

MODULE DESCRIPTION

The LC-TXM is a low-cost, high-performance SAW-(Surface Acoustic Wave) based CPCA (Carrier-Present Carrier-Absent) transmitter capable of sending serial data at up to 5,000 bits/second. The LC's compact surface-mount package integrates easily into existing designs and is equally friendly to prototype and volume production. The LC's ultralow power consumption makes it ideally suited for battery powered products. When combined with a Linx LC series receiver a reliable RF link capable of transferring data over line-of-sight distances in excess of 300 feet (90M) is formed.

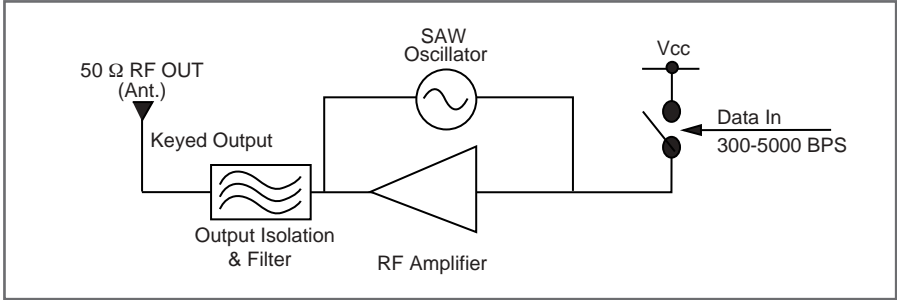


figure 11: LC Series Transmitter Block Diagram

THEORY OF OPERATION

The LC-TXM transmits data using CPCA (Carrier-Present Carrier-Absent) modulation. This type of AM modulation is often referred to by other designations including CW and OOK. This type of modulation represents a logic low '0' by the absence of a carrier and a logic high '1' by the presence of a carrier. This modulation method affords numerous benefits. Three of the most important are: 1) Cost-effectiveness due to design simplicity. 2) No minimum data rate or mark/space ratio requirement. 3) Higher output power and thus greater range in countries (such as the US) where output power measurements are averaged over time. (Please refer to Linx application note #00130).

The LC-TXM is based on a simple but highly optimized architecture which achieves a high fundamental output power with low harmonic content. This insures that most approval standards can be met without external filter components. The LC transmitter is exceptionally stable over time, temperature, and physical shock as a result of the precision SAW (Surface Acoustic Wave) frequency reference. Due to the of the SAW device most of the output power is concentrated in a narrow bandwidth. This allows the receiver's pass opening can be quite narrow, thus increasing sensitivity and reducing susceptibility to near-band interference. The quality of components and overall architecture utilized in the LC series is unusual in a low-cost RF device and is one reason the LC transmitter is able to outperform far more expensive products.

THE DATA INPUT

A CMOS/TTL level data input is provided on pin 2. This pin is normally supplied with a serial bitstream input directly from a microprocessor, encoder, or UART. During standby or the input of a logic low, the carrier is fully suppressed and the transmitter consumes less than 2µA of current. During a logic high the transmitter generates a carrier to indicate to the receiver the presence of a logic 1. The applied data should not exceed a rate of 5,000 bits/sec. The data input pin should always be driven with a voltage common to the supply voltage present at pin 7 (Vcc). The data pin should never be allowed to exceed the supply voltage (Vcc).