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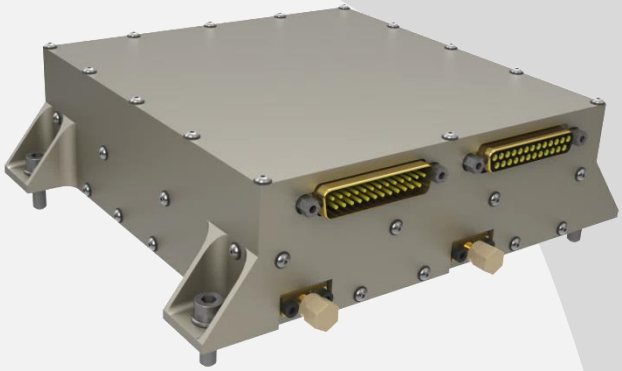
DUAL CHANNEL L-BAND TRANSMITTER AND RECEIVER MODULE



TRANSMITTER/RECEIVER MODULE SUITED FOR PULSED L-BAND PHASED ARRAY RADAR APPLICATIONS

OVERVIEW

The STI-MTR-L-35W is a dual channel LDMOS power amplifier based on L-band transmitter and receiver module designed for pulsed radar applications with electronic steering capability. The module is intended to be used as the basic building block for active phased array radar systems.

DESCRIPTION

The dual T/R module consists of two identical T/R chains with two independent TX OUT/RX IN antenna connectors and two independent TX IN/RX OUT connectors, optimized for dual polarization applications.

The module itself includes both transmitter & receiver RF signal chains and a digital control interface to manage phase and amplitude of those paths.

An FPGA-based digital control card provides an RS-422 command interface for phase & amplitude setting. The digital card also controls the power amplifiers biasing and the switching sequence. Feedback paths for all of the RF chains are provided for full module calibration capability.

FEATURES

- Frequency range 1,25 GHz to 1,30 GHz.
- 45 dBm output power.
- 10% duty cycle.
- 66µ seg. pulse width.
- Two identical independent TX/RX chains.
- Calibration paths for every RF chain.
- Phase and amplitude digitally controlled.
- RS 422 command lines interface.
- Multipurpose digital inputs/outputs available.
- Integrated bias sequencing.
- RF output power sensors .
- Internal temperature sensors.
- LNA input protected.
- RF SMA connectors.
- Sub-D power supply and control connectors.
- Input voltages +5V, +12V and +36V.
- Optional custom DCDC available.
- Operating temperature – 440 ºC to 75 ºC.

MECHANICAL DETAILS

Dimension (in mm): 143 x 138 x 43
Weight: < 1000 g.

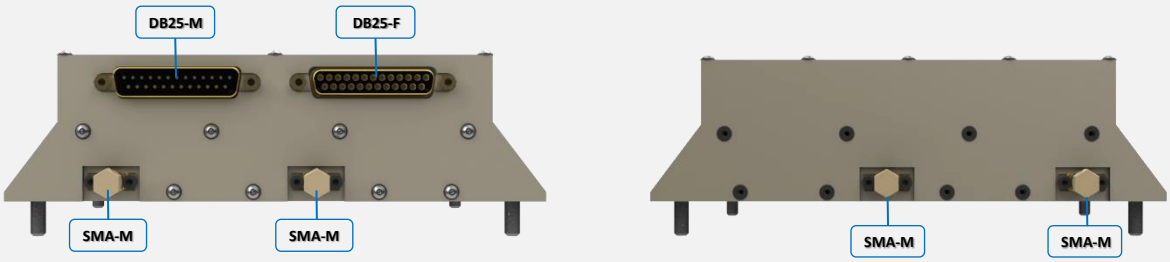
APPLICATIONS

- Airborne radars.
- Military radars.
- Synthetic aperture radars.
- Weather radars.

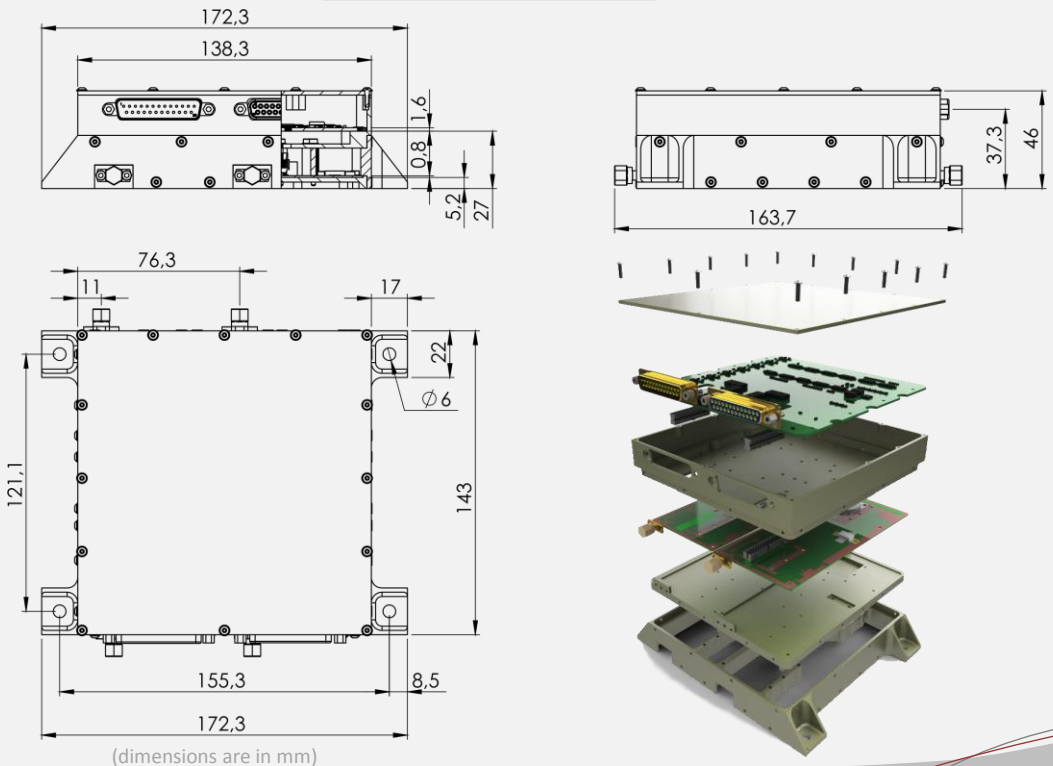
ELECTRICAL PERFORMANCE CHARACTERISTICS

SPECIFICATION	Min	Typ	Max
Central frequency		1275 MHz	
Operative Bandwidth		50 MHz	
Pulse repetition frequency	1 Khz		10 KHz
TX RF Pulse duration	10µS		66 µS
TX RF Pulse Duty Cycle			10%
Amplitude ripple over operative BW			0.5 dB
Pulse droop			0.5 dB
RF output power	45 dBm		
RF Power stability			0.5dB
TX input power		10dBm	
TX/RX Phase shifter step	5.625°		
TX/RX Phase setting range			360°
TX/RX Attenuator step	0.5 dB		
TX/RX Attenuator Amplitude setting range			31.5 dB
Spurious output			−50 dBc
VSWR (to Antenna)			1.5: 1
VSWR (TX in/RX out)			1.5: 1
RX Noise Figure			2.4 dB
RX gain	23.5 dB		
Input level for 1dB compression point	−50 dBm		
Dynamic range	40 dB		
LNA input protected			25 dBm
Coupling factor calibration chains		55 db	

CONNECTORS



MECHANICAL OUTLINE



(dimensions are in mm)