

FEATURES

8 Tx / 8 Rx TDD RF Frontend

RF Working Band: (TDD Band 41)

2496 MHz – 2690 MHz

TX Channel Gain: 30 dB

TX Max Output Power:

CW: > + 29 dBm

LTE: + 18 dBm ± 2 dB

TX ACLR: > 47 dB (LTE or WCDMA)

TX Input Return Loss: 12 dB

TX Output Return Loss: 12 dB

RX Channel Gain: 24 dB

RX Max Input Power:

CW: < - 3 dBm

LTE: < - 15 dBm

RX NF: 4 dB

RX Input Return Loss: 15 dB

RX Output Return Loss: 15 dB

On Board EEPROM: 1-Mbit (131072 x 8)

On Board Temperature Sensor: 2 Temp. Sensors with I2C Interface

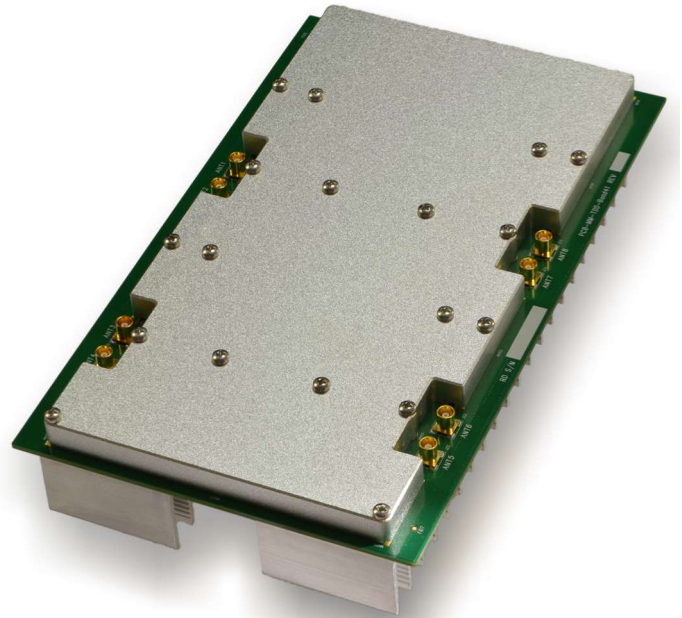


Figure 1 RDB-B41TA Module

APPLICATIONS

MIMO or Massive MIMO BTS, Replay or Repeater

Remote Radio Unit for TDD Band 41 Transceiver

GENERAL DESCRIPTION

The RDB-B41TA is a high-performance multi-channel MIMO RF Frontend (FE) Module. It includes 8 independent TX Power Amplifier (PA) channels, and 8 independent RX Low Noise Amplifier (LNA) channels. The working band is TDD band 41 (2496 – 2690 MHz). In the TX chain, the gain is ~30 dB, and the output power for CW is +29 dBm, for LTE is about ~+18 dBm with ACLR > 47 dB. Both input and output return loss are ~12 dB. In the RX chain, the gain is ~24 dB, max CW input level lower than -3 dBm, for LTE input signal, the max input level is lower than -15 dBm. The RX Noise Figure (NF) is about 4 dB and the both input and output return loss about 15 dB.

The RDB-B41TA module includes an on-board 1-Mbit (131072 x 8) EEPROM and 2 temperature sensors. The EEPROM is I2C-Compatible Serial Interface, and the two temperature sensors share the I2C interface, separated by their address. For better compatibility, the EEPROM power supply come from the control side.

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BLOCK DIAGRAM

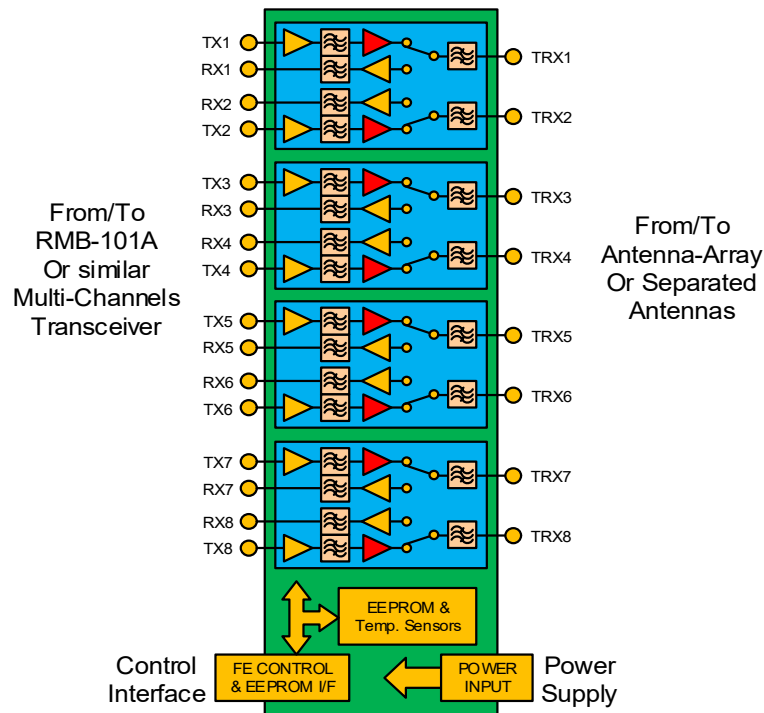


Figure 2 RDB-B41TA Block Diagram

USER INTERFACES

Table 1 User Interfaces (See **Figure 3**)

User Interfaces	Basic Functions Description
RF Interfaces	
RF 8 TRX Channels (Specification see Table 2)	TRX Input / Output Ports: TRX1 to TRX8 Connectors: MCX
RF 8 TX Channels Input (Specification see Table 2)	RF TX Input Ports: TX1 to TX8 Connectors: MCX
RF 8 RX Channels Input (Specification see Table 2)	RF RX Output Ports: RX1 to RX8 Connectors: MCX
Application Interface	
RF Frontend (FE) Control, I2C EEPROM and more I2C Devices Interface	40 Pins 1.27 x 1.27 mm connector 8 LNA Enable Signals for 8 RF Receiver Channels: LNA Enable 1 to LNA Enable 8. 8 PA Enable Signals for 8 RF Transmitter Channels: PA Enable 1 to PA Enable 8. 8 TDD RF Switch Controls Signals for 8 Transceiver Channels: RF SW 1 to RF SW 8

	EEPROM (1-Mbit) Power Supply, Read / Write Signals: Power Supply: 3.3 VDC Interface: I2C-Compatible Serial Interface Other I2C Devices Interface: Note: 2 Temperature Sensors on Board. Power Supply LDO Enable Signals etc.
Power Supply Input	
DC Power Supply	2 Pins Connector: 12 VDC Power Supply for Module

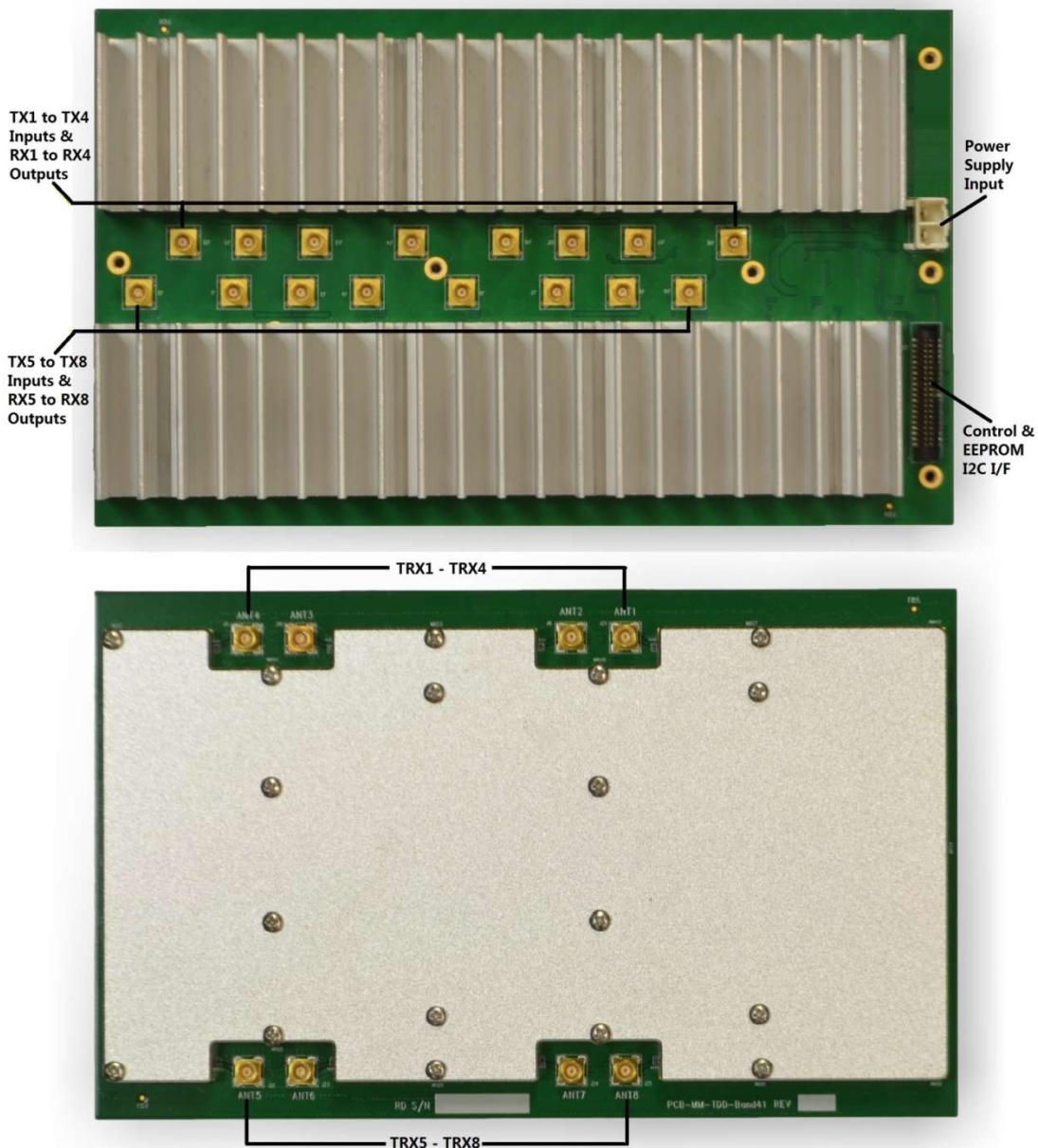


Figure 3 RDB-B41TA Interfaces

SPECIFICATIONS

Transceiver Basic Specifications

Table 2 Basic Specifications

Parameters	Min	Typ.	Max	Unit
RF Basic Specifications				
System Impedance	50			Ohm
System Working Band (Note 1)	2496	2593	2690	MHz
Stop Band Attenuation:				
10 – 1564 MHz	62	79		dB
1565 – 1615 MHz	69	76		dB
1616 – 1879 MHz	45	55		dB
1880 – 1920 MHz	40	45		dB
1921 – 2400 MHz	10	12		dB
2401 – 2467 MHz	50	60		dB
2468 – 2472 MHz	60	65		dB
2473 – 2483 MHz	8	15		dB
2775 – 3900 MHz	25	30		dB
3901 – 4991 MHz	62	68		dB
4992 – 5380 MHz	60	65		dB
5381 – 8000 MHz	58	60		dB
RF Port Isolation		45		dB
TX Channel Basic Specifications				
Channel Gain		30		dB
Max Output Power: CW Signal		+ 29		dBm
LTE Signal		+ 18		dBm
Output ACLR (LTE 20 MHz BW)		47		dB
Input S11		- 12		dB
Output S22		- 12		dB
RX Channel Basic Specifications				
Channel Gain		24		dB
Max Input Power: CW Signal			- 3	dBm
LTE Signal			- 15	dBm
Channel NF		4		dB
Input S11		- 15		dB
Output S22		- 15		dB

DC Power Supply Specifications and Power Consumptions

Table 3 Power Supply Basic Specifications and Consumptions

Parameters	Min	Typ.	Max	Unit
DC Power Supply Basic Specifications				
DC Input Nominal Voltage		12		VDC
DC Input Voltage Range	10.8		13.8	VDC
DC Input Current		5		A
Ripple Noise		150		mV
Power Consumptions				
Quiescent		54		W
Full Load		58		W

MECHANICAL BASIC INFO

Dimension Unit: mm

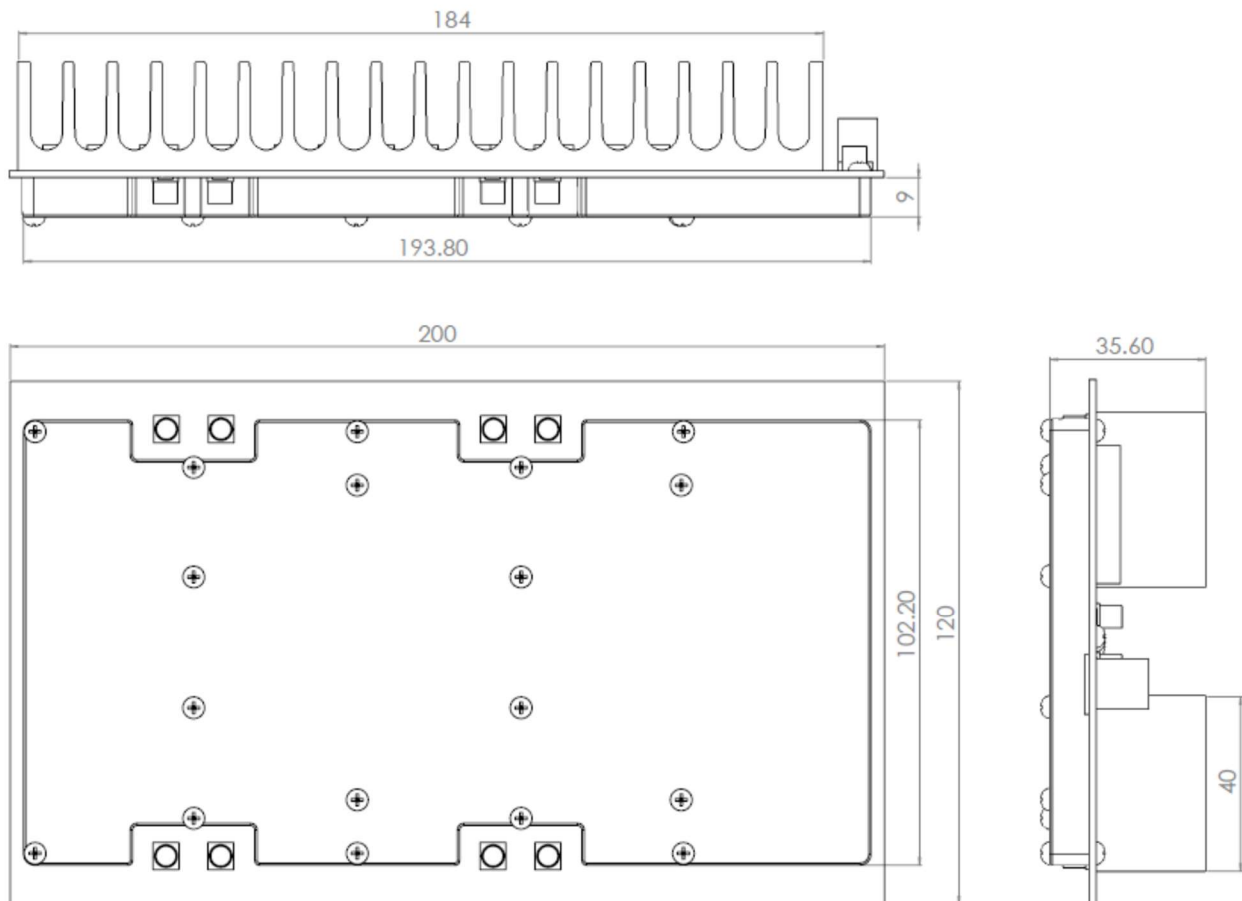


Figure 4 RDB-B41TA Mechanical Basic Dimensions

REVISION HISTORY

Table 4 Revision History

Revision	Description
Rev. A	Dec, 2016 – Rev. 1 to Rev. A
Rev. 1	Nov, 2016 – Rev. 1, Initial Version.

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