TJA1104 – MACsec enabled and ASIL B compliant 100BASE-T1 Ethernet PHY

TJA1104 is the first MACsec enabled product of NXP's successful family of 100BASE-T1 Automotive Ethernet PHYs. It addresses the security concerns for future networks and provides an efficient HW based solution with MACsec. To enable scalable platform designs TJA1104 is drop in compatible with TJA1103 and TJA1120.

TJA1104 complies with all state-of-the-art conformance test specifications and is designed according to ISO 26262 to meet ASIL B, providing enhanced monitoring and diagnostic features. Further, it integrates OPEN Alliance TC-10 compliant wake-up forwarding over the Ethernet data line.



KEY FEATURES

- IEEE 802.1AE-2018 MACsec at full wireline performance
- Functional safety ISO 26262 ASIL B compliant
- OPEN Alliance TC-1 advanced PHY features
- IEEE1588v2/802.1AS compliant time stamping
- OPEN Alliance TC-10 compliant sleep/wake up
- HVQFN36 (6 x 6 mm) with wettable flanks
- Optimized for automotive use cases
- 3.3 V single supply capability



Automotive Target Applications

- Radar systems
- Sound system
- Vision systems and cameras
- Car radio
- Ecockpit and head unit
- Remote tuner
- TCU
- Gateway and domain controller

For additional information and sample availability, contact your local sales office or visit https://www.nxp.com/TJA1104

TJA11xx-EVB-KIT

Our Ethernet PHY evaluation kit follows a common board strategy. The kit consists of two parts, namely TJA11xx-EVB and TJA11xx-SDBx. The TJA11xx-EVB, also referred to as the base board, is common between the upcoming PHY transceivers. Whereas TJA11xx-SDBx, also called the SABRE card, is specific to the Ethernet PHY.

To use the TJA11xx kit, the TJA11xx-SDBx SABRE card must be plugged on top of TJA11xx-EVB – as shown in figure 1.



Figure 1

TJA11xx-EVB

The TJA11xx-EVB board, shown in figure 2, acts as a hardware evaluation baseboard for 100BASE-T1 or 1000BASE-T1 PHYs. The evaluation board is designed to be a breakout board that can be used as host board for TJA1104 SABRE daughter boards. Moreover, the EVB allows access to all relevant signals that the baseboard exposes on the SABRE connector and also provides power to the SABRE daughter board.



Figure 2

TJA11xx-SDBx

The TJA11xx-SDBx SABRE development boards, shown in figure 3, are purpose-built tools to evaluate the SGMII and RGMII. From the naming convention, TJA11xx-SDBR and TJA11xx-SDBS includes RGMII and SGMII, respectively.

These boards represent a reference design for scaling from 100 to 1000BASE-T1 with or without MACsec within our PHY family. The same board can be ordered with TJA1104 or upcoming PHY transceivers. Also, TJA11xx-SDBx board can smoothly interface with S32K and S32G µP/µC evaluation boards.



Figure 3

Visit www.nxp.com/TJA1104

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