

CYIENT

AnSem

ARTIC

ARGOS 3/4 Single Chip Radio

GENERAL DESCRIPTION

The ARTIC is an integrated low power small size ARGOS 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 it 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.

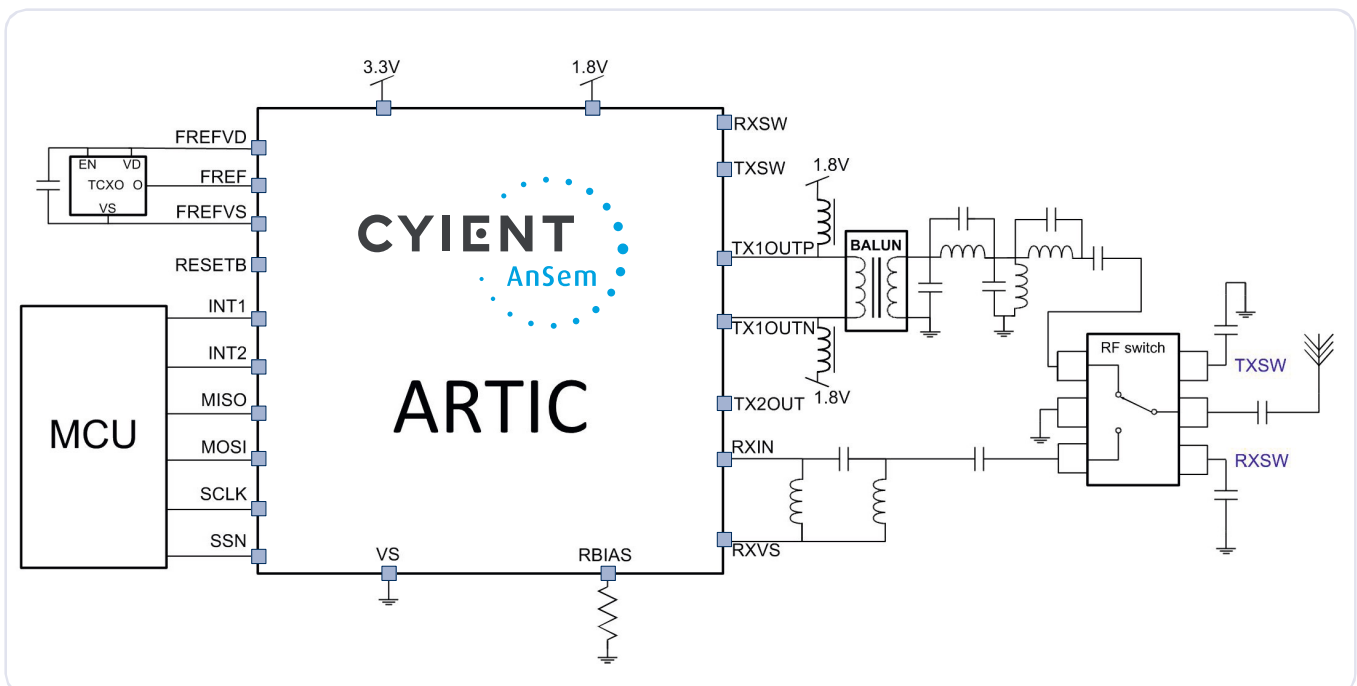
The ARTIC is compliant to all ARGOS 3 and ARGOS 4 RX and TX standards. It contains a RF transceiver and frequency synthesiser and a digital baseband modem.

ARTIC also contains two on-chip power amplifiers; an efficient high power PA that can deliver 250mW output power to the antenna and a second PA that delivers an output of 0dBm, enabling the use of an external PA. The (de) modulation algorithms run on an on-chip DSP. This software approach allows for retargeting the ARTIC for other applications.

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.

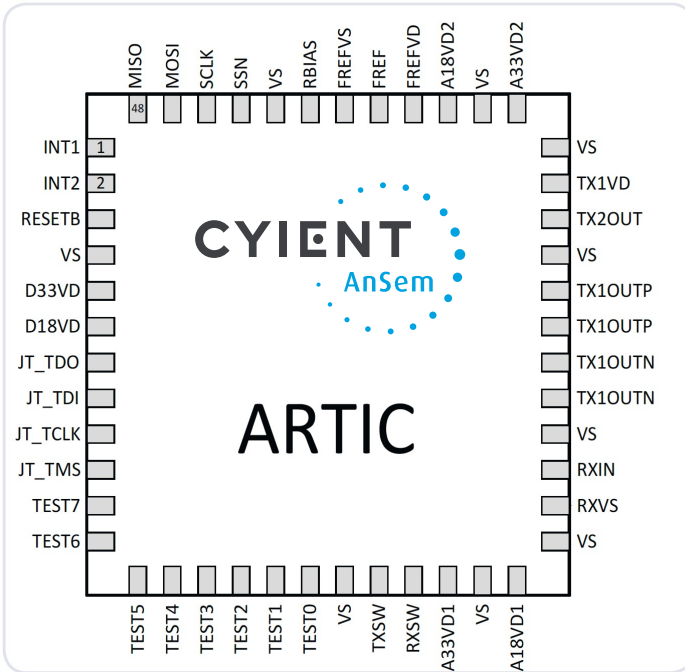
The complete system with external components is smaller than 1 square inch.



APPLICATIONS

- Pop up tags for animal tracking
- Tracking of adventurers and yacht racing
- Buoyons and floats
- Maritime security
- Satellite-based vessel monitoring system (VMS)
- Search and rescue (COSPAS-SARSAT)

PIN DESCRIPTION & PIN LIST



SPECIFICATIONS

- Programmable DSP core on board to ensure flexibility
- JTAG interface for DSP debugging
- RX frequency: 466MHz - TX frequency: 400MHz
- Fractional N frequency synthesis
- Supports for TX: BPSK, QPSK, (differential) GMSK i.e. PTT-A2, PTT-A3, PTT-ZE, PTT-HD (Argos 3), PTT-MD, PTT-HD, PTT-VLD (Argos 4)
- Supports for RX: BPSK and DSSS OQPSK i.e. PMT-A3 (Argos 3) and PMT-A4 (Argos 4)
- Support COSPAS-SARSAT standard
- Operates on external 26MHz reference clock
- Dual supply, 1.8V and 3.3V
- Serial interface (SPI) for communication with MCU
- Selectable output power:
 - Integrated high power PA (>250mW)
 - Integrated PA (0dBm) to combine with external PA
- Power consumption from a 3.6V battery:
 - RX 11mA, TX (0dBm) 22mA, TX (25dBm) 300mA
- 0.18µm TSMC CMOS technology
- 7mm by 7mm, 48 lead QFN package

Pin No.	Pin Name	Description
1, 2	NT1,INT2	Interrupt 1 and 2
	RESETB	Global chip reset
	VS	Digital Ground
	D33VD	Digital 3.3V supply
	D18VD	Digital 1.8V supply
7, 8, 9, 10	JT_TDO, JT_TDI, JT_TCLK, JT_TMS	JTAG test
1:18	TEST 7-0	Test IO 7-0
9	VS	Digital Ground
20	TXSW	Transmit switch control signal
2	RXSW	Receive switch control signal
22	A33VD	Analog 3.3V supply
23	VS	Analog ground
24	A18VD	Analog 1.8V supply
25	VS	Analog ground
26	RXVS	RX input ground pin
27	XIN	RX input
28	VS	Analog ground
29, 30	TX1OUTN	Negative output high power PA
31, 32	TX1OUTP	Positive output high power PA
33	VS	Analog ground
34	TX2OUT	Low power PA output
35	TX1VD	Supply of TX chain
36	VS	Analog ground
37	A33VD2	Analog 3.3V supply
38	VS	Analog Ground
39	A18VD2	Analog 1.8V supply
40	REFVD	TCXO supply
4	REF	TCXO input
42	REFVS	TCXO ground
43	RBIAS	External bias resistor
44	VS	Digital Ground
45, 46, 47, 48	SSN, SCLK, MOSI, MISO	SPI pins

About Cyient

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For more information, please visit www.cyient.com



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