THEORY OF OPERATION

RFA-X Key FOB Transmitter

Overview

The RFA-X key FOB transmitter is used in conjunction with a vehicle mounted receiver to provide remote keyless entry (RKE) functions on various platforms of General Motors vehicles. The transmitter is built in one of seven configurations as illustrated above. In all versions the circuit board is identical, only the rubber keypad and case top are changed. The back cover with part markings remains the same on all versions.

Circuit Theory

The transmitter provides a hopping code type of secure RF link based on Microchip's KEELOQ technology. The RFA-X transmitter uses the Microchip HCS361 to decode keypad inputs, generate the appropriate function code and encryption data, and provide a complete digital message stream to the RF output stage.

The RF output stage is a single stage transistor SAW based colpits oscillator operating at 315Mhz +/- 100Khz. The antenna is a circuit board trace.

Transmitter Block Diagram