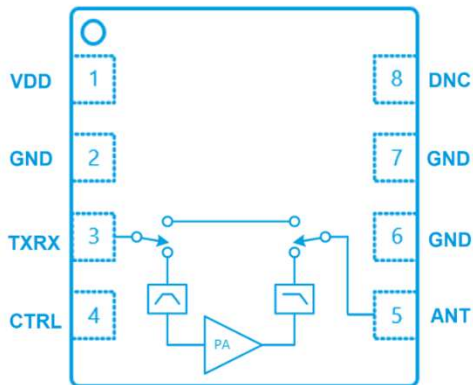


Description

The 8TR1216 provides range extension for Bluetooth® Smart, 802.15.4 ZigBee™/ Thread, ANT+, and proprietary ISM wireless systems in the 2.4GHz band.

This application-friendly RFIC provides PA plus Bypass with Tx/Rx switches in an ultra-compact package. It requires only a dual-cell battery supply voltage and a single logic control signal.

Block Diagram



Logic Table

CTRL	Operational Mode
0	Bypass Mode = Sleep Mode
1	TX PA Mode

Key Specifications

At VDD=3.0V, Zo=50Ω, unless noted otherwise.

TX PA		BI-DIRECTIONAL BYPASS		GENERAL	
Parameter	Typical	Parameter	Typical	Parameter	Typical
Large-Signal Gain @2.5~3.0V	13 dB	Insertion Loss	2.5 dB	Frequency Range	2.4 - 2.5 GHz
Target Output Power	+10 dBm	RF Power Rating	20dBm	Supply Voltage	2.0 - 3.0 V
Saturated Output Power	+13dBm	Return Loss	-12 dB	Control Voltage High Low	> 1.2 V < 0.3 V
Supply Current @ +10dBm	18 mA	Supply Current (Bypass = Sleep)	0.4 μA	ESD (HBM)	3000 V
2 nd /3 rd Harmonics up to +10dBm	-55 dBm/MHz*	Switching Time (Bypass <-> TX PA)	0.8 μs	Temperature Range	-40 to 125°C

*Using external harmonic filter.

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

Features

- 2.4 – 2.5 GHz Frequency Range
- Nearly Constant Tx Output Power over VSWR
- Integrated PA, Bypass, Tx/Rx-Ant Switch
- Low TX Current for direct battery connection
- 18mA at +10dBm Output Power
- Ultra-Low Bypass(=Shutdown) Current
- Bi-Directional Bypass with Low Insertion Loss
- 1-Bit Control between Bypass and PA Modes
- 2.0 x 2.0 x 0.45 mm Package with 0.5mm Pitch
- -40°C to 125°C Temperature Range
- Minimum Gain variation over supply voltage