



ALPS AUTOMOTIVE, INC.

Circuit Description

TRANSMITTER

The hand-held transmitter consists of the housing, three, four or five control buttons, IC (micro-controller + RFID capability), a UHF oscillator (Colpits configuration), an LF antenna and a 3 volt battery.

The micro-controller uses a 4-MHz ceramic resonator. The RF oscillator uses a SAW based oscillator to resonate at 315 MHz. The modulation format used is ASK, with a Rolling/Manchester code data format. Once the user presses a button, power is applied to the micro-controller—which turns the RF oscillator on and off at the rate of the Rolling Manchester code data being sent. The signal is then sent to the receiver module via RF data transmission. The module acts upon the RF data received and will perform certain function in correspondence to which transmitter button is pressed.

The LF portion, at 134.2 KHz, uses the RFID front end of the IC and an LF antenna for immobilizer function. A signal from the immobilizer base station, which wakes the LF front end of the IC, initiates the challenge-response event. The LF data is sent at the rate of the PWM signal. Once the data from the LF transmission is confirmed, a certain function is performed.