ORDER NUMBER(S):

LAN8742-CZ (Tray) for 24-pin, SQFN lead-free RoHS compliant package (0°C to +70°C temp) LAN8742i-CZ (Tray) for 24-pin, SQFN lead-free RoHS compliant package (-40°C to +85°C temp) LAN8742-CZ-TR (Tape & Reel) for 24-pin, SQFN lead-free RoHS compliant package (0°C to +70°C temp) LAN8742i-CZ-TR (Tape & Reel) for 24-pin, SQFN lead-free RoHS compliant package (-40 to +85°C temp)

This product meets the halogen maximum concentration values per IEC61249-2-21 For RoHS compliance and environmental information, please visit www.smsc.com/rohs

Please contact your SMSC sales representative for additional documentation related to this product such as application notes, anomaly sheets, and design guidelines.



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General Description

The LAN8742/LAN8742i 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 and 802.3u standards.

The LAN8742/LAN8742i supports communication with an Ethernet MAC via a standard RMII interface. It contains a full-duplex 10-BASE-T/100BASE-TX transceiver and supports 10 Mbps (10BASE-T) and 100 Mbps (100BASE-TX) operation. The LAN8742/LAN8742i 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. Integrated Wake on LAN (WoL) support provides a mechanism to trigger an interrupt upon reception of a perfect DA, broadcast, magic packet, or wakeup frame.

The LAN8742/LAN8742i 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.

The LAN8742/LAN8742i can be programmed to support wake-on-LAN at the physical layer, allowing detection of configurable Wake-up Frame and Magic packets. This feature allows filtering of packets at the PHY layer, without requiring MAC intervention. Additionally, the LAN8742/LAN8742i supports cable diagnostics which allow the device to identify opens/shorts and their location on the cable via vendor-specific registers.

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

The LAN8742/LAN8742i is available in commercial (0°C to +70°C) and industrial (-40°C to +85°C) temperature range versions. A typical system application is shown in Figure 1. Figure 2 provides an internal block diagram of the device.

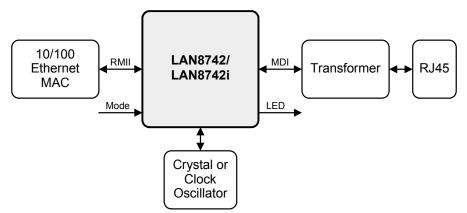


Figure 1 System Block Diagram



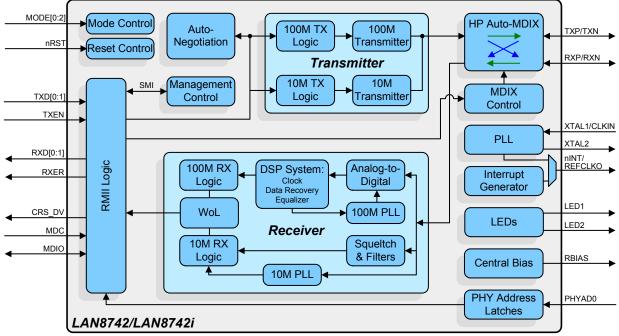


Figure 2 Architectural Overview



Package Outline

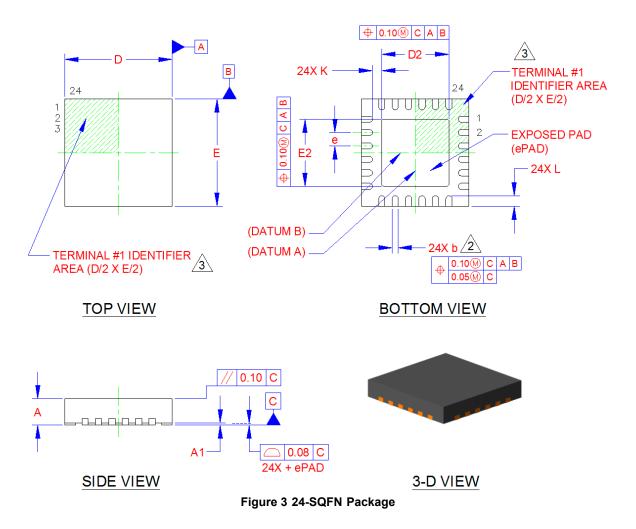


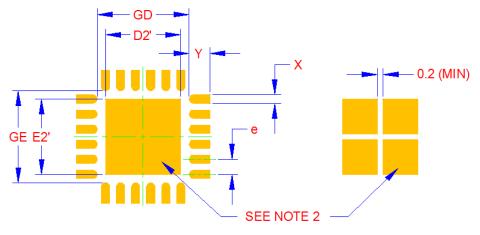
Table 1 32-SQFN Dimensions

| | MIN | NOMINAL | MAX | REMARKS | |
|-------|----------|---------|------|------------------------------|--|
| A | 0.80 | 0.90 | 1.00 | Overall Package Height | |
| A1 | 0 | 0.02 | 0.05 | Standoff | |
| D/E | 3.90 | 4.00 | 4.10 | X/Y Body Size | |
| D2/E2 | 2.40 | 2.50 | 2.60 | X/Y Exposed Pad Size | |
| L | 0.35 | 0.40 | 0.45 | Terminal Length | |
| b | 0.18 | 0.25 | 0.30 | Terminal Width | |
| k | 0.25 | 0.35 | - | Pin to Exposed Pad Clearance | |
| е | 0.50 BSC | | | Terminal Pitch | |

Notes:

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



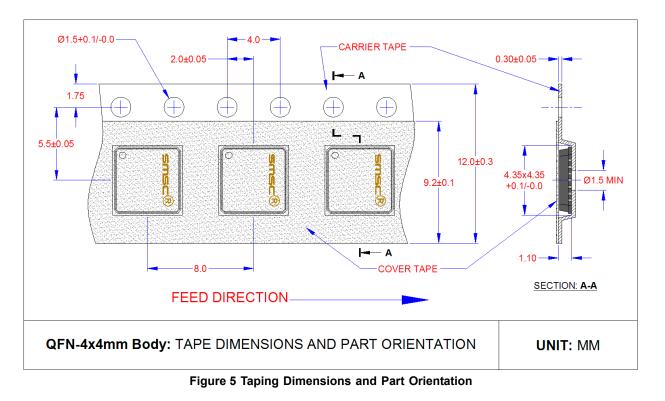


| LAND PATTERN DIMENSIONS | | | | | | |
|-------------------------|------|------|------|--|--|--|
| SYMBOL | MIN | NOM | MAX | | | |
| GD/GE | 3.05 | - | 3.10 | | | |
| D2'/E2' | - | 2.50 | 2.50 | | | |
| Pad: X | - | 0.28 | 0.28 | | | |
| Pad: Y | - | 0.69 | - | | | |
| е | 0.50 | | | | | |

NOTES:

- 1. THE USER MAY MODIFY THE PCB LAND PATTERN DESIGN AND DIMENSIONS BASED ON THEIR EXPERIENCE AND/OR PROCESS CAPABILITY
- 2. EXPOSED SOLDERABLE COPPER AREA OF THE CENTER PAD CAN BE EITHER SOLID OR SEGMENTED
- 3. MAXIMUM THERMAL AND ELECTRICAL PACKAGE PERFORMANCE IS ACHIEVED WHEN AN ARRAY OF SOLID VIAS IS INCORPORATED IN THE CENTER LAND PATTERN

Figure 4 Recommended PCB Land Pattern





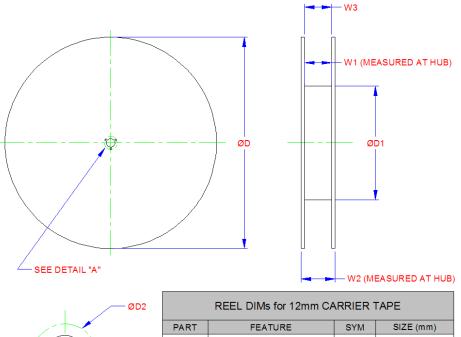




Figure 6 Reel Dimensions

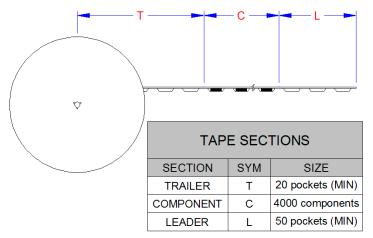


Figure 7 Tape Length and Part Quantity

Note: Standard reel size is 4,000 pieces per reel.

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