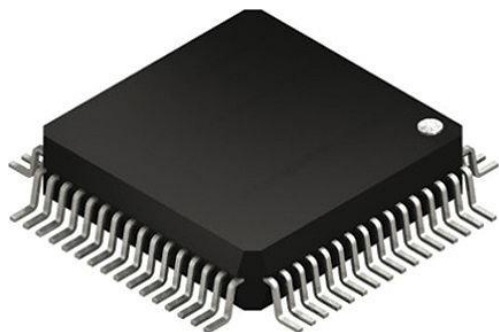




Space Ethernet Physical Layer

The high-reliability 10/100Mbps Ethernet physical layer transceiver



Product Preview – Available in 2018

Key Benefits

- ✓ 10/100 Base-TX Ethernet physical layer transceiver
- ✓ Media Independent Interface (MII) and Reduced MII (RMII) support
- ✓ Low power consumption < 500 mW
- ✓ Package: 64-Pin QFP
- ✓ Temperature range: -55 °C to +125 °C
- ✓ Radiation tolerant

SEPHY is an extremely robust transceiver for Ethernet 10BASE-T and 100BASE-TX using category 5 unshielded twisted-pair cabling. This high-reliability physical layer device features enhanced ESD protection, MII and RMII for maximum flexibility in MPU selection and comes with an affordable, compact 64-pin PQFP package.

The chip has been developed on a radiation hardened 150 nm mixed signal SOI process to ensure the reliability in harsh radiation environments. The device is packaged in a cost-efficient plastic flat pack for the use in high-volume applications. However, the chip will also become available in a space grade ceramic package.

Applications

SEPHY can be used in a wide range of applications reaching from industrial to aerospace. However, the radiation tolerant design of the analog and digital blocks within the chip supports high-reliability in harsh radiation environments in particular (aeronautics and space) which is enabled by the wide operational temperature range.

Supported Ethernet Standards

SEPHY complies with a wide range of Ethernet standards including IEEE 802.3u (like MII, Parallel Detection, ENDEC, 10BASE-T transceivers and filters, PCS, 100BASE-TX transceivers and filters). The chip also supports RMII Rev. 1.2 and MII Serial Management Interfaces (MDC and MDIO).



Application Fields

- Space (launch vehicles and satellites)
- Aeronautics
- Defence

General Product Features

- Full Duplex support for 10/100 Mb/s
- ANSI X3.263-1995 compatible
- IEEE 802.3u Parallel Detection
- IEEE 802.3u ENDEC, 10BASE-T Transceivers and Filters
- IEEE 802.3u PCS, 100BASE-TX Transceivers and Filters
- IEEE 1149.1 JTAG
- Programmable loopback models for easy system diagnostic

Power Supply and Consumption

- 3.3V MAC Interface
- Low-Power 0.15- μ m SOI Technology (< 500 mW Typical)

Host Interfaces

- RMII Rev. 1.2 Interface (Configurable)
- MII Serial Management Interface (MDC and MDIO)
- IEEE 802.3u MII

Environmentals

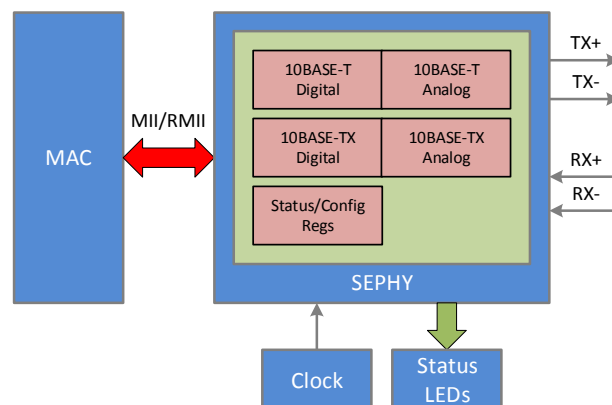
- Temperature range: -55 °C to +125 °C
- Cold spare functionality
- Radiation tolerance:
 - TID greater than 100 krad
 - SEU threshold LET 30 MeV·cm²/mg
 - SEU Error Rate lower than 10⁻¹⁰ errors/bit-day (@ < 70 MeV·cm²/mg)
 - SEL Threshold LET greater than 60 MeV·cm²/mg

Package & Quality Level

- Lead Free 64-Pin PQFP Package
- Mil, DLA-QML and ESCC-QML

Order Numbers

- On request



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