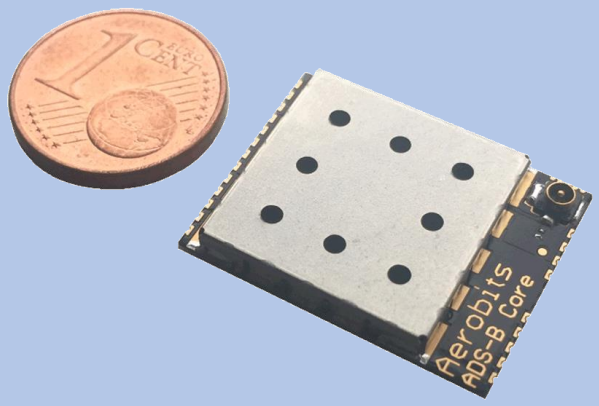
TIM-C1

(Basic Information)



TIM-C1 is a high-performance receiver operating at 1090MHz. The unique combination of a multi-core processor with FPGA support, allowed high-speed data processing, comparable to professional, ground-based stations to be achieved. Simultaneous miniaturization of the module and its OEM nature open a wide range of possible applications.

Features

- FPGA-In-The-Loop technology for the fastest ADS-B/In implementation on a surface of ~4cm^2
- High-resolution ADC with real-time signal processing based on an adaptive algorithm; best-in-class aircraft tracking
- ADS-B and Mode-S with a capability of receiving thousands of frames per second
- RF power measurement for each frame (useful for distance estimation in case of Mode-S)
- High sensitive front-end (jamming and ESD protection) with ranges over 200 miles (1dBi antenna)
- Simple module integration - programming using high-speed UART and AT commands
- Scalable OEM solution with enormous customization potential
- High-speed memory interface for data storage
- GNSS (NMEA) input for dynamic calculations of relative distances to the aircraft
- Power supply 3.3 V, current consumption ≈200mA
- Designed to meet the requirements of TSO-C199
- Small outline: 23.0 x 18.0 x 2.5mm (2g weight)
- Evaluation board available

Applications

- SAA/DAA (Sense and Avoid / Detect and Avoid)
- UAS ground stations
- Mobile air traffic information devices
- High-density traffic surveillance
- Traffic-flow analysis and statistics
- For systems that meet the NextGen/SESAR philosophy

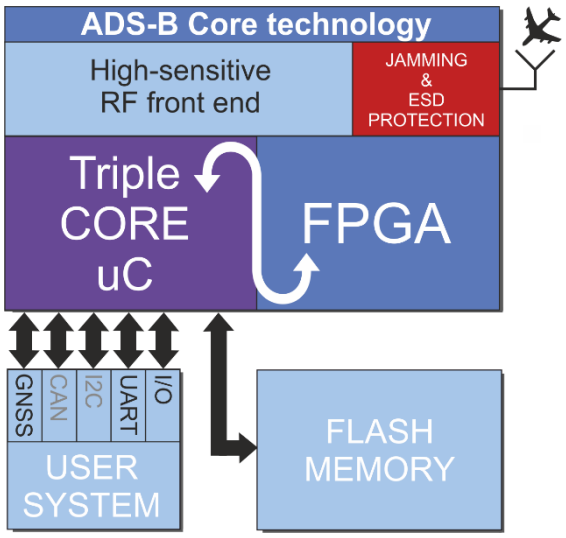


Fig. 1 Hardware block diagram.

Basic Electrical Specification					
Parameter	Description	Min.	Typ.	Max.	Unit
Carrier frequency		-	1090	-	MHz
RX sensitivity	For operation at 50Ω (U.fl connector)	-	-85	-	dBm
Power supply		3.0	3.3	3.6	DCV
Current consumption		-	200	-	mA

Tab. 1 Basic electrical specification.

About 40 AT commands are used for simple communication with the module. There are 3 types of commands: *execute, write value and read value*. Some of commands are marked as settings "S". It means that the parameter is non-volatile, and it is stored in internal memory. Typical responses of the module are "AT+OK" and "AT+ERROR (description)". For detailed protocol description please refer to the document number: 170601.

Output example:

```
#C:55.9,591,140056,E789
#G:52.47116,13.39779,42,5,1EB8
#M:A4FA49,,,,,,,,,,,700,2,67A2
#A:3C0A45,,EWG9YH,2550,51.52670,14.11587,37000,102,490,0,116.597,700,1565,B1E8
#A:A954CA,,CKS205,1000,50.57259,12.79625,40000,296,453,0,215.711,725,1606,9114
#A:45AC4C,,SAS48K,6644,52.55967,11.94991,36000,8,495,0,99.154,825,3738,1D7A
#A:3C66AB,,DLH9WY,7350,53.17250,10.69362,36975,26,530,0,198.203,750,1648,BA3
#M:3C4D66,,,,,,,,,,,700,1,8622
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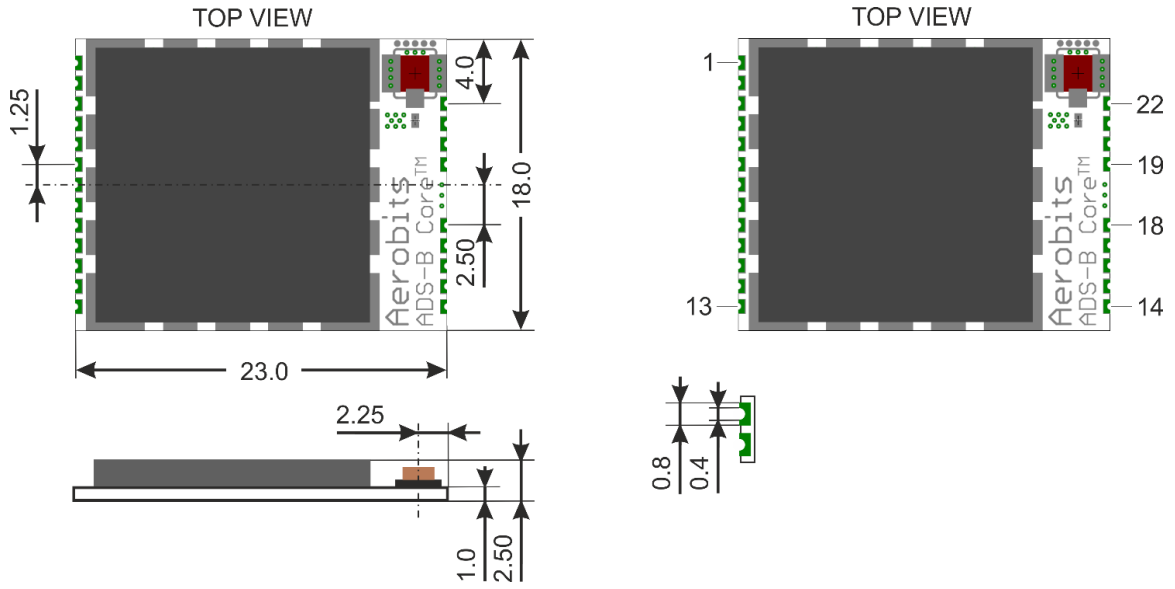

Fig. 2 Mechanical drawing (all dimensions in mm).

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