io-homecontrol-Compliant RF Transceiver

ADF7022

FEATURES

- Very low power, high performance, low IF transceiver
- Fully integrated io-homecontrol compliant protocol covering
  - Layer 1, Layer 2, and time critical elements of Layer 3
  - Media access
  - Master, slave, and beacon modes supported
  - Automatic io-homecontrol channel scan
  - Automatic CRC, preamble, start byte insertion/check
  - UART data encoding as per io-homecontrol
  - Smart preamble detect/packet sniffing
  - Automatic address filtering
  - Low power modes
- Autonomous packet handling without intervention of host microprocessor thus significantly increasing battery life
- 1-way and 2-way communication supported
- Automatic wake-up timer
- 32-bit hardware timer, 16-bit firmware timer (48 bits total)
- Uses either
  - External 32 kHz crystal
  - Internal 32 kHz RC oscillator
- Patented fast settling automatic frequency control (AFC)
- Fully integrated image rejection calibration (patent pending)
- Digital RSSI
- Operating frequencies
  - Channel 1: 868.25 MHz
  - Channel 2: 868.95 MHz
  - Channel 3: 869.85 MHz
- Very low power consumption
  - 12.8 mA in receive mode with AGC active
  - 11.9 mA in receive mode with manual AGC, ADC off
  - 24.1 mA in transmit mode (10 dBm output)
  - 0.75 µA in RCO wake mode
  - 1.25 µA in XTO wake mode (32 kHz oscillator active)
  - 38.4 µA average current in low power mode
- Receiver sensitivity (10^{-3} BER)
  - −108.5 dBm at 38.4 kbps FSK, 20 kHz deviation
- Output power programmable up to 13.5 dBm
- Automatic PA ramping
- Dual PAs offer Tx antenna diversity
- Very few external components
  - Integrated PLL loop filter
  - Integrated Rx/Tx switch
  - Integrated battery monitor
  - On-chip 8-bit ADC and temperature sensor
- Efficient and flexible SPI control interface
  - 4 lines available for low cost microcontroller interface
  - Flexible Tx and Rx data buffers
  - Efficient burst mode register access
- 1.8 V to 3.6 V power supply
- 5 mm × 5 mm, 32-lead LFCSP package

APPLICATIONS

- Home automation
- Process and building control

FUNCTIONAL BLOCK DIAGRAM

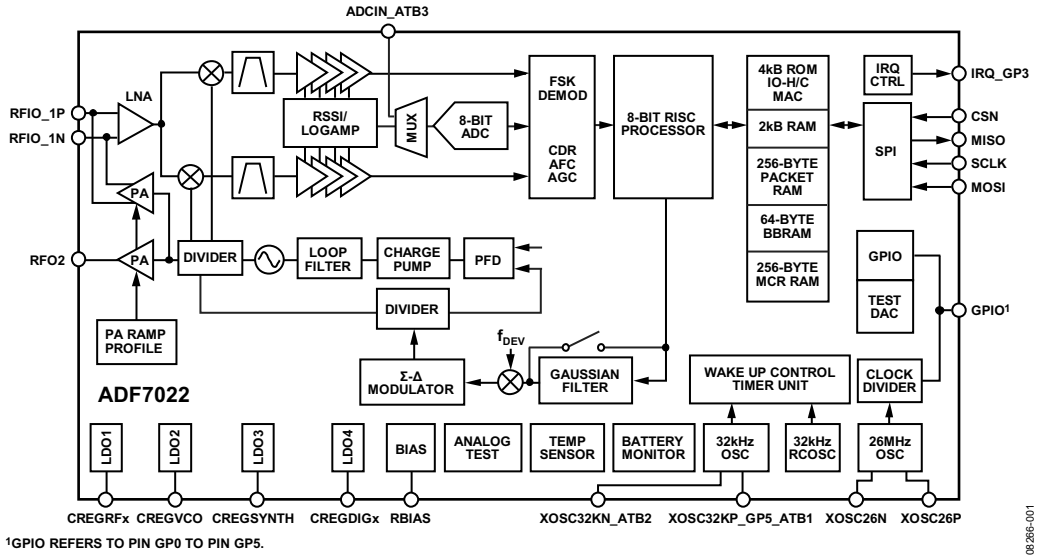

Figure 1.

For more information on the ADF7022, contact a local sales office at Analog Devices, Inc.

Rev. SpA

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NOTES

D08266F-0-2/11(SpA)