



FM TRANSMITTER & RECEIVER HYBRID MODULES.

FM-RTFQ1-XXX
FM-RRFQ1-XXX

- FM Radio Transmitter & Receivers
- Transmit Range Up To 250m
- Miniature Packages
- Data Rate upto 9.67Kbps
- No Adjustable Components
- Very Stable Operating Frequency
- Operates from -20 to $+85^{\circ}\text{C}$
- Available As 315 or 433 or 868MHz

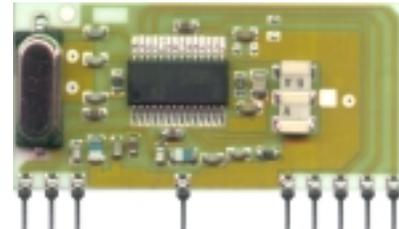


Transmitter

- 3V Supply Voltage
- DIL Package

Receiver

- PLL XTAL Design
- CMOS/TTL Output
- RSSI Output
- **Standby Mode (max 100nA)**
- 5V Supply Voltage



Applications

- Wireless Security Systems
- Car Alarms
- Remote Gate Controls
- Remote Sensing
- Data Capture
- Sensor Reporting

Description

These miniature RF modules provide a cost effective high performance FM Radio data link, at either 315, 433.92 or 868MHz. Manufactured using laser trimmed Thick Film ceramic Hybrid the modules exhibits extremely stable electronic characteristics over an Industrial Temperature range. The hybrid technology uses no adjustable components and ensures very reliable operation.

This transmitter and receiver pair enables the simple implementation of a data link at distances upto 75 metres in-building and 250 metres open ground.

These modules will suit one-to-one and multi-node wireless links in applications including car and building security, EPOS and inventory tracking, remote industrial process monitoring and computer networking. Because of their small size and low power requirements, both modules are ideal for use in portable, battery-powered applications such as hand-held terminals.

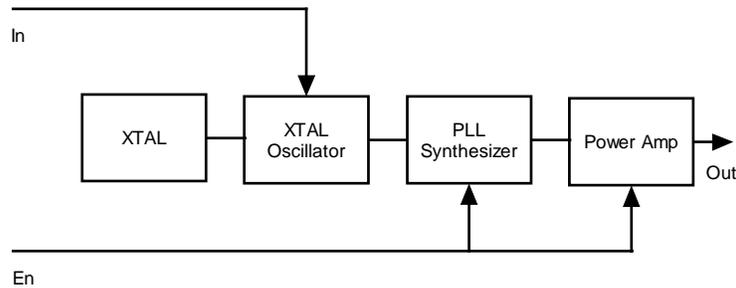




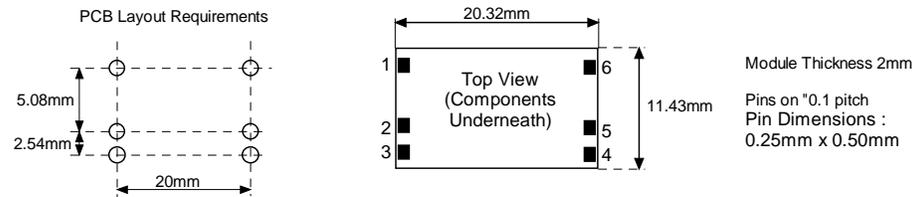
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FM-RTFQ1-XXX FM-RRFQ1-XXX

RTFQ1 Block Diagram



Mechanical Dimensions



Pin Description

| Pin Number | Name | Description |
|------------|------|---|
| 1 | En | Enable (active high) |
| 2 | IN | Data input |
| 3 | GND | Ground, Connect to RF earth return path |
| 4 | Vcc | Supply Voltage |
| 5 | GND | Ground, Connect to RF earth return path |
| 6 | EA | External Antenna |

Technical Specifications

| ELECTRICAL CHARACTERISTICS | MIN | TYPICAL | MAX | DIMENSION |
|---------------------------------|-----|---------|------|-----------|
| Supply Voltage | 2.1 | 3.3 | 4.00 | V |
| Supply Current | | 7 | 8 | mA |
| Standby Current (IN = EN = Low) | | | 100 | nA |
| Initial Frequency Accuracy | -25 | 0 | 25 | KHz |
| FM Deviation | 25 | 30 | 35 | KHz |
| RF Output into 50Ω (Vcc=3.3V) | | 5 | | dBm |
| Harmonic Spurious Emissions | | -40 | | dBc |
| Input High Voltage | 1.5 | | Vcc | V |
| Power up Time (En to full RF) | | | 1 | mS |
| Max Data Rate | | | 9.6 | KHz |
| Operating Temperature | -25 | | +80 | °C |

Part Numbering

| Part Number | Description |
|--------------|-----------------------------------|
| FM-RTFQ1-315 | DIL FM Transmitter Module 315 MHz |
| FM-RTFQ1-433 | DIL FM Transmitter Module 433 MHz |

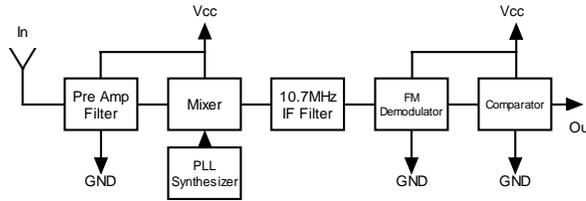




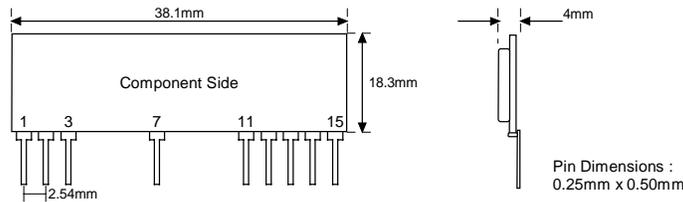
FM TRANSMITTER & RECEIVER HYBRID MODULES.

FM-RTFQ1-XXX FM-RRFQ1-XXX

RRFQ1 Block Diagram



Mechanical Details



Pin Description

| Pin No | Pin Name | Pin No | Pin Name |
|--------|-------------------|--------|---------------------------------|
| 1 | +Vcc | 12 | NC |
| 2 | GND | 13 | Received Signal Strength Output |
| 3 | Data In (Antenna) | 14 | Data Out |
| 7, 11 | GND | 15 | Power Down |

Operation Mode

| PD Pin | Mode |
|--------|-----------|
| 0V | Standby |
| 5V | Operating |

Technical Specifications

| Electrical Characteristics | Min | Typical | Max | Dimension | Notes |
|-------------------------------|-------|---------|-------|-----------|-----------|
| Supply Voltage (Vcc) | 4.5 | 5 | 5.5 | V | |
| Supply Current (Operating) | | 5.7 | 6.8 | mA | |
| Supply Current (Standby) | | | 100 | nA | |
| Receiver Frequency (315 part) | | 315.00 | | MHz | |
| Receiver Frequency (433 part) | | 433.92 | | MHz | |
| R.F Sensitivity (100% AM) | | -102 | | dBm | |
| 3dB Bandwidth | | +/-200 | | KHz | |
| Data Rate | 300 | | 9,600 | Hz | |
| Turn on Time | | | 5 | mSecs | 1 |
| Level of Emitted Spectrum | | | -70 | dBm | |
| Low Level Output Voltage | | | 0.6 | V | I = 200uA |
| High Level Output Voltage | Vcc-1 | | | V | I = 200uA |
| Operating Temperature Range | -25 | | +80 | °C | |

Notes

1. Time from PD pin going high to stable data.

Part Numbering

| Part Number | Description |
|--------------|--------------------------------|
| FM-RRFQ1-315 | SIL FM Receiver Module 315 MHz |
| FM-RRFQ1-433 | SIL FM Receiver Module 433 MHz |



