

# Broadcom BCM89810 Automotive Physical Layer Technology

Connecting everything®



## SINGLE-PORT BroadR-Reach™ AUTOMOTIVE ETHERNET TRANSCEIVER

### Overview

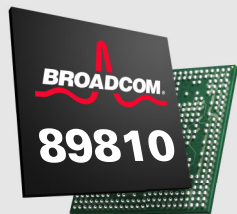
The BCM89810 is a 100 Mbps automotive Ethernet transceiver integrated into a single monolithic CMOS chip. The device performs all of the physical layer (PHY) functions for BroadR-Reach™ encoded Ethernet packets over single-pair unshielded twisted-pair copper wire, such as FlexRay™. The BCM89810 is designed to exceed automotive specifications for noise cancellation and transmission jitter, providing consistent and reliable operation over the broadest range of existing single-pair twisted-pair automotive cable plants.

### Product Family Features

- Specific architectural and design enhancements are utilized to increase design for test, reliability, and quality to surpass AEC-Q100 and EMC requirements.
- Designed to support IEEE 1588 timing function.
- Small size footprint support with 48-pin MLP package.
- Automotive cable diagnostics feature can detect pair open/short and distance.

### Architectural Features

- Single BroadR-Reach transceiver in a fully integrated 65 nm CMOS chip
- Full-duplex operation at the rate of 100 Mbps over one pair of UTP cable
- Fully integrated twisted-pair termination resistors
- Trace-matched output impedance

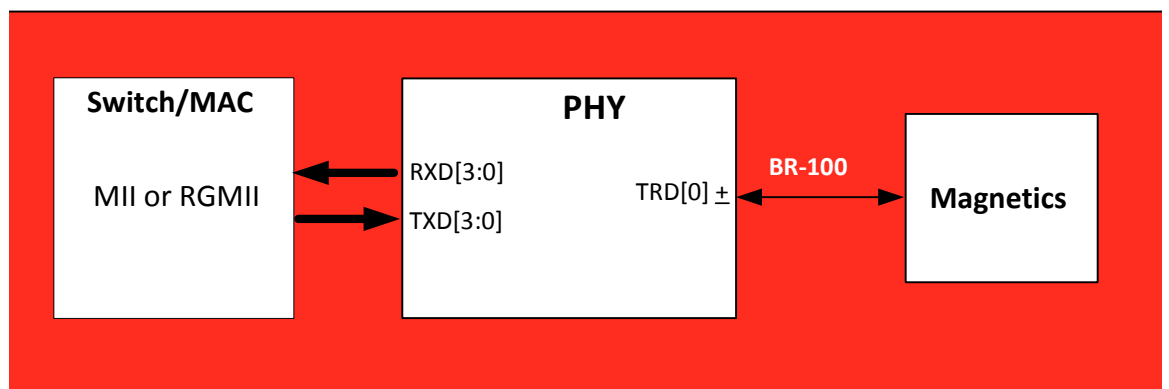


### Highlights

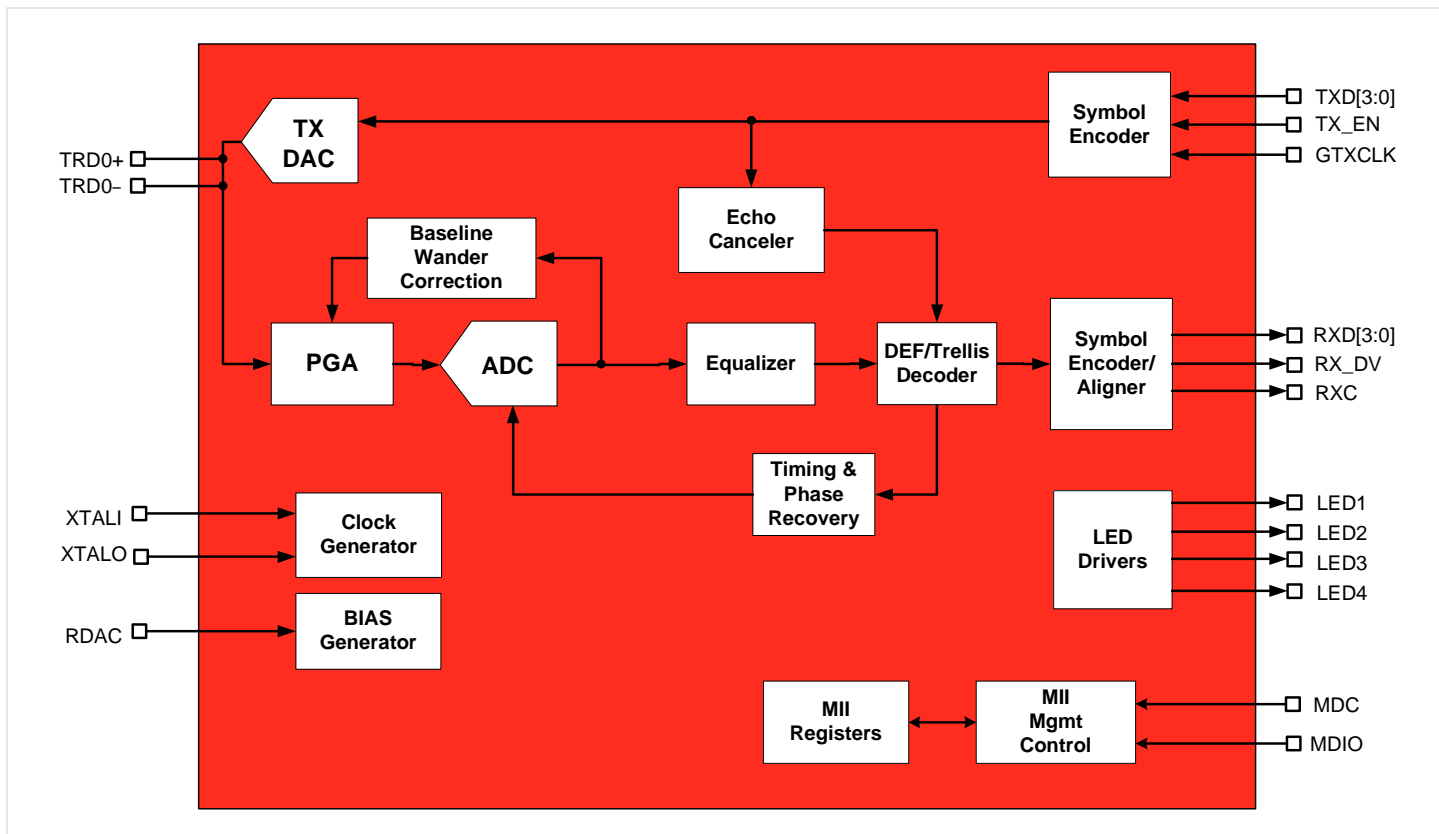
- World's first automotive BroadR-Reach physical layer transceiver, supporting cost-effective connectivity through lower cabling and connector cost.
- Advanced power savings with Green technology.
- Highly optimized for multiple in-car endpoint applications.
- Enhanced design to meet stringent automotive production requirements.
- Supports various interface options for connectivity to external devices, making it the perfect solution for in-car applications such as camera modules and RSE displays.

	BCM89810
Automotive	●
Industrial Automation	●
Broadband Access	●

● Supported ● Best Choice



BCM89810 System Diagram



BCM89810 Block Diagram

The BCM89810 is based on Broadcom's proven digital-signal processor technology, combining digital adaptive equalizers, ADCs, phase-locked loops, line drivers, encoders, decoders, echo cancelers, and all other required support circuitry. The BCM89810 is designed to be fully compliant with RGMII and MII interface specifications, allowing compatibility

with industry-standard Ethernet media access controllers (MACs) and switch controllers.

The device detects and corrects polarity automatically. BroadR-Reach technology enables the BCM89810 to auto-negotiate and link up with BroadR-Reach compliant link partners.

The BCM89810 delivers the most comprehensive automotive technology solution required by OEM and Tier 1 suppliers, meeting or exceeding CISPR 25 component-level, ISO 11452-5 Stripline, ISO 11452-4, IEC 61000-4-2, AEC-Q100, and Grade 1 temperature range.

### Ordering Information

48-pin MLP (RoHS-compliant package)

### Part Number

BCM89810A1AMLG

### About Broadcom

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These solutions support our core mission: Connecting everything®.

Broadcom, one of the world's largest fabless communications semiconductor companies, with 2010 revenue of \$6.82 billion, holds more than 4,800 U.S. and 2,000 foreign patents, and has more than 7,800 additional pending patent applications, and one of the broadest intellectual property portfolios addressing both wired and wireless transmission of voice, video, data and multimedia.

A FORTUNE 500® company, Broadcom is headquartered in Irvine, Calif., and has offices and research facilities in North America, Asia and Europe. Broadcom may be contacted at +1.949.926.5000 or at [www.broadcom.com](http://www.broadcom.com).



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