

Transmitter Operation

The transmitter chain consists of a SAW delay line oscillator followed by a modulated buffer amplifier. The SAW filter suppresses transmitter harmonics to the antenna. Note that the same SAW devices used in the amplifier-sequenced receiver are reused in the transmit modes. This transmitter is used in the OOK mode. In the OOK mode, the delay line oscillator amplifier TXA1 and buffer amplifier TXA2 are turned off when the voltage to the TXMOD input falls below 220 mV. In the OOK mode, the data rate is limited by the turn-on and turn-off times of the delay line oscillator, which are 12 and 6 μ s respectively. In the ASK mode TXA1 is biased ON continuously, and the output of TXA2 is modulated by the TXMOD input current. The transmitter RF output power is proportional to the input current to the TXMOD pin. A series resistor is used to adjust the peak transmitter output power. Maximum saturated output power requires 450 μ A of input current. Setting CNTRL1 low and CNTRL0 high place the unit in the OOK transmit mode. The only external RF components needed for the ASH transceiver are the antenna, antenna matching coil and electrostatic discharge (ESD) protection choke. This unit uses a $\frac{1}{4}$ wave whip antenna, with 0dB gain.