

RX-3302D RF Receiver W/Decoder

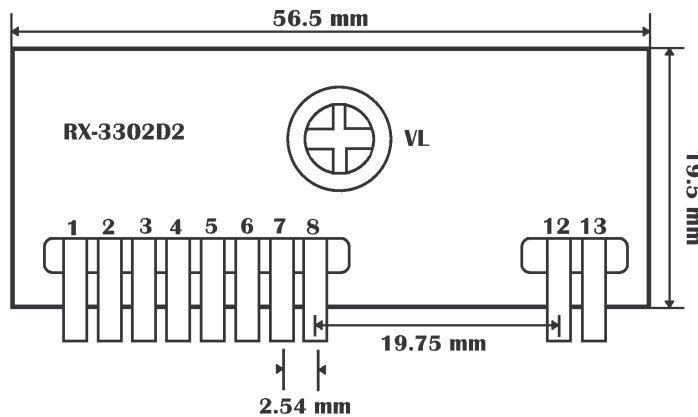
Operation Manual

Introduction

RX-3302D is a radio frequency super-regenerative receiver module which can facilitate the OEM designers to design their applications in remote control in the quickest way. The circuit is designed with SMD components and the module size is small enough to be able to be fitted in almost any application.

The decoder function has been implemented in the on-board microprocessor. Besides, the code learning has also been implemented. Thus it relieves the system's design load on the remote control part totally.

RX-3302D2 is an RF module with the following pin-outs:



- | | |
|------------------------------|-------------------------------------|
| PIN 1 : GND | PIN 2 : Digital Output |
| PIN 3 : VCC (5V DC) | PIN 4 : Linear Output (For Testing) |
| PIN 5 : Valid Time | PIN 6 : D0 (Button #1) |
| PIN 7 : Learning Acknowledge | PIN 8 : D1 (Button #2) |
| PIN 12 : ANT (Antenna) | PIN 13 : GND |

RX-3302D includes the decoder CPU (PIC16C505) and the EEPROM (93C46 or 93C56 or 93C66 or 93LC76 or 93LC86) on board. The code learning has been built in. The main microprocessor can be programmed transparently without caring about the code learning and the rolling code.

Using TX-3316 (R) (W / HCS-200 or HCS-301 from Microchip, programmed with our version A1) with two buttons but 3 commands available:

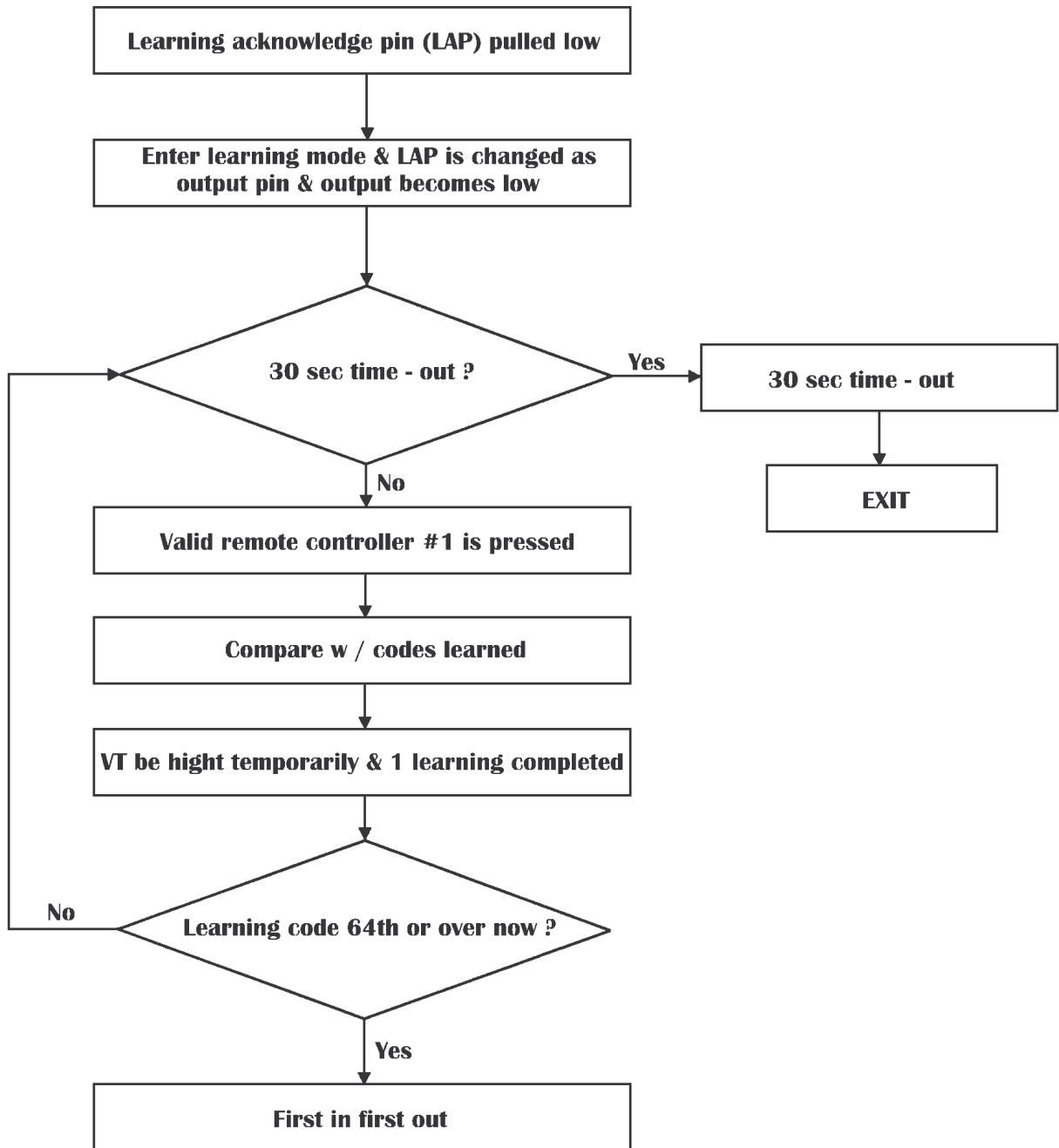
	VT	D0	D1
When button #1 is being pressed	Don't Care	HIGH	LOW
When button #2 is being pressed	Don't Care	LOW	HIGH
When button #1 & #2 are being pressed	Don't Care	HIGH	HIGH

D0 and D1 will become HIGH as long as the proper button is being pressed, i.e., D0 will be HIGH if button #1 is being pressed and D1 will be HIGH if button #2 is being pressed. VT will be HIGH as long as any of D0 or D1 is HIGH, but VT can be ignored by the programming.

Learning Mode:

The LA (Learning Acknowledge) pin will be at HIGH normally and acts as an input. If this pin is put to LOW temporarily by a tact switch, then it remains at LOW and becomes an output for 30 only seconds during which a transmitter code can be learned if button #1 of any of our applicable transmitters is pressed. After 30 seconds of period expires, then this pin restores to HIGH again.

+ Note that only button #1 can be used for code learning.



If 30 seconds of period is not long enough for learning all the transmitters, then the 2nd or the 3rd cycle of learning can be done until all the transmitters (up to 15) is learned.

If you want to erase all the transmitters learned, then please put the LA (Learning Acknowledge) pin to LOW for more than 10 seconds, then all the prior codes learned will be erased completely.

If the same transmitter is learned twice, it will be treated as only one transmitter without wasting any of the memory slot.

Regarding synchronization between RX-3302D and each rolling-code transmitter, if more than 16 times that the receiver has not received the signals transmitted from each rolling-code transmitter, then the receiver needs one extra signal from the transmitter for synchronization.

Features:

- Using Microchip hopping technology
- Work with HCS series of encoders
- Support two-button, 3 functions transmitters.
- Unique key generation algorithm for every customer.
- No user programming required for the rolling code.
- Up to 15 transmitters can be learned.
- On-chip 4 Mhz RC oscillator.
- 16C505 SMD

Applications:

- Automotive remote entry systems
- Automotive alarm systems
- Automotive immobilizer
- Gate and garage door openers
- Electronic door locks
- Identity tokens
- Burglar alarm systems

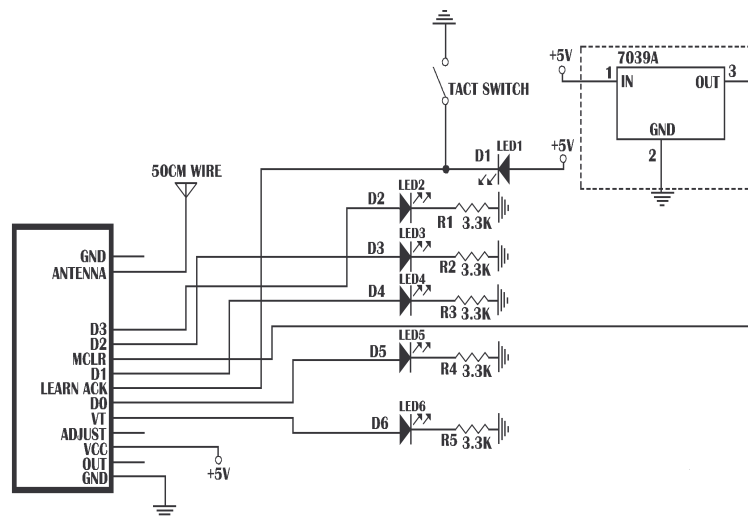
Descriptions:

In RX-3302D(2A1), the built-in 16C505 is a code hopping decoder designed for secure Remote Keyless Entry (RKE) systems. The RX-3302D utilizes the patented Microchip code hopping system and high security learning mechanisms to make this a canned solution when used with our rolling-code transmitters to implement a unidirectional remote control keyless entry system.

The key generation algorithm is programmed into the 16C505 decoder in protected mode and can not be read out of the device. Transmitter keys and synchronization counter are stored in its external EEPROM (93C46 or 93C56 or 93C66 or 93LC76 or 93LC86).

The RX-3302D operates over a range of 5.0 ~ 5.5 V. The decoder employs automatic baud rate. The decoder contains sophisticated error checking algorithm to ensure only valid codes are accepted and correct information are written into its external EEPROM.

Simple Application Board:



LEARN ACK.: LEARNING ACKNOWLEDGE (NORMAL INPUT HIGH)
TO PULL LOW (A SHORT TIME) WILL LEAD THE MODULE TO LEARNING MODE.
TO PULL LOW (10 SECOND) WILL LEAD TO CLEAR THE MEMORY

ADJUST: FREQUENCY ADJUSTING POINT

OUT: RF OUT

Recommended Antenna:

Suitable antennas are suitable to the success of low-power wireless application. There are some key points on applying antennas:

- Antenna should be placed on the outside of the product
- Antenna can't be placed inside a metal case because of its shielding effect.
- 50-Ohm antenna is recommended for the best matching
- For 434MHz application, antenna length = 17cm

Technical data:

Model:	RX-3302D
SR/SH-Mode:	SR (SR: Super-Regenerative SH: Super-Heterodyne)
Power:	+5V DC
CPU+EEPROM:	YES
Sensitivity:	-105dBm
Power Consumption:	2,7mA
Modulation:	AM (Amplitude Modulation)
Frequency Bandwidth:	434MHz, LRC, 4MHz Bandwidth.
Dimension:	56.5mmx19.5mm