![ABACOM Technologies logo]

HAT-12RPT4   Repeater, 8 bits data

This chip emulates the Holtek decoding and encoding protocol. After receiving two transmissions with the proper format, the data is decoded, the address is checked, and if the address the one stored in memory the data is re-encoded and output via DOUT (12). As well as being re-encoded and re-transmitted, the four bits of data are also latched to the four outputs D[0..3]. The complimentary RF_PWR pins toggle before the data is transmitted. These pins can sink/source up to 15mA each.

The four bits of data that are received are the last four bits received. The first eight bits contain the address. The address of the repeater can be set by bringing the Learn (6) pin high for approximately 3.5 seconds. After 3.5 seconds Learn IND (7) goes low ; which can be used to sink up to 15mA to drive an LED, and the first valid transmission received sets the address. This address is stored in EEPROM memory and will be retrieved on power up. If being used with a Holtek HT-12E encoder, its oscillator should be configured with a 680k resistor.

Features

- Operating voltage: 4.5V-5.5V
- Complementary RF_PWR pins can be used to switch a transceiver to transmit or receive
- 8 Bit address
- 4 Data outputs which are latched
- Active high valid transmission pin
- Very few external components (10MHz crystal and two 22pF capacitors)

Typical Applications

- Security systems
- Remote monitoring range extension
- Remote control range extension
- Smoke/Fire alarm systems
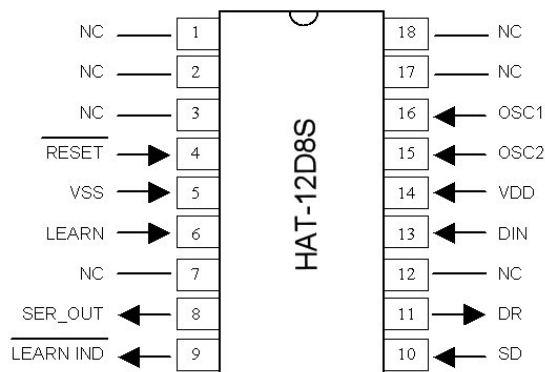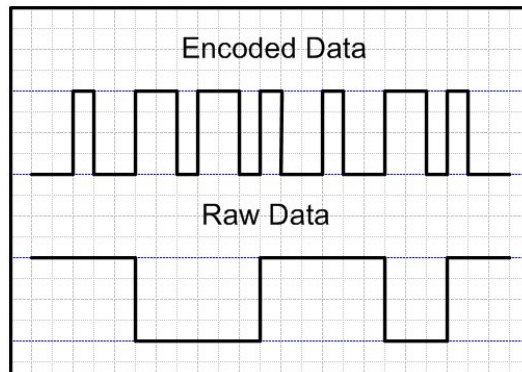
Pinouts

PIN	Function	Signal Direction
1	D2	Output
2	D3	Output
3	NC	N/A
4	RESET	Input
5	VSS	Input
6	LEARN	Input
7	LEARN_IND	Output
8	NC	N/A
9	NC	N/A
10	RF_PWR(TX)	Output
11	RF_PWR(RX)	Output
12	DOUT	Output
13	DIN	Input
14	VDD	Input
15	OSC2	Input
16	OSC1	Input
17	D0	Output
18	D1	Output

Pin Descriptions

D0—D3:   The received data is latched to these outputs. Active high, can sink/source up to 15mA.

RESET: Active low. Tie high for normal operation.

VSS: Ground reference.

LEARN: When pulled high for 3.5 seconds, the next valid transmission received sets the address of the repeater.

LEARN IND: When the chip goes into learn mode (pin 6 has been high for 3.5s) this pin goes low. Can be used to sink up to 15mA to drive an LED indicator.

RF_PWR(TX): Normally low, until a valid transmission has been received. At this time, the line toggles and stays high for the duration that data is being transmitted. Can be used to power a transmitter, providing the transmitter does not draw more than 15mA. If more than 15mA are required, a transistor should be used to provide the necessary current.
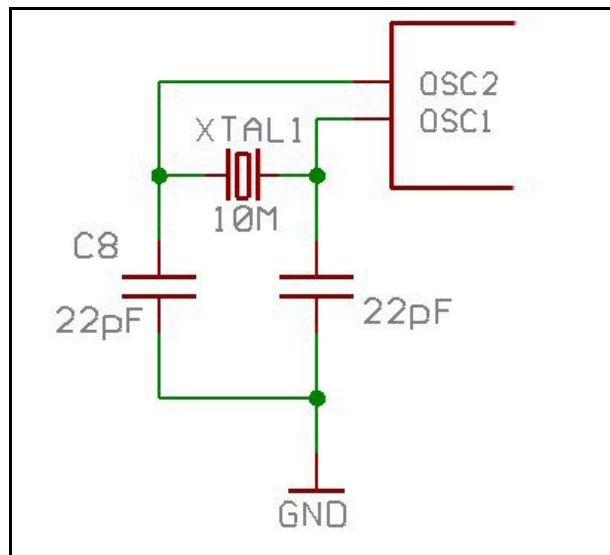
RF_PWR(RX): Normally high while waiting for a transmission, this is the compliment to pin 10. Can be used to power a receiver, providing it does not have to source more than 15mA.   If more than 15mA is required, a transistor should be used to provide the necessary current.

DOUT: Encoded data output pin. Encoded data is in the same format that is used by the Holtek HT-12E encoders.

DIN: Encoded data input (from the receiver). Encoded data should be encoded according to the Holtek HT-12E protocol as shown on the previous page. **NOTE:** With respect to the HT-12E, A0 to A7 are decoded as data, and D0 to D3 are used as the address. If used with a Holtek HT-12E encoder, its oscillator should be configured with a 680k resistor.

VDD: Positive voltage reference.

OSC1—OSC2: Oscillator input. Each should have a 22pF capacitor to ground and a 10MHz crystal across the pins. See the figure below.

Oscillator configuration.