



HT8510C / H T8510H

Single-port 100 megabit range enhanced Ethernet physical layer transceiver

Product introduction

HT8510 is an Ethernet physical layer transceiver (PHY) compliant with IEEE100BASE-TX/10BASE-Te and LRE100-1/LRE10-1 standards. Widely used in enterprise applications, the products are manufactured using standard digital CMOS processes and contain all the active circuits that enable the physical layer function to transmit and receive data over CAT5 unshielded twisted pair cable (UTP).

Supports 100BASE-TX/10BASE-Te standard and LRE100/10-1 function. LongRangeEthernet technology (LongRangeEthernet) can be used on a pair of cables, at 100 MBPS or 10Mbps transmission rate, long-distance link transmission distance: 300m@100Mbps and 1000m@10Mbps (depending on the cable type and specific cable parameters).

When the HT8510 is connected to an IEEE802.3 compliant PHY, the IEEE auto-negotiation mechanism should be activated and linked to the appropriate 100BASE-TX or 10BASE-Te rate.

When both ends of a link are HT8510, the LRE function and all 100BASE-TX/10BASE-Te and LRE100-1/LRE10-1 capabilities are enabled by default. The two HT8510s initiate the LDS (LinkDiscoverSignaling) auto-negotiation process, which automatically detects the cable length and links to the appropriate rate based on the cable length (LRE100-1 if the cable length is <300m, otherwise LRE10-1).

Based on advanced DSP technology, combined with adaptive equalizer, echo canceller, analog-to-digital conversion, phase-locked loop, line driver, codec and other circuits that support 100 gigabit data rate, achieve robust performance, and meet the requirements of electromagnetic interference (EMI) and low power consumption in harsh environments such as vehicle.

The HT8510 is designed to comply with RGMII, RMII, and MII interface specifications and is compatible with standard Ethernet Media Access controllers (MAC) and switch controllers. HT8510 provides enterprise technology solutions for industrial applications.

Commercial grade model :HT8510C

Industrial model :HT8510H

Application field

- General embedded application
- Video surveillance
- Industrial control
- Factory automation

Main function

- Support for the following interfaces via twisted-pair or coaxial cable
 - 100Base-Tx.
 - 10Base-Te.
 - 100Mbps long range ethernet.(Reach over 300 meters via one pair of CAT5E twisted-pair cable)
 - 10Mbps long range ethernet.(Reach over 800 meters via one pair of CAT5E twisted-pair cable)
- Support IEEE auto-negotiation and LDS (link discover signaling) on twisted-pair cable.
- Support LDS and LRE100/10-1 on coaxial cable
- Support auto cable detection and speedselection.
- MII/RMII/RGMII support
- RMII/RGMII interface EMI enhancement
- Support latency accommodation of RGMII clock
- Support IEEE 802.1AS
- Support POE function
- Integrated LDO regulator allowing a single 3.3V power supply
- Internal, external and remote loopback mode for diagnosis
- Jumbo frame support up to 16 kB
- Polarity detection and auto/manual correction
- Integrated twisted-pair termination resistors
- Trace matched output impedance
- Integrated low-pass filter
- Robust cable ESD tolerance
- Package QFN 40, 6x6mm

pin

