1. Features

- Fully comply with IEEE 802.3 / IEEE 802.3u 10Base-T/ 100Base-TX, ANSI X3T12 TP-PMD 1995 standard
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Low-power 3.3V, 0.18um CMOS technology
- 3.3V MAC Interface
- 3.3V CT supported for a center-tapped transformer
- Auto-MDIX for 10/100 Mb/s
- 25/50 MHz clock out
- Selectable repeater or node mode

  Selectable MII or RMII (Reduced MII) mode for 100Base-TX and 10Base-TX.

  Selectable MII or GPSI (SNI) mode for 10Base-T Selectable full-duplex or half-duplex
- RMII Rev. 1.2 Interface (configurable)
- MII Serial Management Interface (MDC and MDIO)
- IEEE 802.3u MII
- IEEE 802.3u Auto-Negotiation and Parallel Detection
- IEEE 802.3u ENDEC, 10BASE-T transceivers and filters
- IEEE 802.3u PCS, 100BASE-TX transceivers and filters
- Integrated ANSI X3.263 compliant TP-PMD physical sublayer with adaptive equalization and Baseline Wander compensation
- Error-free Operation up to 110 meters
- Programmable LED support Link, 10 /100 Mb/s Mode, Activity, and Collision Detect
- Lower Power consumption modes:

  Power Reduced mode (cable detection)

  Power Down mode
- Single register access for complete PHY status
- 10/100 Mb/s packet BIST (Built in Self Test)
- 48-pin LQFP package (7mm) x (7mm)

2. General Description

DAVICOM's DM9163 is a industrial temperature SPI to physical layer, low power, and single-chip 10BASE-T/100BASE-TX transceiver specifically designed for consumer electronics, industrial, and enterprise applications. Through using a CMOS process, the DM9163 has the advantage of ensuring both high performance and savings in power consumption.

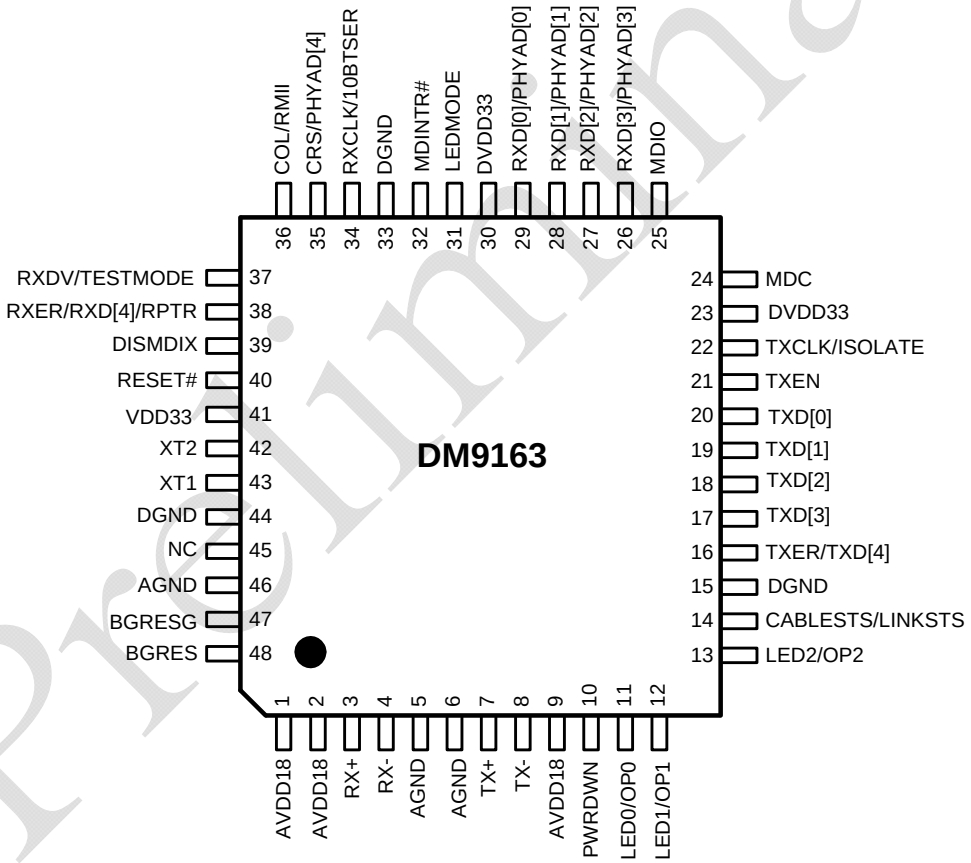
Through utilization of automatic media speed and protocol selection, the auto-negotiation function is strongly supported in the DM9163. Then due to the built-in wave shaping filter, the DM9163 has a significant convenience of not requiring an external filter to transport signals to the media in 10BASE-T or 100BASE-TX during Ethernet operation.

Through its Media Independent Interface (MII), the DM9163 not only connects the Medium Access Control (MAC) layer, but the MII also ensure a high inter-operability and flexibility with different vendors. In media usage applications, the DM9163 provides a direct interface either to an Unshielded Twisted Pair Category 5 Cable (UTP5) for 100BASE-TX Fast Ethernet, or an UTP5/UTP3 Cable for 10BASE-T Ethernet. The DM9163 contains the entire physical layer functions of 100BASE-TX. Those physical layer functions are defined by IEEE802.3u include the Physical Coding Sub layer (PCS), Physical Medium Attachment (PMA), Twisted Pair Physical Medium Dependent Sub layer (TP-PMD), 10BASE-TX Encoder/Decoder (ENC/DEC), and Twisted Pair Media Access Unit (TPMAU).

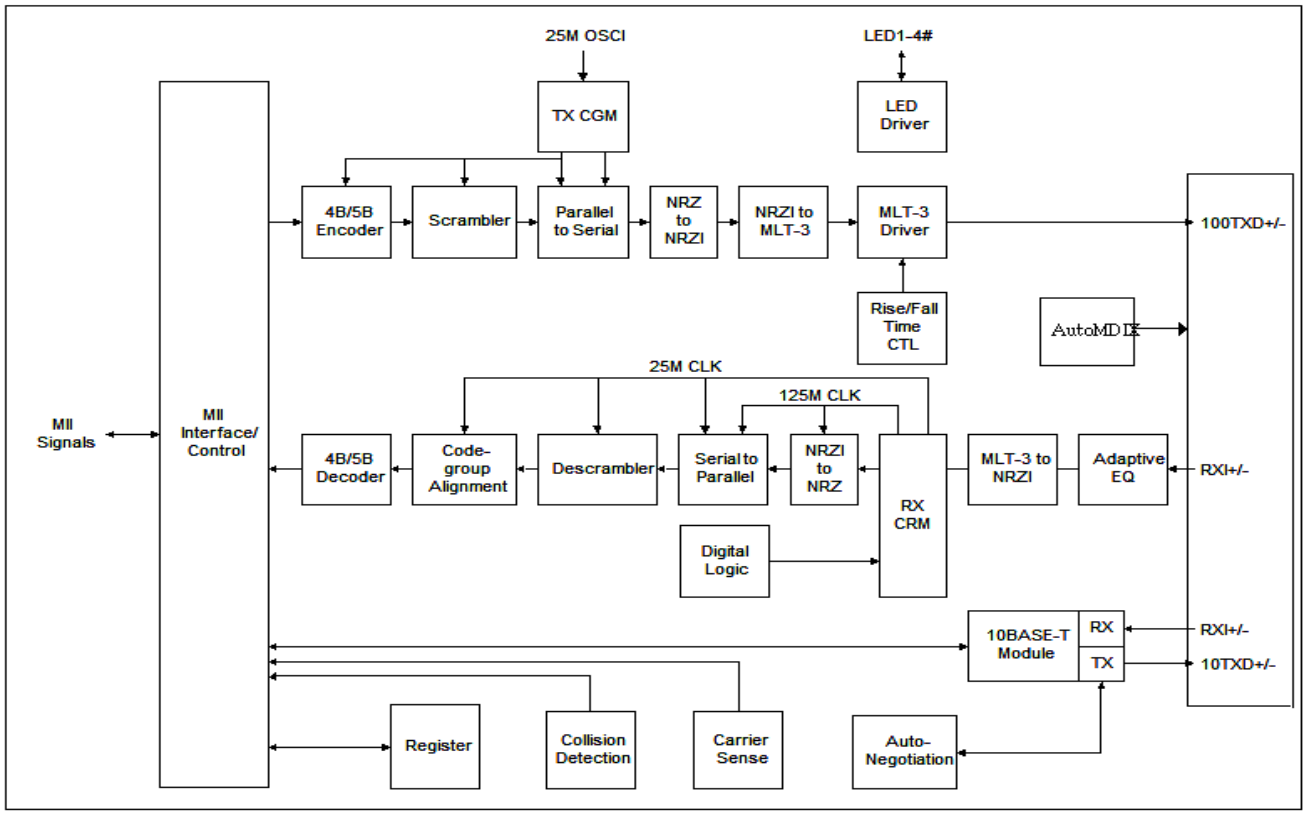
3. Applications

- Smart meter
- IP STB
- Router
- IPC
- Internet Radio
- IP CAM
- DVR
- VoIP CPE (ATA, IP Phone, Video Phone)

4. Pin Configuration

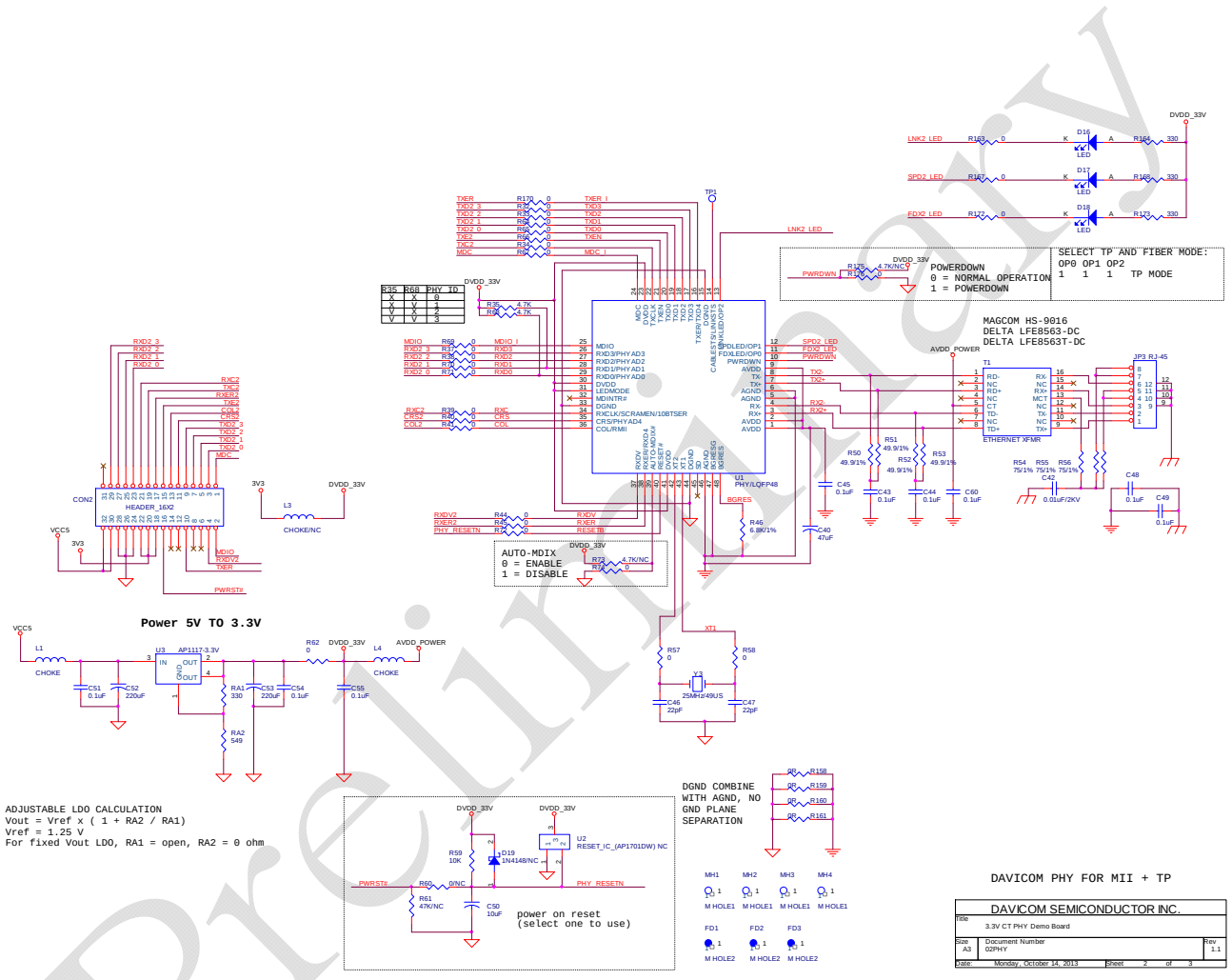


4. Block Diagram

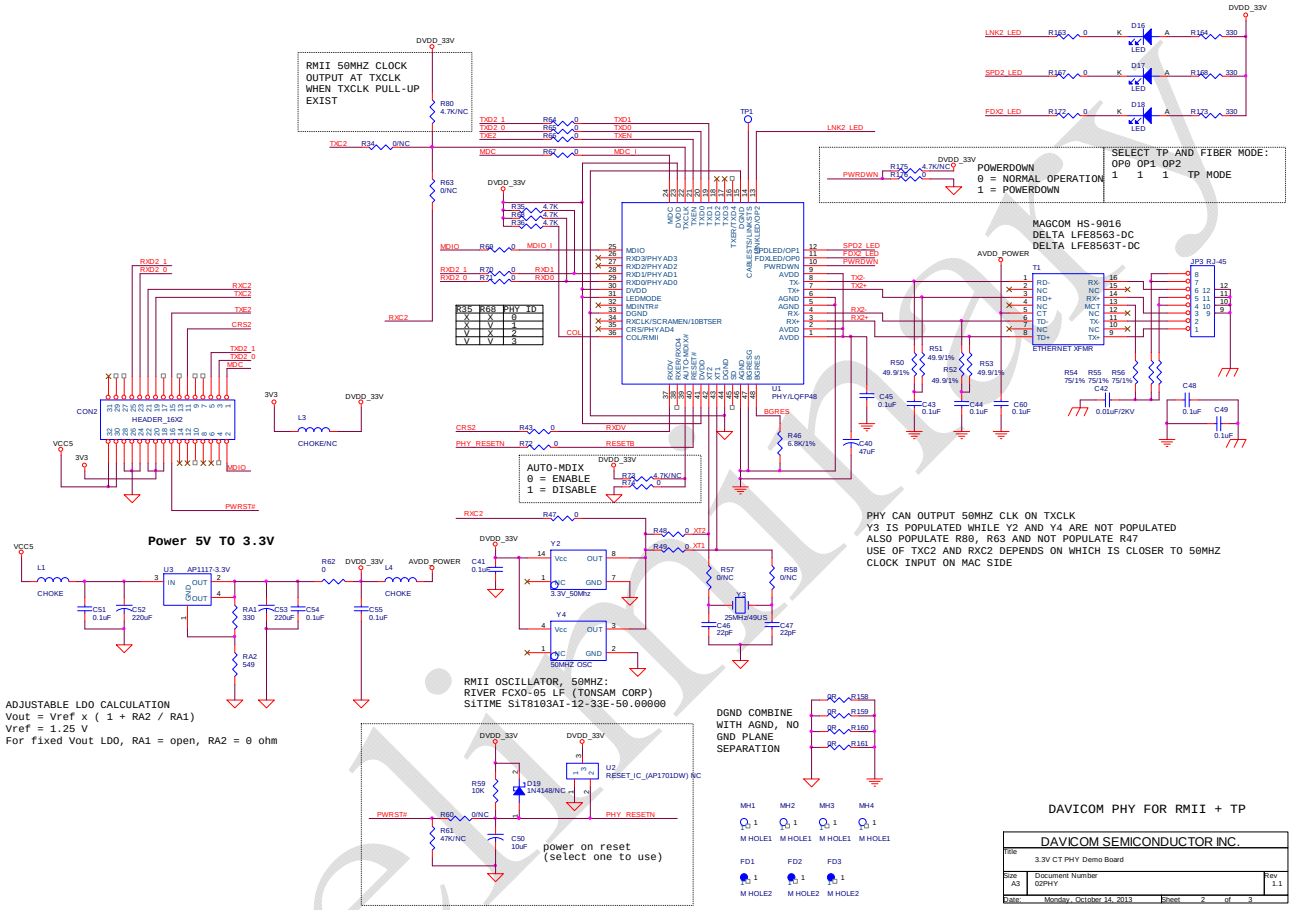


5. Application circuit:

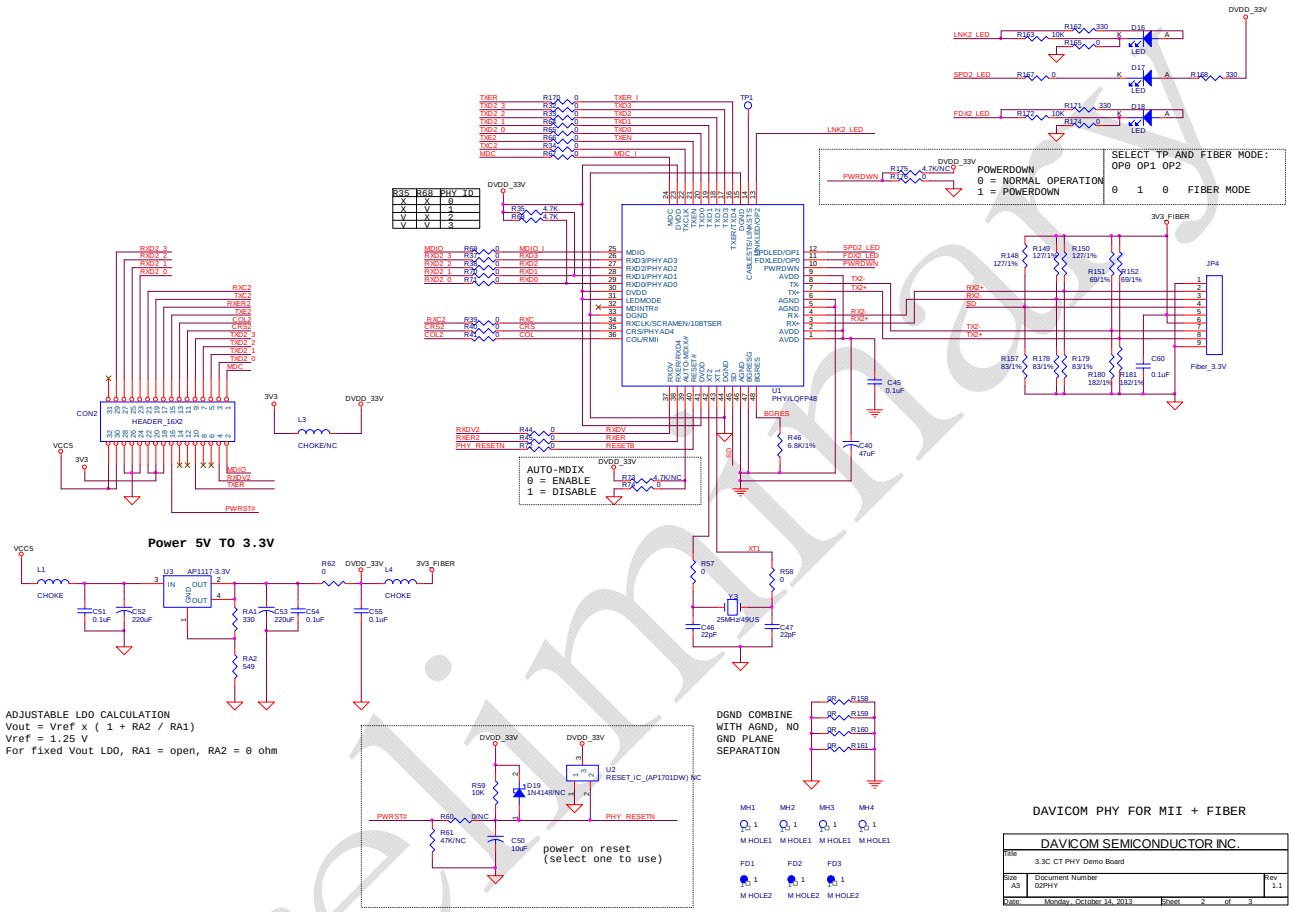
5.1 MII circuit for TP



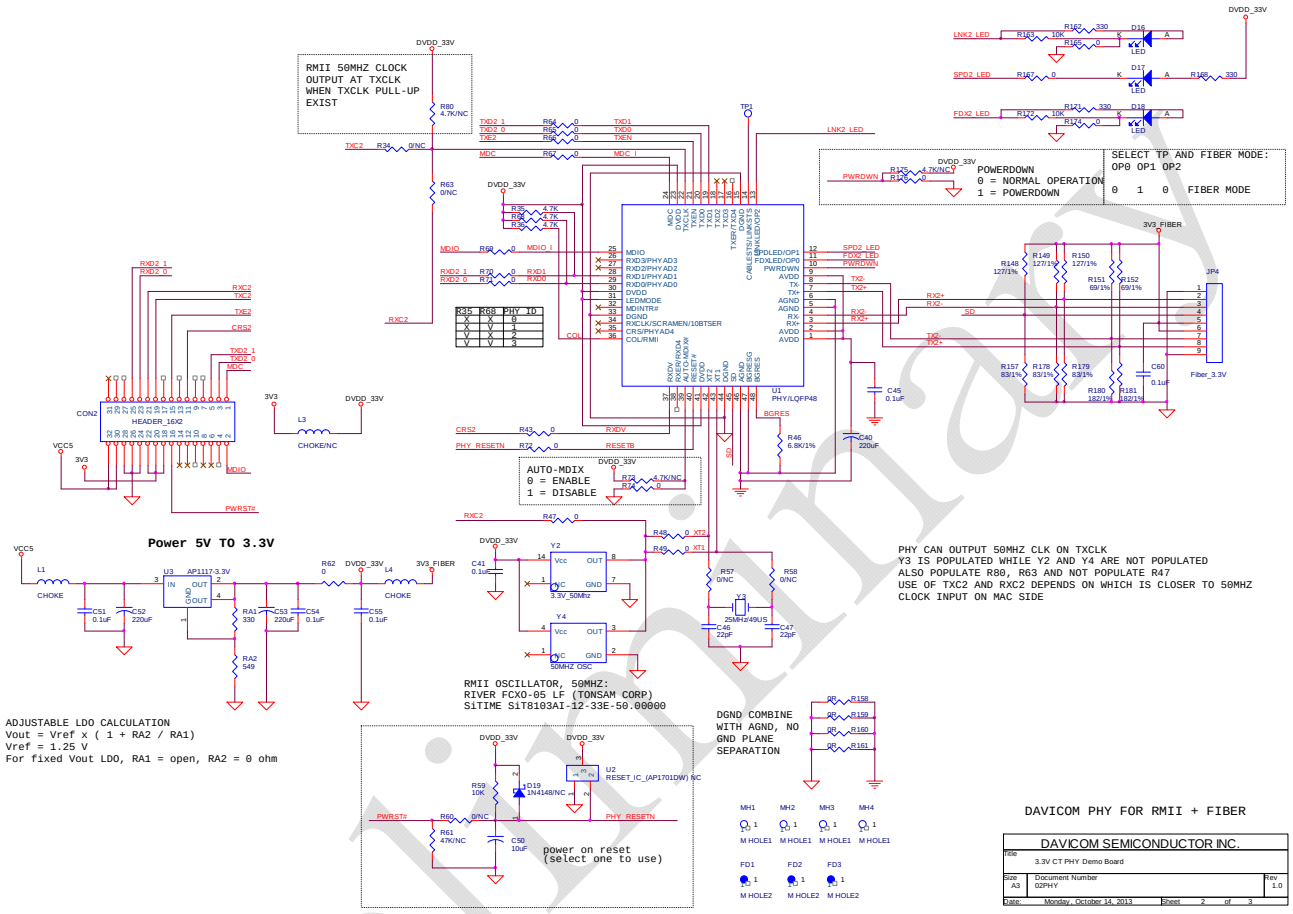
5.2 RMII circuit for TP



5.3 MII circuit for fiber



5.4 RMII circuit for fiber



6. Order Information

Part Number	Pin Count	Package
DM9163EP	48	LQFP

DAVICOM Semiconductor, Inc.
No.6, Li-Hsin Rd.VI, Science Park, Hsin-Chu, Taiwan, R.O.C.
TEL: 886-3-5798797
FAX: 886-3-5646929
E-mail: sales@davicom.com.tw