# Ford VN-127 BSM+TPMS

The purpose of the RF receiver (together with a RF transmitter) is to provide the customer with a wireless link that with let the customer to control some basic functions inside of the car, like the unlock – lock doors, alarms and panic.   This RF receiver is intended to work for short range operation (30 meters). The RF receiver main function is to receive the RF signal and recover the modulating signal (data information), then it will transfer the information to a main microcontroller which will process that information.

RF Receiver Technical Description:

Below you can see a block diagram of the RF receiver, it consists of two LNA sections to provide well RF amplification (one internal, and other external), all the RF signal processs is handle internally in the chip, this chip is single chip ASK Superheterodyne Receiver (SHR) for the frequency bands 315 and 345MHz. The device contains a low noise amplifier (LNA), a double balanced mixer, a fully integrated VCO, a PLL synthesiser, a crystal oscillator, a limiter with RSSI generator, a data filter, a data comparator (slicer) and a peak detector.
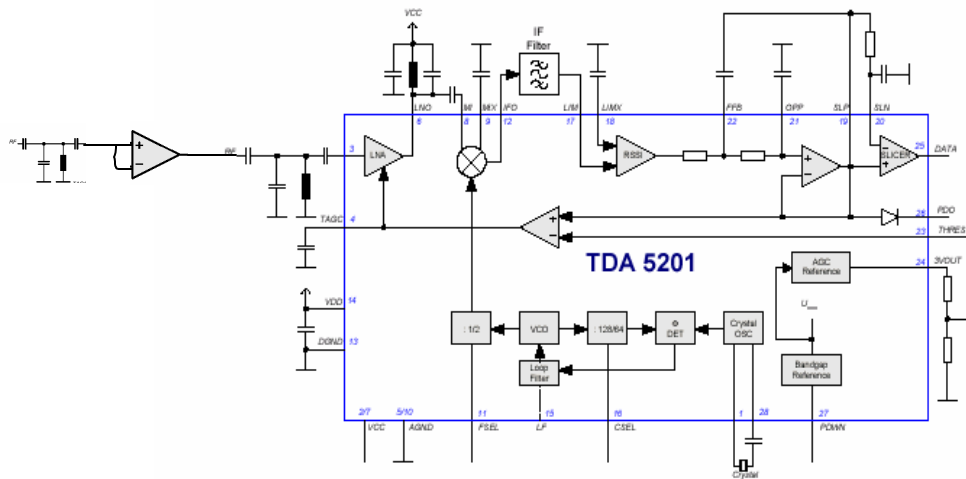
The LNA is a cascade amplifier with a voltage gain of 15 to 20dBm per stage. The gain figure is determined by the external matching networks situated ahead of LNA and between the LNA output **LNO** (Pin 6) and the Mixer Inputs **MI** and **MIX** (Pins 8 and 9), after the amplification a double balanced Mixer down converts the input frequency (RF) in the range of 310 or 345MHz to the intermediate frequency (IF) at 10.7MHz with a voltage gain of approximately 21dB. A low pass filter with a corner frequency of 20MHz is built on chip in order to suppress RF signals to appear at the IF output (**IFO** pin). The IF output is internally consisting of an emitter follower that has a source impedance of approximately 330 ? = to facilitate interfacing the pin directly to a standard 10.7MHz ceramic filter without additional matching cir-cuitry. Finally the 10.7 MHz signal is passed trough a RSSI amplifier (signal strength detector), the output of this amplifier is the modulating signal (data recovered),   finally the data output is cleaned by a stage of low frequency filter, data then is transfer to main microcontroller (which is not part of the RF receiver) For signal processing.