

Quad-Port 2.5G Ethernet PHYs for Routers, Switches, and Gateways

PRODUCTS

GPY241 4-port 2.5GbE PHY

GPY245 4-port 2.5GbE PHY with MACsec and SyncE

FEATURES

- Supports IEEE802.3 modes:
 - 2.5GBASE-T and 1000BASE-T: full-duplex
 - 100BASE-TX and 10BASE-Te: full- and half-duplex
- Industrial temp. range (-40°C to 85°C) GPY245
- MAC interface: Four channel SGMII+/SGMII or single channel USXGMII-4x2.5G. Rate adaptation for SGMII+/SGMII and USXGMII using IEEE802.3x flow control
- Preamble alignment: Shortened 7 byte preamble received over SGMII+/SGMII is restored to 8 byte
- Two power rails for use with SGMII+ (3.3V and core) and three power rails for use with USXGMII (3.3V, 1.8V and core)
- BGA-260 package (12mm x 12mm)
- Typical power consumption of 1W per port in 2.5GBASE-T mode
- Precise time stamping support according to IEEE1588 Version 2
- Control of up to 12 LEDs with smart LED brightness control for link status display
- Smart-AZ feature supports Energy Efficient Ethernet (EEE, IEEE802.3az) with MACs that do not support EEE
- Field firmware upgrade capability with external optional flash
- Programmable temperature sensor monitors device temperature for system warning and down speed
- Supports Jumbo frames of up to 10kB
- Cable diagnostics
- Auto down speed for Cat3 (four wires) or bad cable
- Auto MDI/MDI-X and auto polarity correction
- Wake-on-LAN
- MACsec wire-speed data encryption and decryption with 16 security channels and 32 MACsec associations (GPY245)
- Synchronous Ethernet (SyncE) support according to ITU-T G.8262 (GPY245)

APPLICATIONS

- Broadband router: xPON, wireless, 4G/5G, G.Fast, G.hn, cable, xDSL
- Home gateway: wireless gateway, home server, home storage (NAS)
- High and low port count 2.5 GbE switch
- Wi-Fi 6 / Wi-Fi 7 routers and access points



Faster Ethernet connectivity enables users to make the most of increased speeds available through the enhanced broadband access networks. 2.5Gigabit Ethernet (GbE) increases the bandwidth without the need to change cables, is more cost-effective, and consumes less power than 5GbE or 10GbE.

The GPY241 and GPY245 are 4-port 2.5Gb Ethernet PHYs suited for routers, switches, and home gateways.

The devices support the 2.5GBASE-T, 1000BASE-T, 100BASE-TX and 10BASE-Te modes of the IEEE802.3 standard and provide great interoperability for high data rate connections as well as for connections to legacy 1000BASE-T, 100BASE-TX and 10BASE-T devices.

The GPY241 and GPY245 connect to a switch or gateway MAC interface by either a single four pin 10G USXGMII-4x2.5G interface or four SGMII+ interfaces. SGMII+ is a Serial-GMII (SGMII) interface clocked with 3.125Gbaud/s to support a data rate of 2.5Gbit/s. Rate adaptation using IEEE 802.3x pause frames is supported for 10Mbit/s, 100Mbit/s, and 1Gbit/s transmission over the SGMII+ interfaces or the USXGMII interface.

STANDARDS:

- IEEE 802.3: Relevant clauses
- IEEE802.1AE MACSec
- IEEE 1588 Version 2
- ITU-T G.8261/G.8262: SyncE

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