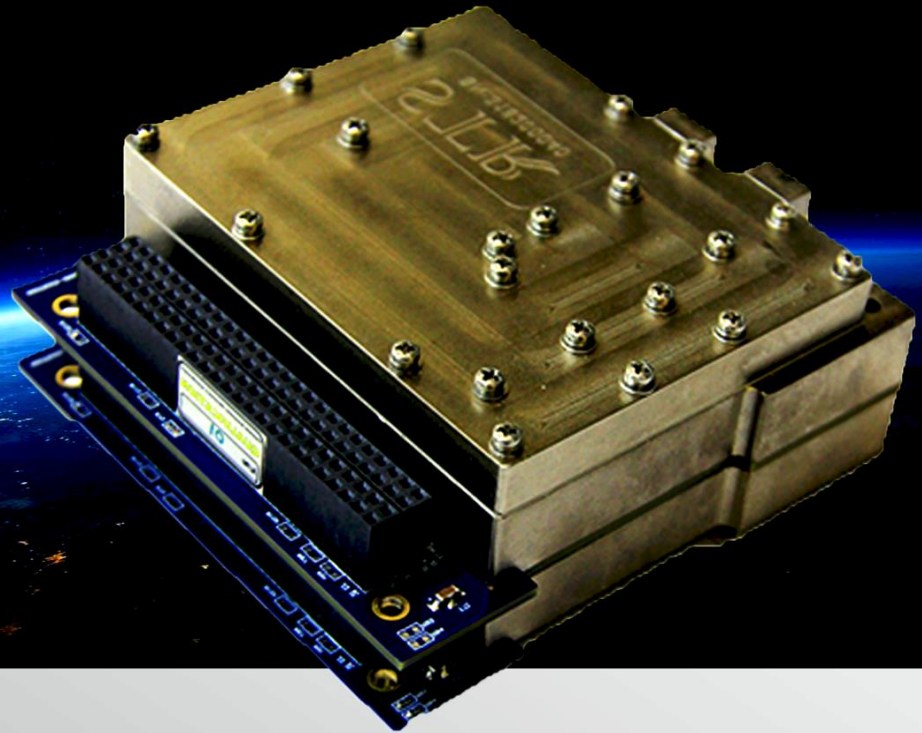


S-band Module



Description

Due to the small size of CubeSats one of the main challenges is low consuming equipment, especially for radios communication links. S TRX answers to this demand using an efficient power amplifier and controlling the power consumption of power amplifier section.

A temperature automatic shutdown mechanism is used to protect the module from high temperature conditions. Also, the power consumption is optimized for each power level. S TRX is designed for Low Earth Orbit mission with two years lifetime.

S TRX is designed and manufactured using high quality electronic components and it has been under mechanical and thermal stress tests according to ECSS on QM Unit.

KEY HIGHLIGHT

- Qualified COTS in a detailed design
- Link budget optimization, by in-flight configuration
- Low consumption & high-efficiency amplifier
- AES 256 Encryption



FREQUENCIES

The transmitter and Receiver module is suitable for the Low-Earth-Orbit missions. This module has the ability to send data in the frequency band of 2300-2200 MHz and receive data in the frequency band of 2110-2025 MHz.

POWER

The S -TRX 350 have a low power consumption and total power consumption of < 5 W

TECHNICAL SPECIFICATION

Functional and Performance Characteristics

Operating Life Time in Orbit	2 Years in LEO Missions	
Useful data Rate	10 to 180 Kbps	
Frequency Range	TX: 2200-2290 MHz RX: 2025-2110 MHz	
Modulation	FSK, BPSK, ASK	
FRAMING	HDLC	
Control Command and Telemetry	I2C, CAN	
Antenna	SMP	
RF Output Power	>33 dBm adjustable from 27-33 with 1 dB step	
Data Interface	TX: SPI	RX:RS485
Advanced Features	Low consumption high-efficiency amplifier	Data encryption CubeSat form factor / PC 104

Environmental and Mechanical Characteristics

Storage Temperature Range	-40 °C to +80°C
Operating Temperature Range	-30 °C to +65°C
Mass	350 gr
Dimensions	90 mm x 96 mm x 40 mm
Random vibration	15 grms

Electrical Characteristics

Supply Voltage	5.5 to 4.5 v for Processing unit & 6 to 14 v for RF unit
Power Consumption	<10 W
Consumption Current	280 mA

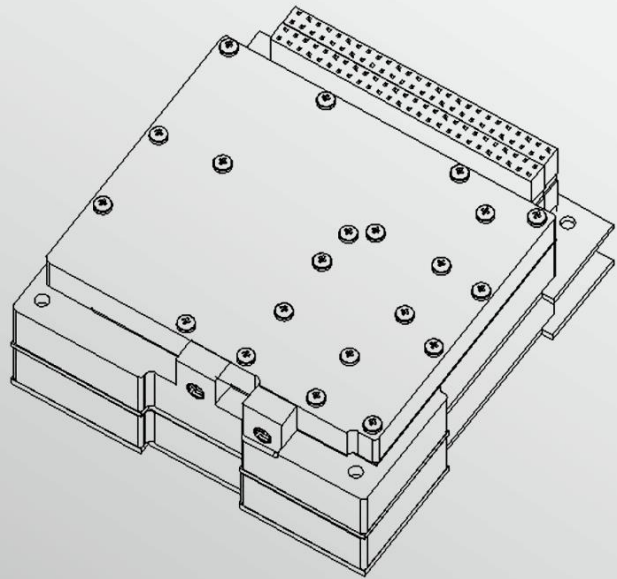
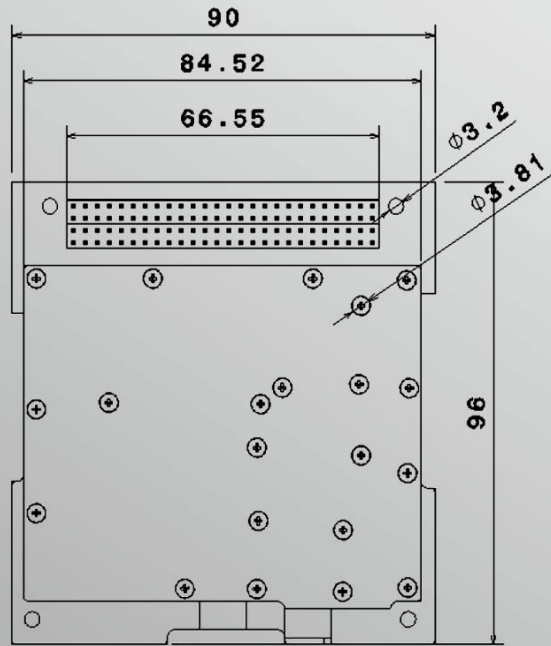
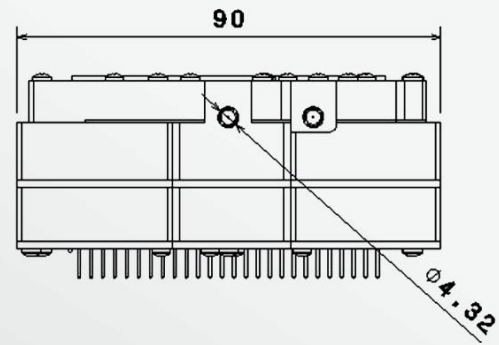
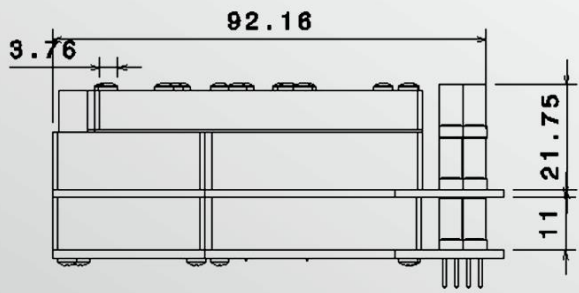
TEST SPECIFICATION

Qualification and Acceptance Testing (ECSS-E10-03A)

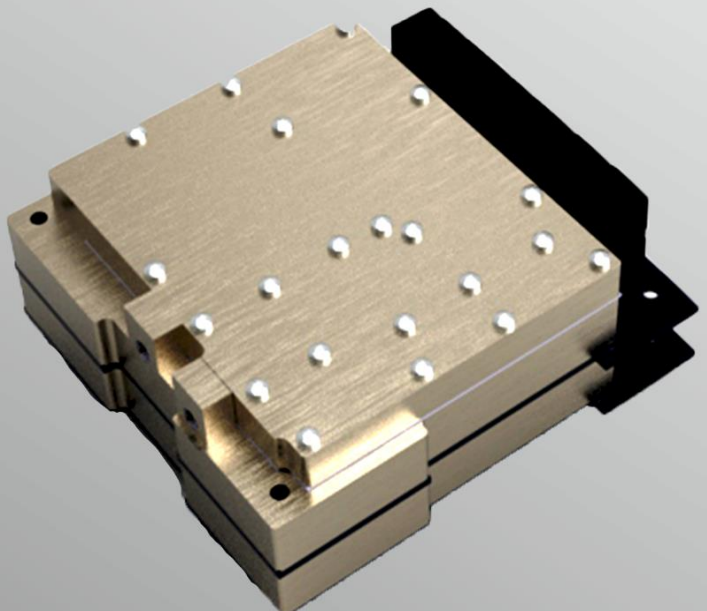
Test Name	QT	AT
Functional	✓	✓
Random Vibration	✓	✓
Sinusoidal Vibration	✓	
Mechanical Shock	✓	
Thermal Cycling	✓	✓
Thermal Vacuum	✓	✓



Draw



Model



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