Automotive Ethernet Transceiver (MAC-PHY) 10BASE-T1S Multi-Drop

Product Preview

T30HM1TS2500

The T30HM1TS2500 (T2500) device is an IEEE 802.3cg compliant Ethernet Transceiver with integrated Media Access Controller (MACPHY).

The T2500 is a next generation 10BASE−T1S device. It is capable of communication with multiple nodes connected to shared medium (UTP) at 10 Mbps. The T2500 consists of CSMA/CD MAC and PHY with Physical Layer Collision Avoidance (PLCA). PLCA prevents collisions at the physical layer and therefore improves the throughput of CSMA/CD. The T2500 uses SPI (with a clock up to 25 MHz) as an interface to higher layers.

Features

- Compliant to IEEE 802.3cg 2019
  - Supports Half−Duplex, Multi−Drop mode
- Physical Layer Collision Avoidance (PLCA)
- SPI interface (OPEN Alliance 10BASE−T1x MACPHY Interface)
- Topology Discovery (TC14 Compliant)
- Sleep/Wake (TC10 compliant), Local Wake−up Input, Local Wake Forward and Inhibit Output for Voltage Regulator Control
- Time Stamping (TC6 Compliant)
- Capture and Compare Modules
- Signal Quality Index (SQI)
- Harness Defect Detection (HDD)
- PLCA Diagnostic
- Coordinator Redundancy
- Single 3.3V Supply Operation Possibility
- VBAT (up to 48V) pin for Inhibit and Sleep Mode Power Supply
- MDI pins protected against:
  - ±6 kV ESD (HBM, IEC61000−4−2)
  - Transient Pulses (ISO7637)
- Operating Ambient Temperature −40°C to +150°C (T_{AMB_Class0})

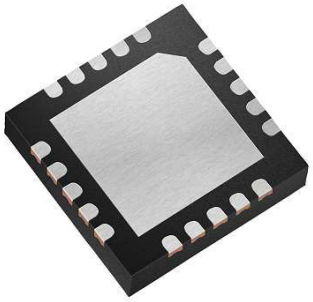
Environment

- These are PB−Free Devices

Typical Applications

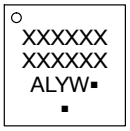
- Automotive
- Industrial

This document contains information on a product under development. **onsemi** reserves the right to change or discontinue this product without notice.



QFNW20, 4x4, 0.5P
WETTABLE FLANKS
CASE 484AD

MARKING DIAGRAM



XXXXXX = Specific Device Code
A = Assembly Location
L = Wafer Lot
Y = Year
W = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

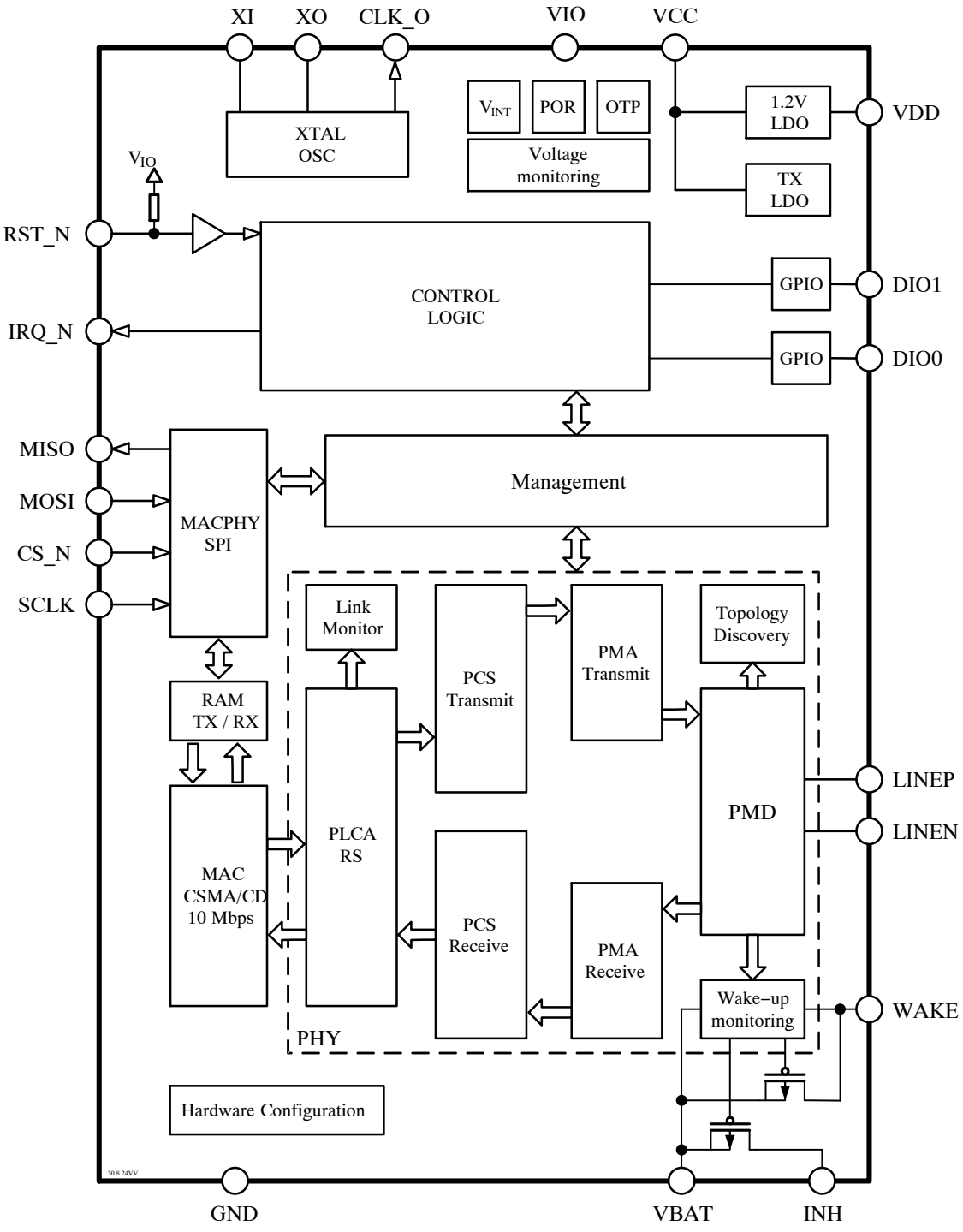
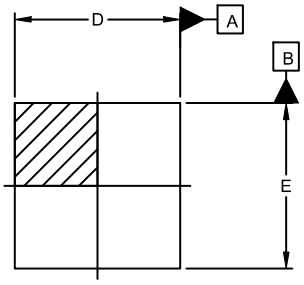


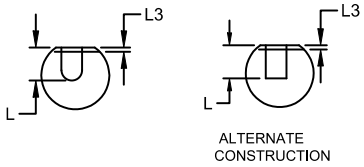
Figure 1. Block Diagram

PACKAGE DIMENSIONS

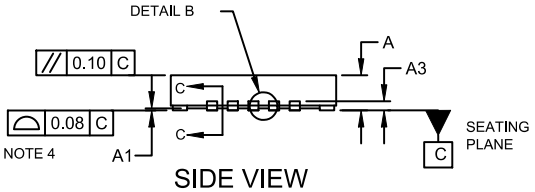
QFNW20 4x4, 0.5P
CASE 484AD
ISSUE C



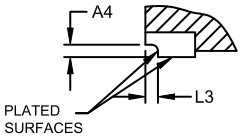
TOP VIEW



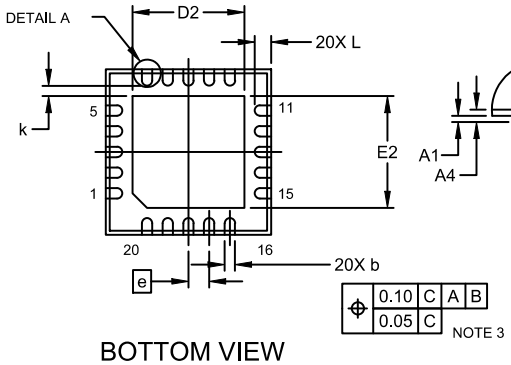
DETAIL A



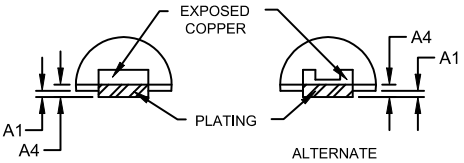
SIDE VIEW



SECTION C-C



BOTTOM VIEW

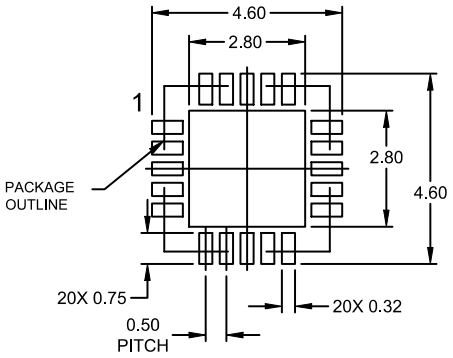


DETAIL B

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	0.80	0.85	0.90
A1	---	---	0.05
A3	0.20 REF		
A4	0.10	---	---
b	0.20	0.25	0.30
D	3.90	4.00	4.10
D2	2.60	2.70	2.80
E	3.90	4.00	4.10
E2	2.60	2.70	2.80
e	0.50 BSC		
k	0.25 REF		
L	0.35	0.40	0.45
L3	---	---	0.09



RECOMMENDED
MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

◊