

2.4GHz Bluetooth® Smart Front End RFIC

Product Brief

Features

- 2.4 – 2.5 GHz Frequency Range
- High Functionality Front-End RF Integrated Circuit
- Integrated PA, LNA, Bypass, Ant Switch, T/R Switch
- Low Current Optimized for Battery Operated IoT
- +13dBm Output Power at 3V, Up to +15dBm, 3.6V
- 23mA at +13dBm Output Power
- 2.3dB LNA Noise Figure
- Low Bi-Directional Bypass Insertion Loss
- Ultra-Low Bypass/Sleep Current, Ideal for Bluetooth® Power Class 1 & 1.5 Operation
- Filter Networks, Input / Output Matching
- Ultra Compact 2.0 x 2.0 x 0.45 mm QFN-16 Package
- -40°C to 105°C Temperature Range

Description

The 8TR8211 combines a PA, Bypass, LNA, T/R Switch, and Antenna Switch for Bluetooth® Smart, 802.15.4 ZigBee™/ Thread, ANT+, and proprietary ISM wireless systems in the 2.4GHz band packaged in a 2.0 x 2.0 x 0.45mm 16-pin QFN.

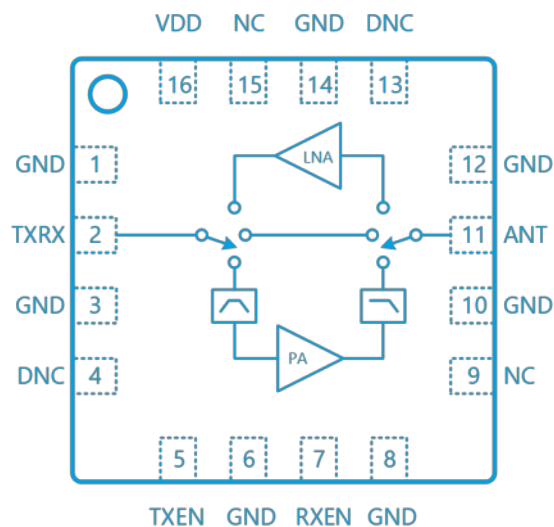
Logic Table

TXEN	RXEN	Operational Mode
0	0	Bypass Mode = Sleep Mode
0	1	RX Mode
1	X	TX Mode

Applications

- Bluetooth® Low Energy (BLE) Devices
- IoT (Internet of Things) / M2M Connectivity
- Bluetooth® Audio
- Bluetooth® Mesh Networks
- Sports and Medical Wearables
- Consumer Electronics, Toys
- Smart Home Appliances, Remote Controllers
- Wireless Sensor Nodes
- Beacons
- Proximity Sensors
- Range Extenders

Functional Block Diagram



Key Specifications

TX		RX / BYPASS		RFIC	
Parameter	Typical	Parameter	Typical	Parameter	Typical
Large-Signal Gain	12 dB	Gain	13 dB	Frequency Range	2.4 - 2.5 GHz
Saturated Output Power	+13 dBm	Noise Figure	2.3 dB	Supply Voltage	1.8 - 3.6 V
Saturated Output Power @ 2.7 V	+12 dBm	Supply Current	8 mA	Control Voltage High	>1.2 V
Supply Current @ +13dBm	23 mA	Bypass Insertion Loss	2.1 dB	Control Voltage Low	< 0.3 V
Quiescent Current	5 mA	Bypass Current (same as Sleep)	0.6 µA	ESD (HBM)	1000 V
2 nd /3 rd Harmonics at up to +14dBm	-50 dBm / MHz*	Input P1dB / IIP3	-5 / +5 dBm	Temperature Range	-40 to 105°C

At 3.0V VDD unless otherwise specified. *With the use of one external pi filter.