

## Small Footprint RMII 10/100 Ethernet Transceiver with HP Auto-MDIX Support

### PRODUCT FEATURES

Data Brief

#### Highlights

- Single-Chip Ethernet Physical Layer Transceiver (PHY)
- Comprehensive flexPWR<sup>®</sup> Technology
  - Flexible Power Management Architecture
  - LVCMOS Variable I/O voltage range: +1.6V to +3.6V
  - Integrated 1.2V regulator
- HP Auto-MDIX support
- Miniature 24-pin QFN lead-free RoHS compliant package (4 x 4 x 0.85mm height).

#### Target Applications

- Set-Top Boxes
- Networked Printers and Servers
- Test Instrumentation
- LAN on Motherboard
- Embedded Telecom Applications
- Video Record/Playback Systems
- Cable Modems/Routers
- DSL Modems/Routers
- Digital Video Recorders
- IP and Video Phones
- Wireless Access Points
- Digital Televisions
- Digital Media Adaptors/Servers
- Gaming Consoles
- POE Applications (Refer to SMSC Application Note 17.18)

#### Key Benefits

- High-Performance 10/100 Ethernet Transceiver
  - Compliant with IEEE802.3/802.3u (Fast Ethernet)
  - Compliant with ISO 802-3/IEEE 802.3 (10BASE-T)
  - Loop-back modes
  - Auto-negotiation
  - Automatic polarity detection and correction
  - Link status change wake-up detection
  - Vendor specific register functions
  - Supports the reduced pin count RMII interface
- Power and I/Os
  - Various low power modes
  - Integrated power-on reset circuit
  - Two status LED outputs
  - Latch-Up Performance Exceeds 150mA per EIA/JESD 78, Class II
  - May be used with a single 3.3V supply
- Additional Features
  - Ability to use a low cost 25Mhz crystal for reduced BOM
- Packaging
  - 24-pin QFN (4x4 mm) Lead-Free RoHS Compliant package with RMII
- Environmental
  - Extended commercial temperature range (0°C to +85°C)
  - Industrial temperature range version available (-40°C to +85°C)

**Order Numbers:****LAN8720A-CP-TR FOR 24-PIN, QFN LEAD-FREE ROHS COMPLIANT PACKAGE (0 TO +85°C TEMP)****LAN8720Ai-CP-TR FOR 24-PIN, QFN LEAD-FREE ROHS COMPLIANT PACKAGE (-40 TO +85°C TEMP)****Reel Size is 4,000****This product meets the halogen maximum concentration values per IEC61249-2-21****For RoHS compliance and environmental information, please visit [www.smSC.com/rohs](http://www.smSC.com/rohs)**

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## General Description

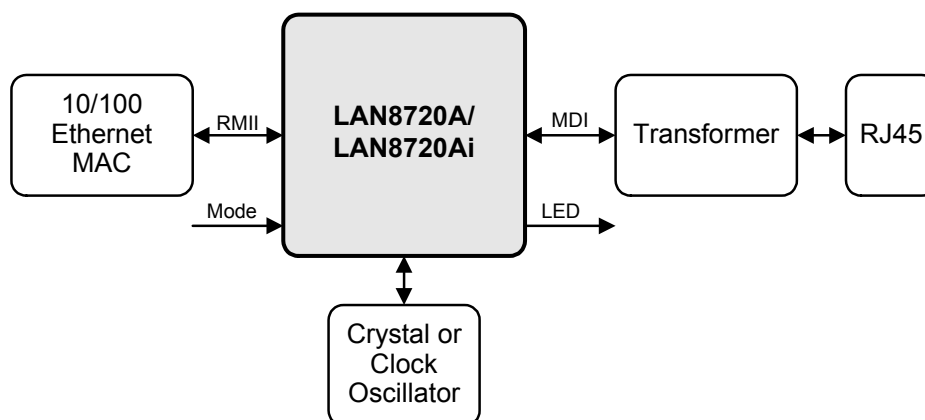
The LAN8720A/LAN8720Ai is a low-power 10BASE-T/100BASE-TX physical layer (PHY) transceiver with variable I/O voltage that is compliant with the IEEE 802.3-2005 standards.

The LAN8720A/LAN8720Ai supports communication with an Ethernet MAC via a standard RMII interface. It contains a full-duplex 10-BASE-T/100BASE-TX transceiver and supports 10Mbps (10BASE-T) and 100Mbps (100BASE-TX) operation. The LAN8720A/LAN8720Ai implements auto-negotiation to automatically determine the best possible speed and duplex mode of operation. HP Auto-MDIX support allows the use of direct connect or cross-over LAN cables.

The LAN8720A/LAN8720Ai supports both IEEE 802.3-2005 compliant and vendor-specific register functions. However, no register access is required for operation. The initial configuration may be selected via the configuration pins. Register-selectable configuration options may be used to further define the functionality of the transceiver.

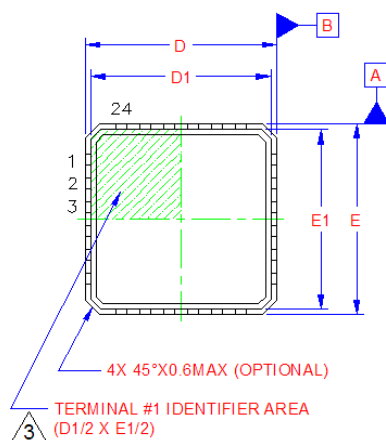
Per IEEE 802.3-2005 standards, all digital interface pins are tolerant to 3.6V. The device can be configured to operate on a single 3.3V supply utilizing an integrated 3.3V to 1.2V linear regulator. The linear regulator may be optionally disabled, allowing usage of a high efficiency external regulator for lower system power dissipation.

The LAN8720A/LAN8720Ai is available in both extended commercial and industrial temperature range versions. A typical system application is shown in [Figure 1, "System Block Diagram"](#).

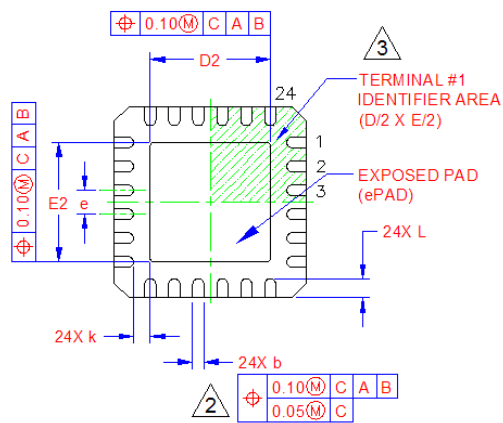


**Figure 1 System Block Diagram**

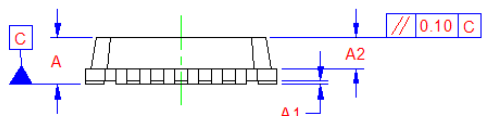
# Package Outline



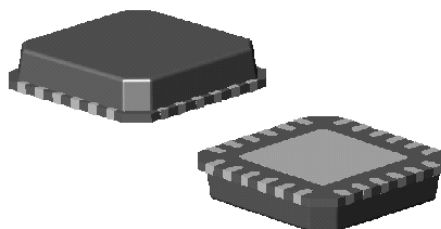
TOP VIEW



BOTTOM VIEW



SIDE VIEW



3-D VIEWS

	MIN	NOMINAL	MAX	REMARKS
A	0.70	0.85	1.00	Overall Package Height
A1	0	0.02	0.05	Standoff
A2	-	-	0.90	Mold Cap Thickness
D/E	3.90	4.00	4.10	X/Y Body Size
D1/E1	3.55	3.75	3.95	X/Y Mold Cap Size
D2/E2	2.40	2.50	2.60	X/Y Exposed Pad Size
L	0.30	0.40	0.50	Terminal Length
b	0.18	0.25	0.30	Terminal Width
k	0.25	-	-	Terminal to Exposed Pad Clearance
e	0.50 BSC			Terminal Pitch

## Notes:

- All dimensions are in millimeters unless otherwise noted.
- Dimension "b" applies to plated terminals and is measured between 0.15 and 0.30 mm from the terminal tip.
- The pin 1 identifier may vary, but is always located within the zone indicated.