

BCM54612E

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Single-Port RGMII Copper Gigabit/EEE Ethernet Transceiver

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Triple-speed 1000BASE-T/100BASE-TX/10BASE-T Energy Efficient Ethernet (IEEE 802.3az) Gigabit (GbE) transceiver integrated into a single monolithic CMOS chip.

The device performs all physical-layer functions for 1000BASE-T, 100BASE-TX and 10BASE-T Ethernet on standard Category 5 unshielded twisted-pair (UTP) cable. 10BASE-T can also run on standard Category 3, 4 and 5 UTP. The BCM54612E is based on the proven digital signal processor (DSP) technology from Broadcom, combining digital adaptive equalizers, ADCs, phase locked loops, line drivers, encoders, decoders, echo cancellers, crosstalk cancellers and all other required support circuitry integrated into a single chip. With full compliance to Energy Efficient Ethernet (IEEE 802.3az) standard, the BCM54612E substantially lowers power consumption during periods of low-link utilization. In addition, with Broadcom's AutogrEEEn® technology, the BCM54612E can be in EEE mode when interfacing with non-EEE-enabled MACs, allowing system designers to take advantage of EEE technology and realize power savings today. This power savings translates to lower energy costs for organizations that deploy networking equipment using the BCM54612E with EEE and AutogrEEEn technology. The BCM54612E is designed to be fully compliant with RGMII, allowing compatibility with industry-standard Ethernet MACs and switch controllers. Designed for reliable operation over worst-case Category 5 cable, the BCM54612E automatically negotiates with its link partner to determine the highest possible operating speed. The device detects and corrects most common wiring problems. The BCM54612E features CableChecker™ diagnostics, which detects common cable problems including shorts, opens and cable length. For documentation and support visit [Broadcom Communities](#)

Features

- Single-chip integrated triple-speed Energy Efficient Ethernet Gigabit transceiver. Support for the following copper line interfaces: 1000BASE-T IEEE 802.3ab, 100BASE-TX IEEE 802.3u and 10BASE-T IEEE 802.3
- Supports RGMII MAC interface
- IEEE 802.3az-compliant support — Support for native EEE MACS — support for Not Recommended for New Design non-EEE MACs using AutogrEEEn® mode

Lifecycle Status

Active

Previously viewed

BCM54382
Octal-Port QSGMII Copper Gigabit/IEEE1588v2/MACsec Ethernet Transceiver

BCM84756
10-GbE Quad SFI-XFI PHY with IEEE MACsec/1588

BCM54220
Dual-Copper Gigabit Ethernet Transceiver

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