

300MHz to 450MHz ASK/OOK Receiver with Auto-Polling and RSSI

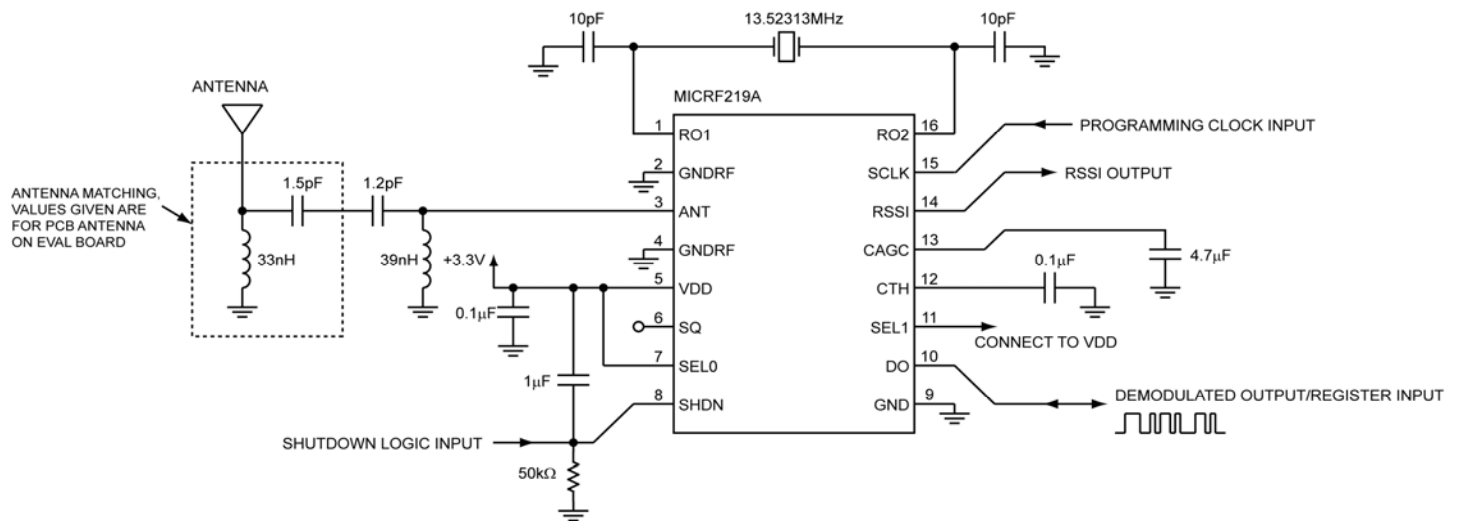
Description

The MICRF219A is a 300MHz to 450MHz super-heterodyne, image-reject, RF receiver with automatic gain control, OOK/ASK demodulator and analog RSSI output. The device integrates auto-poll, valid bit-check, squelch and desense features. It only requires a crystal and a minimum number of external components to implement. It is ideal for low-cost, low-power, RKE, TPMS, and remote actuation applications. The MICRF219 achieves -110dBm sensitivity at a data rate of 1kbps (Manchester encoded). Four demodulator filter bandwidths are selectable in binary steps from 1625Hz to 13kHz at 433MHz, allowing the device to support data rates to 10kbps.

The device operates from a supply voltage of 3.0V to 3.6V, and consumes 4.0mA of supply current at 315MHz and 6.0mA at 433.92MHz. A shutdown mode reduces supply current to 0.5uA. The auto-polling feature allows the MICRF219A to sleep and poll for user defined periods, thus further reducing supply current. The valid bit-check feature, when enabled in auto-poll mode, fully awakes the receiver and sends bits to the microcontroller once a valid number of bits are detected. During normal operation an optional squelch feature disables the data output until valid bits are detected. An optional desense feature reduces gain by 6dB to 42dB, distancing the receiver from distantly placed, undesired transmitters.

Data sheets and support documentation can be found on Micrel's web site at: www.micrel.com.

Typical Application



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Features	Benefits
Low-power auto-polling mode.	Reduces average current consumption up to 100uA.
-110dBm sensitivity at 1kbps with 0.1% BER.	Provides excellent range.
Supports bit rates up to 20kbps at 433.92MHz.	Supports most common data rates for ASK transmitters.
25dB image-reject mixer.	Attenuates signals at the image frequency reducing out of band filtering requirements.
No IF filter required.	Integrated IF filter reduces component count and cost.
60dB analog RSSI output.	Provides received signal strength indicator over long range.
3.0V to 3.6V supply voltage range.	Supports common supply voltages
4.3mA supply current at 315MHz (continuous receive).	Low supply current extends operating life of battery.
6.3mA supply current at 434MHz (continuous receive).	Low supply current extends operating life of battery.
0.5µA supply current in shutdown mode.	Low shutdown supply current extends life of battery.
13µA supply current in sleep mode.	Further reduces supply current.
Optional valid bit-check in auto-poll mode.	Microcontroller remains off until valid bits detected.
MICRF219A improves auto-poll awake to 100% on first poll.	Improves auto-poll feature.
Optional programmable 6dB to 42dB desense.	Reduces interference from unwanted transmitters.
Optional data output squelch until valid bits detected.	Avoids false triggering of microcontroller until valid bits are detected.
16-pin QSOP package (4.9mm × 6.0mm).	Small package.
-40°C to +105°C temperature range.	Supports automotive temperature range.

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