

MARVELL® 88Q2110/88Q2112 100/1000BASE-T1 PHY

100/1000Mbps IEEE 802.3bp compliant Automotive Ethernet PHY

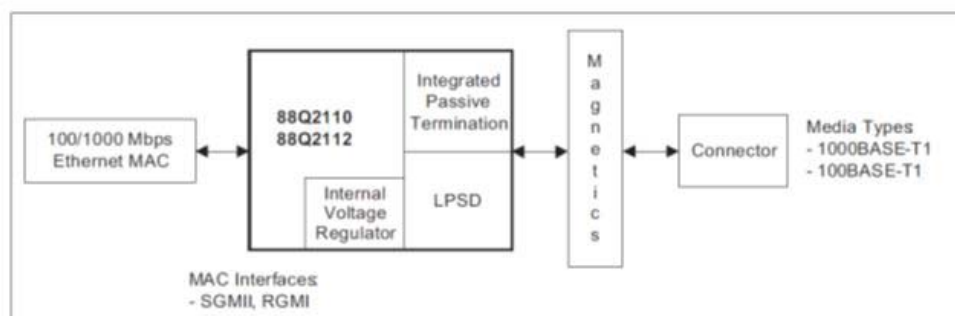
PRODUCT OVERVIEW

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

KEY FEATURES AND BENEFITS

| 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 |
| Low power signal detect (LPSD) | <ul style="list-style-type: none"> Capable of energy detect mode which consumes < 30 μA |
| Automotive Package | <ul style="list-style-type: none"> 40-pin QFN, 6 mm \times 6 mm (88Q2110) 48-pin QFN, 7 mm \times 7 mm (88Q2112) |
| Automotive Qualified | <ul style="list-style-type: none"> AEC-Q100 Automotive Grade 2 (-40 $^{\circ}$C to +105 $^{\circ}$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® 88Q2110/88Q2112 solutions are compliant with the IEEE 802.3bw and IEEE 802.3bp standards.

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