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.

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.

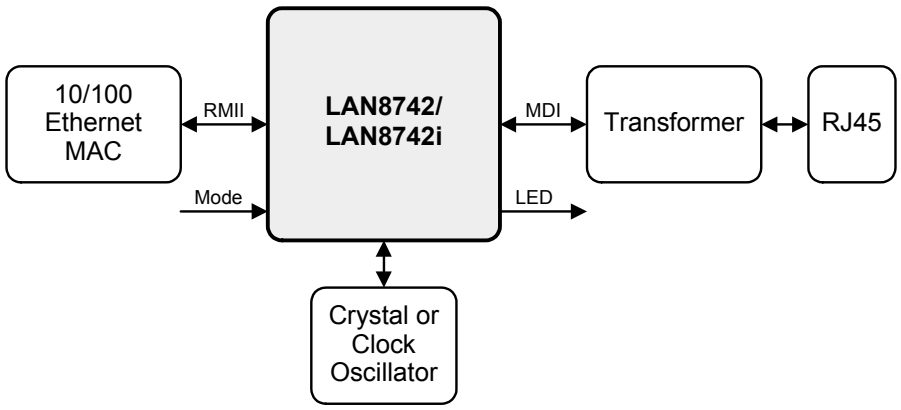


Figure 1 System Block Diagram

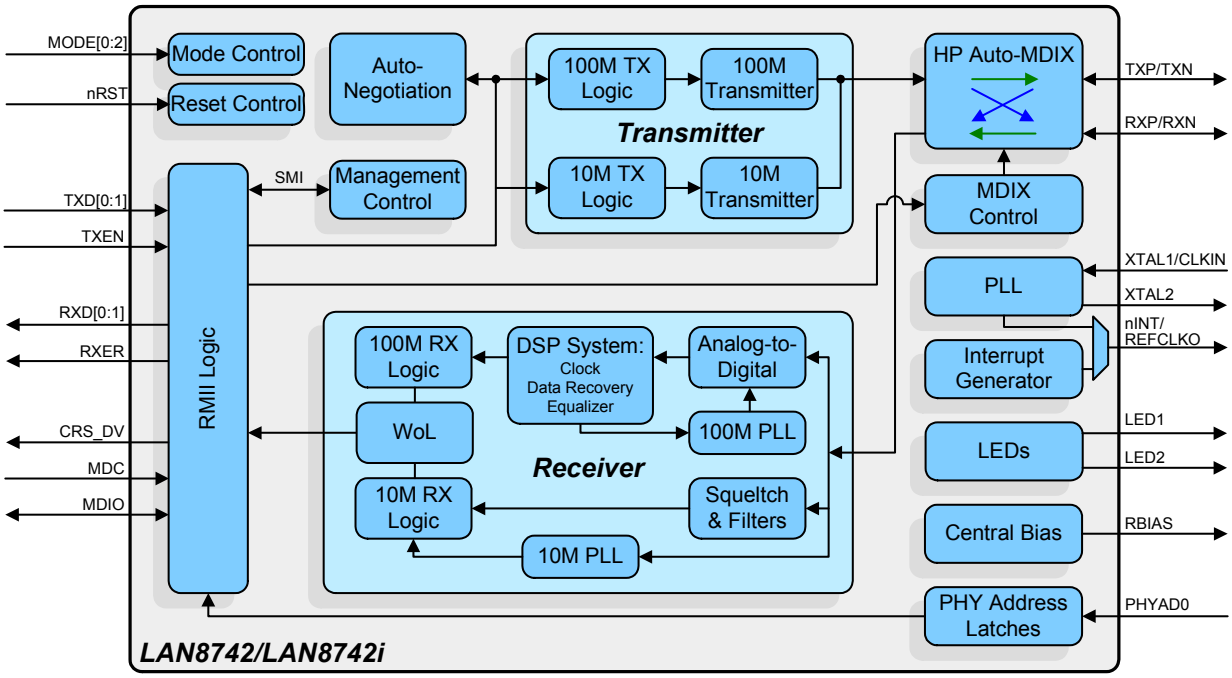


Figure 2 Architectural Overview

Package Outline

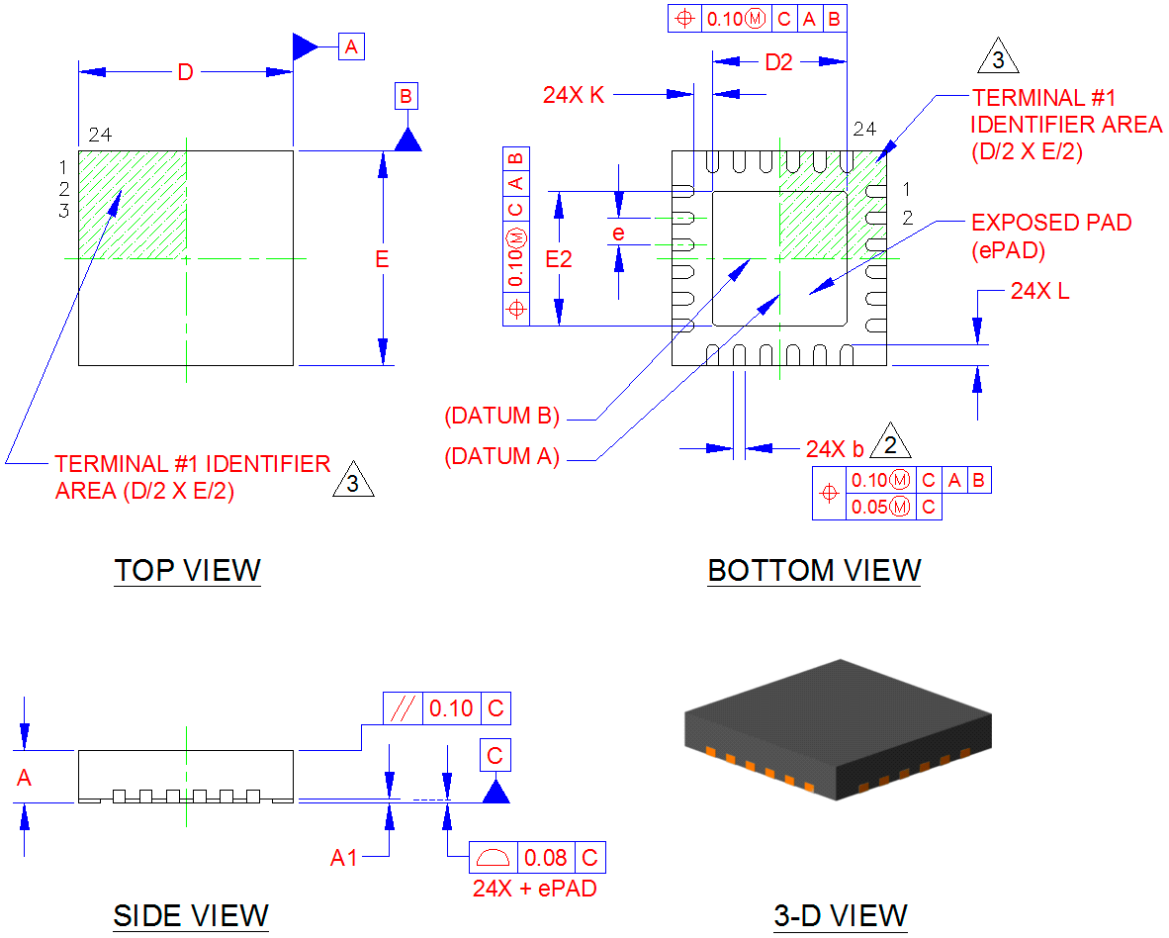


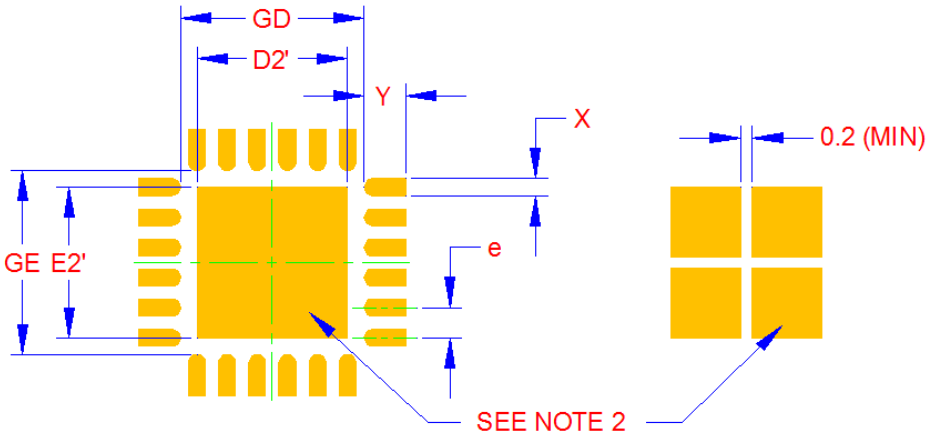
Figure 3 24-SQFN Package

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
e	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	-
e		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

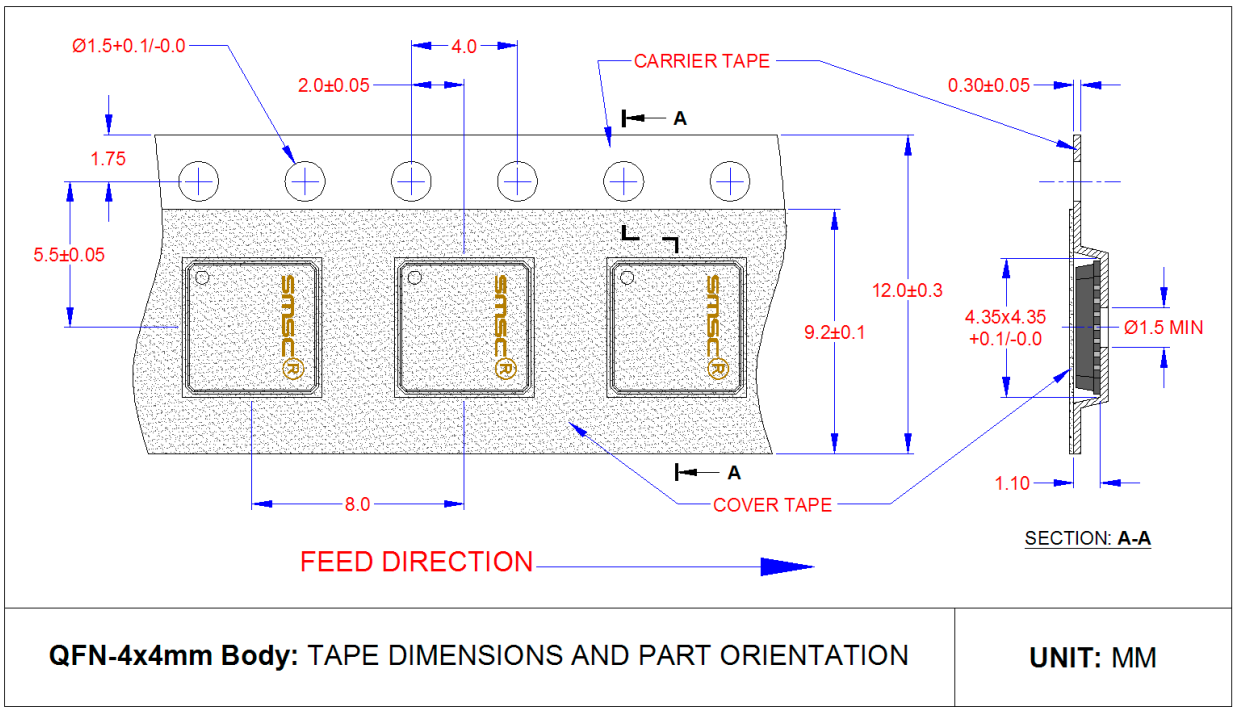
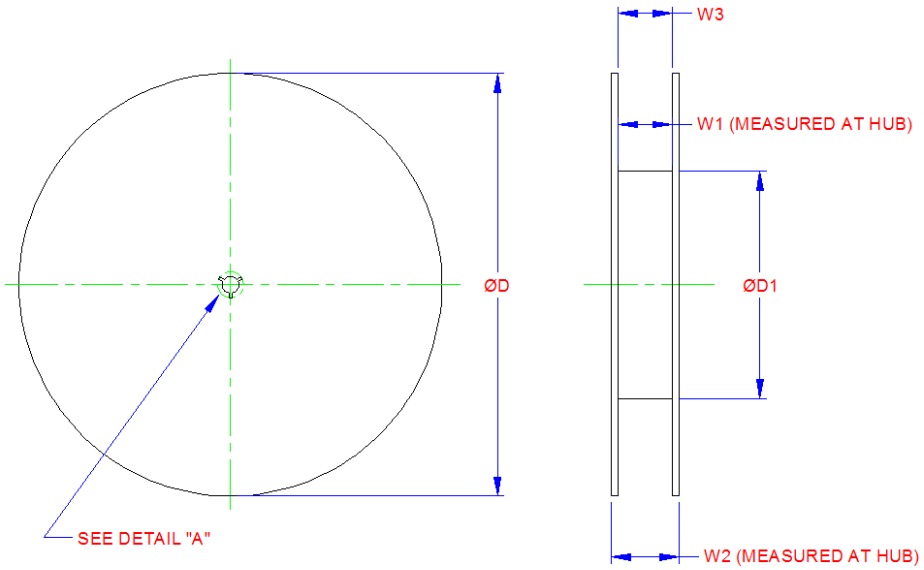


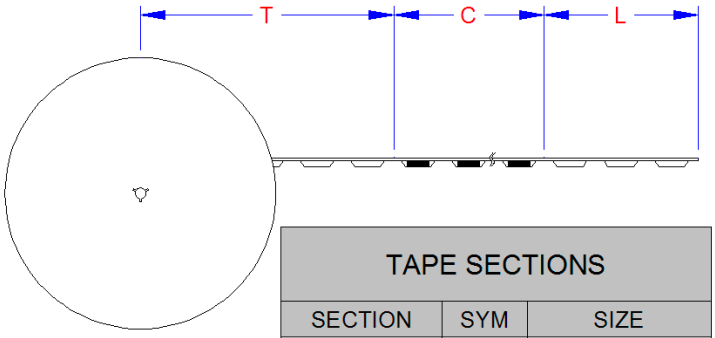
Figure 5 Taping Dimensions and Part Orientation

PRODUCT PREVIEW



REEL DIMs for 12mm CARRIER TAPE			
PART	FEATURE	SYM	SIZE (mm)
FLANGE	DIAMETER	D	330 (+0.25/-4.00)
	SPACE between FLANGES	W1	12.4 (+2.0/-0.0)
	OVERALL WITH	W2	18.4 (MAX)
	MIN SPACE "W1" AT FLANGE EDGE	W3	12.3 (MIN)
HUB	OUTER DIAMETER	D1	177.8 REF
	KEY SLIT DIAMETER	D2	20.2 (MIN)
	ARBOR HOLE DIAMETER	D3	13.0 (+0.5/-0.2)
	KEY SLIT WIDTH	B	2.0 (±0.5)

Figure 6 Reel Dimensions



TAPE SECTIONS		
SECTION	SYM	SIZE
TRAILER	T	20 pockets (MIN)
COMPONENT	C	4000 components
LEADER	L	50 pockets (MIN)

Figure 7 Tape Length and Part Quantity

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