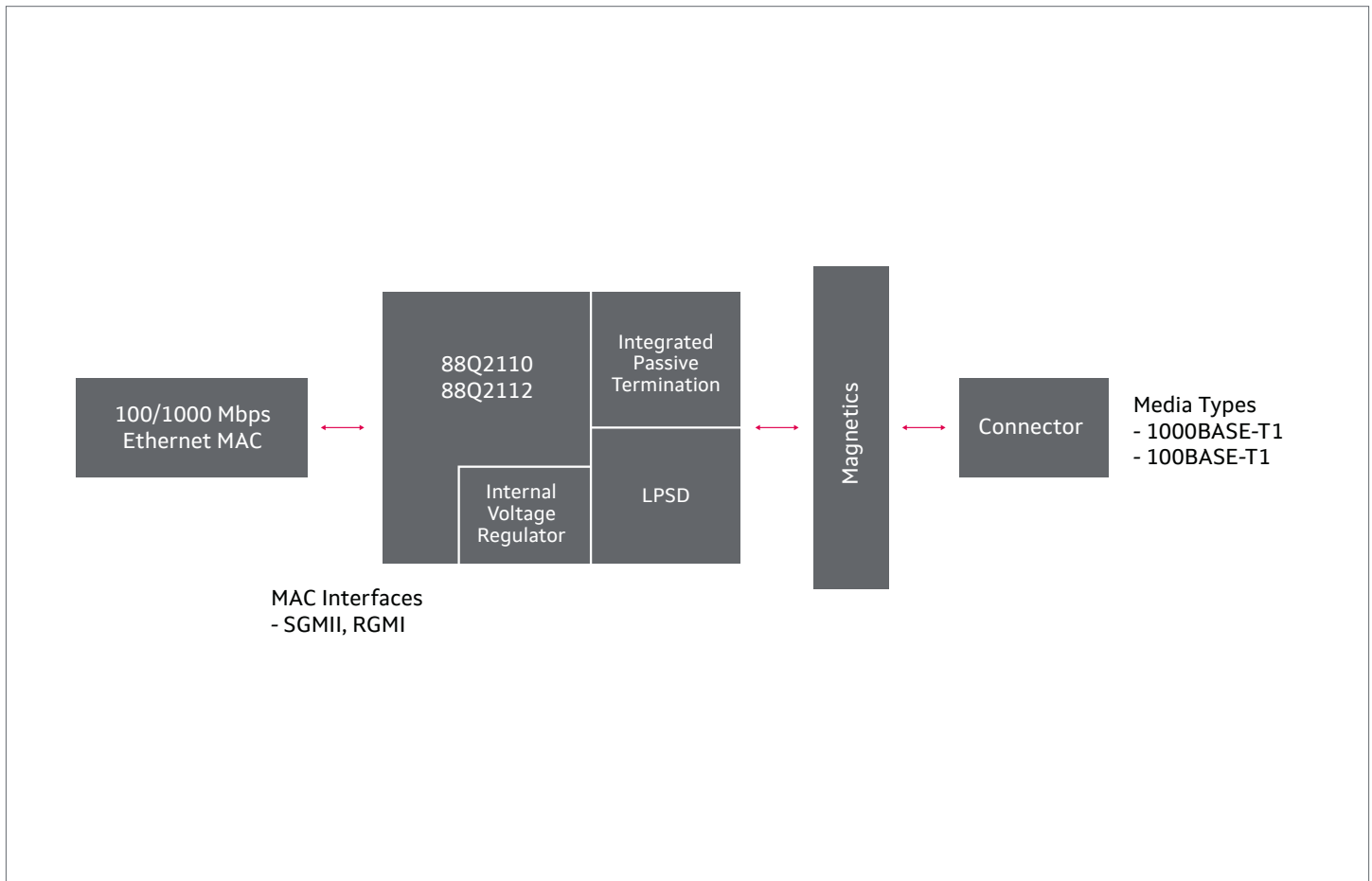
Marvell Brightlane™ 88Q2110/88Q2112 solutions are single pair Ethernet physical layer transceivers (PHYs) that implement the Ethernet physical layer portion of the 100/1000BASE-T1 standard as defined by the IEEE 802.3bw and IEEE 802.3bp standard. Ideally suited for a wide range of automotive applications, they are manufactured using a standard digital CMOS process and contain all the active circuitry required to implement the physical layer functions to transmit and receive data on a single balanced twisted pair.

88Q2110/88Q2112 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. Also, they support an integrated linear voltage regulator to generate all required voltages so the device can run off a single 3.3V supply. Both solutions support 1.8V, 2.5V, and 3.3V LVCMOS I/O standards.

In addition, 88Q2110/88Q2112 utilize advanced mixed-signal processing to perform equalization, echo and crosstalk cancellation, data recovery, and error correction at a data rate of either 100Mbps or 1Gbps. This is to achieve robust performance and exceed automotive electromagnetic interference (EMI) requirements in noisy environments with very low power dissipation.

Block Diagram



Marvell Brightlane™ 88Q2110/88Q2112 Block Diagram

Key Features

| Features | Benefits |
|---|---|
| Four RGMII timing modes including integrated delays | <ul style="list-style-type: none">Eliminates the need for adding trace delays on the PCB |
| Signal quality indicator (SQI) | <ul style="list-style-type: none">Signal quality indicator (SQI) tool provides signal-to-noise ratio (SNR) data |
| Integrated Virtual Cable Tester | <ul style="list-style-type: none">VCT tool used for cable diagnostics |
| Integrated passive filter network | <ul style="list-style-type: none">Reduced BOM/board space |
| Integrated LDO | <ul style="list-style-type: none">3.3V only operation |
| Automotive Package | <ul style="list-style-type: none">40-pin QFN, 6 mm × 6 mm (88Q2110)48-pin QFN, 7 mm × 7 mm (88Q2112) |
| Automotive Qualified | <ul style="list-style-type: none">AEC-Q100Automotive Grade 2 (-40 °C to +105 °C) |

Target Applications

- Automotive infotainment systems
- Advanced driver assist systems
- Automotive diagnostics
- 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® 88Q2110/88Q2112 solutions are compliant with the IEEE 802.3bw and IEEE 802.3bp standards.



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 semiconductor solutions continue to transform the enterprise, cloud, automotive, industrial, and consumer markets. For more information, visit www.marvell.com.

© 2020 Marvell. All rights reserved. The MARVELL mark and M logo are registered and/or common law trademarks of Marvell and/or its Affiliates in the US and/or other countries. This document may also contain other registered or common law trademarks of Marvell and/or its Affiliates.

Marvell_88Q2110/88Q2112_PB Revised: 05/20