



KSZ8081MNX/KSZ8081RNB

10Base-T/100Base-TX Physical Layer Transceiver

Revision 1.4

General Description

The KSZ8081 is a single-supply 10Base-T/100Base-TX Ethernet physical-layer transceiver for transmission and reception of data over standard CAT-5 unshielded twisted pair (UTP) cable.

The KSZ8081 is a highly-integrated PHY solution. It reduces board cost and simplifies board layout by using on-chip termination resistors for the differential pairs and by integrating a low-noise regulator to supply the 1.2V core.

The KSZ8081MNX offers the Media Independent Interface (MII) and the KSZ8081RNB offers the Reduced Media Independent Interface (RMII) for direct connection with MII/RMII-compliant Ethernet MAC processors and switches.

A 25MHz crystal is used to generate all required clocks, including the 50MHz RMII reference clock output for the KSZ8081RNB.

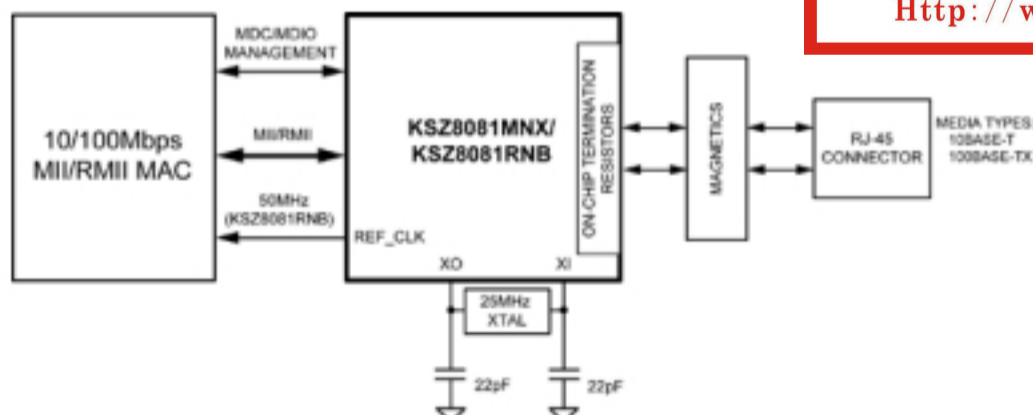
The KSZ8081 provides diagnostic features to facilitate system bring-up and debugging in production testing and in product deployment. Parametric NAND tree support enables fault detection between KSZ8081 I/Os and the board. Micrel LinkMD[®] TDR-based cable diagnostics identify faulty copper cabling.

The KSZ8081MNX and KSZ8081RNB are available in 32-pin, lead-free QFN packages (see "Ordering Information"). Datasheets and support documentation are available on website at: www.micrel.com.

Features

- Single-chip 10Base-T/100Base-TX IEEE 802.3 compliant Ethernet transceiver
- MII interface support (KSZ8081MNX)
- RMII v1.2 Interface support with a 50MHz reference clock output to MAC, and an option to input a 50MHz reference clock (KSZ8081RNB)
- Back-to-back mode support for a 100Mbps copper repeater
- MDC/MDIO management interface for PHY register configuration
- Programmable interrupt output
- LED outputs for link, activity, and speed status indication
- On-chip termination resistors for the differential pairs
- Baseline wander correction
- HP Auto MDI/MDI-X to reliably detect and correct straight-through and crossover cable connections with disable and enable option
- Auto-negotiation to automatically select the highest link-up speed (10/100Mbps) and duplex (half/full)
- Power-down and power-saving modes
- LinkMD TDR-based cable diagnostics to identify faulty copper cabling
- Parametric NAND Tree support for fault detection between chip I/Os and the board
- HBM ESD rating (6kV)

Functional Diagram

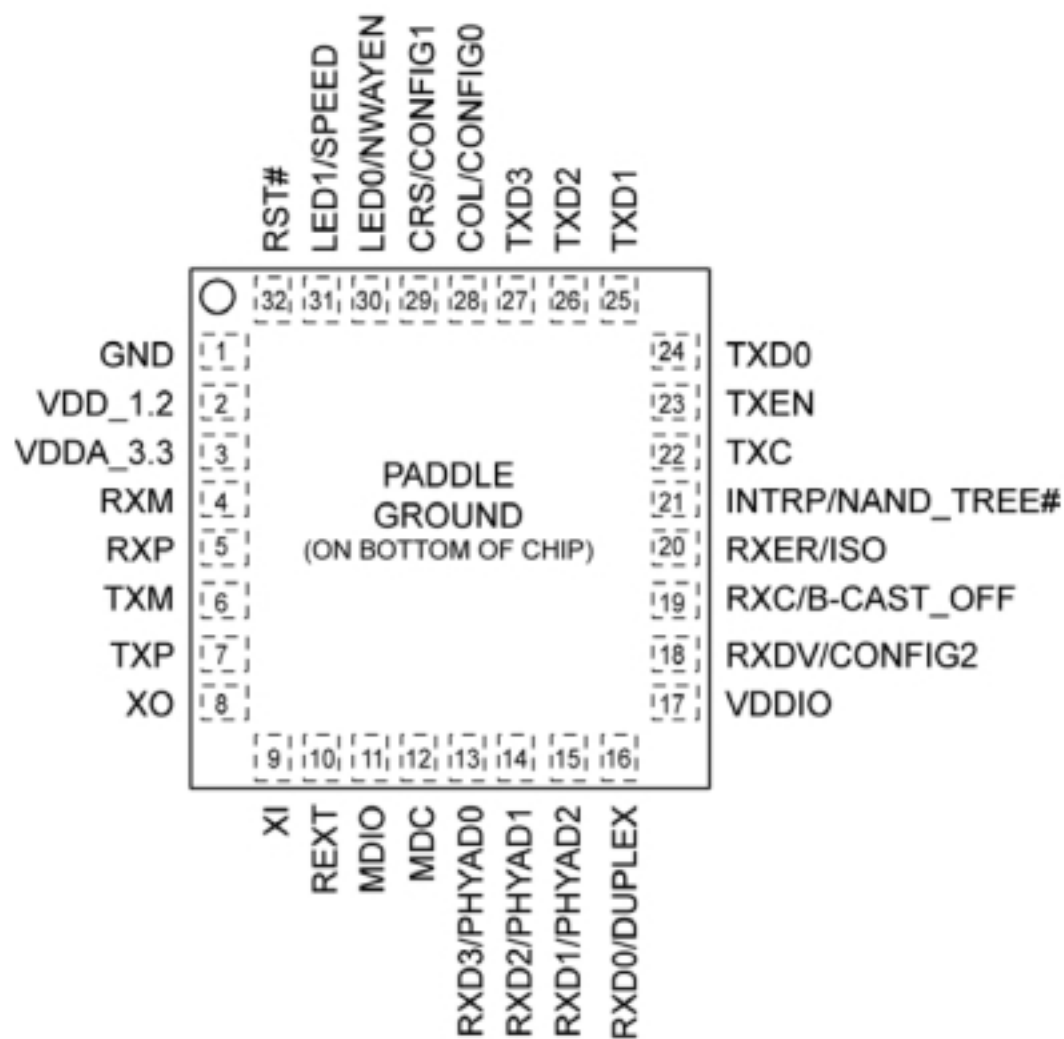


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Pin Configuration – KSZ8081MNX



32-Pin 5mm × 5mm QFN

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