

ARTIC

ARGOS 2/3/4 single chip radio

General description

The ARTIC is an integrated low power small size ARGOS 2/3/4 single chip radio. ARTIC implements a message based wireless interface. For satellite uplink communication, ARTIC will encode, modulate and transmit provided user messages. For downlink communication, ARTIC will lock to the downstream, demodulate and decode and extract the satellite messages.

The ARTIC can transmit signals in frequency bands around 400MHz and receive signals in the bands around 466MHz, in accordance with the ARGOS satellite system specifications.

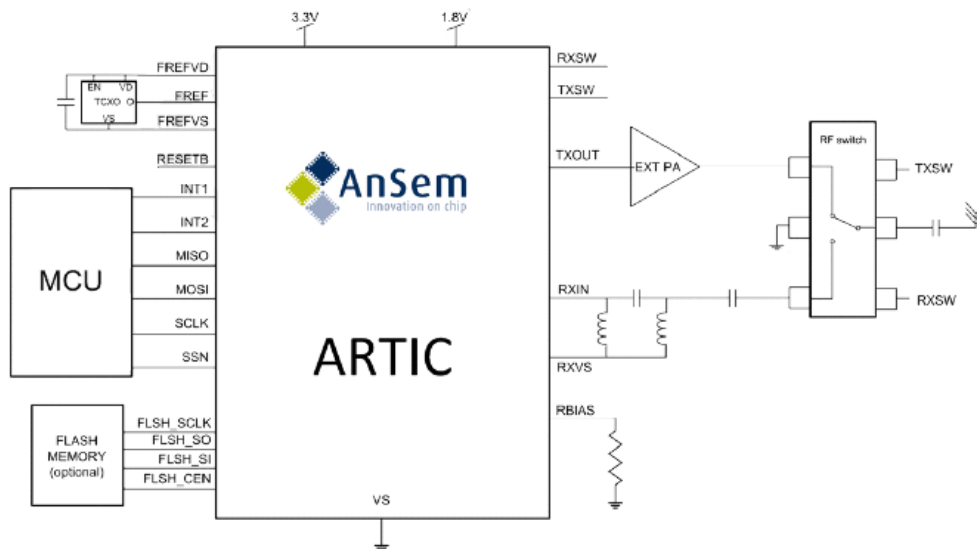
The ARTIC is compliant and certified for all ARGOS 2 and ARGOS 3 TX standards. It contains a RF transceiver, a

frequency synthesizer and a digital baseband modem. The ARTIC contains an on-chip power amplifier delivering 1mW [0dBm] output power, that serves as an output for connecting an external high efficient PA. The (de)modulation algorithms run on an on-chip DSP. This software approach allows for retargeting the ARTIC for other applications. The DSP program can be retained on an external flash or the MCU.

Internal power management is autonomously handled by ARTIC in order to optimize its current consumption.

The ARTIC can communicate with an external micro-controller using a standard SPI interface.

The ARTIC is a 7mm x 7mm, 48-lead QFN package.



Applications

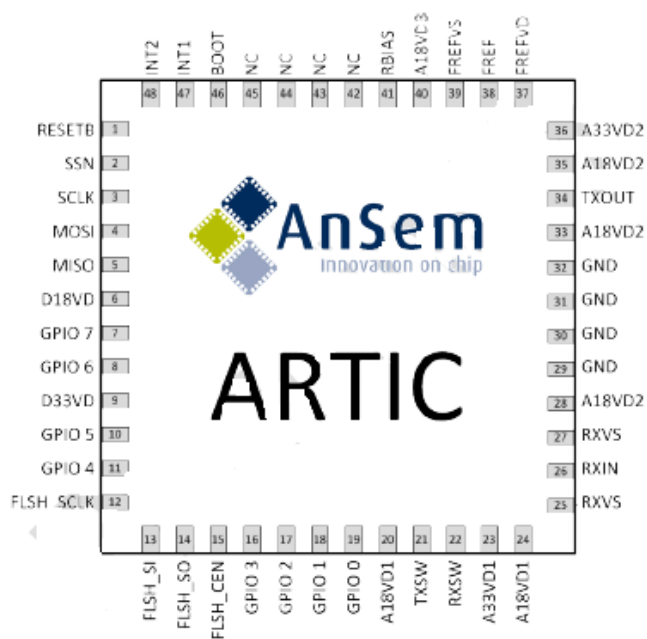
- Pop up tags for marine animal tracking
- Land animals and birds tracking
- Buoys and floats

- Tracking of adventurers and yacht racing
- Maritime security, vessel monitoring system (VMS)
- Search and rescue (COSPAS-SARSAT)

Features

- Serial interface (SPI) for communication with MCU
- Programmable DSP core on board to ensure flexibility
- RX frequency : 466MHz - TX frequency: 400MHz
- Fractional N frequency synthesis
- Supported TX standards:
 - BPSK: PTT-A2 (ARGOS 2), PTT-VLD (ARGOS 4)
 - QPSK: PTT-A3, PTT-ZE (ARGOS 3)
 - GMSK: PTT-HD (ARGOS 3), PTT-MD (ARGOS 4), PTT-HD (ARGOS 4)
- Supported RX standards:
 - BPSK: PMT-A3 (ARGOS 3)
 - DSSS OQPSK: PMT-A4 (ARGOS 4)
- Dedicated flash Interface to retain Firmware.
- Support COSPAS-SARSAT standard
- Operates on external 26MHz reference clock
- Dual supply, 1.8V and 3.3V
- Integrated PA (0dBm) to combine with external PA

Pin assignments



Main advantages

Flexible configuration

Simple configuration for Argos data transmission playing on:

- Argos mode (data rate, modulation)
- Frequency
- Repetition period

Downlink reception capacity

- Remote reconfiguration capability.
- Broadcast of updated Argos satellite orbit characteristics, enabling satellite pass predictions for optimal data transmission and power management.
- Possibility of data transmission acknowledgment.