DESCRIPTION

RT1540 is a one time programmable Encoder Utilizing CMOS technology process. RT1540 has a maximum of 20 bits providing up to 1 million codes. It can reduce code collision and unauthorized code scanning possibilities.

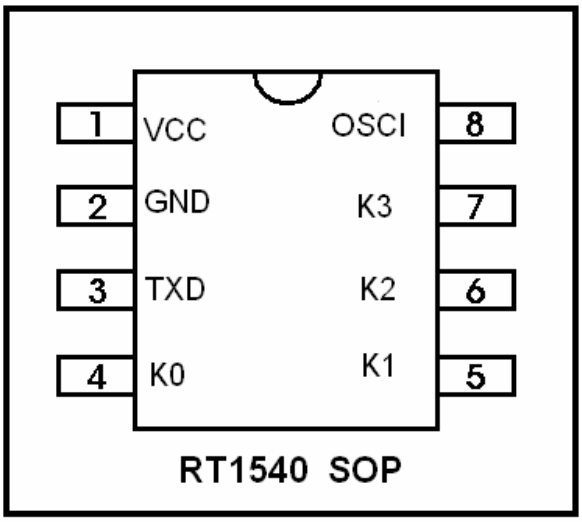
FEATURES

1. CMOS technology.
2. Low stand by current < 1μA.
3. Wide range of Operating Voltage: Vcc = 1.8V ~ 13V.
4. Up to 4 data pins.
5. Total 1048576 address codes.
6. Single Resistor Oscillator.

APPLICATIONS

1. Car and Motorcycle Security system.
2. Wireless Door Bell.
3. Home Security System.

PIN OUT



PIN DESCRIPTION

Symbol	DESCRIPTION	PIN	I/O
VCC	Positive power supply.	1	—
GND	Ground.	2	—
TXD	Transmission data output pin.	3	O
K0	Data input with pull-low R. Active High.	4	I
K1	Data input with pull-low R. Active High.	5	I
K2	Data input with pull-low R. Active High.	6	I
K3	Data input with pull-low R. Active High.	7	I
OSCI	Single resistor oscillator pin. Connected R to VCC.	8	I

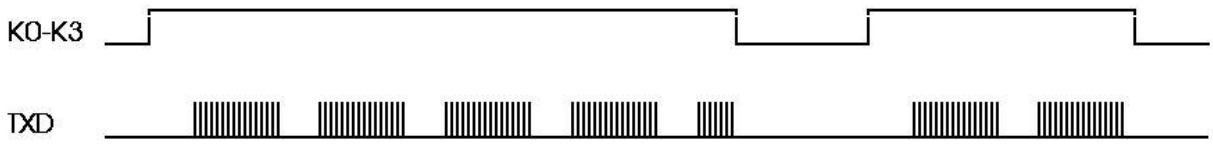
FUNCTIONAL DESCRIPTION

When data pin (K0~K3) set to "1", RT1540 will transmit serial data waveform from C0~C19 to D0~D3 by radio frequency (RF) modulation. This can be use in most of the remote control application.

Data Transmission

Code Frame

A code frame period is depended on data pin active period. When data pin is active the code word transmit continuously until data pin inactive. Format is as follow:



CODE Word

Code word consists of full set of serial data format. The combination is as follow:

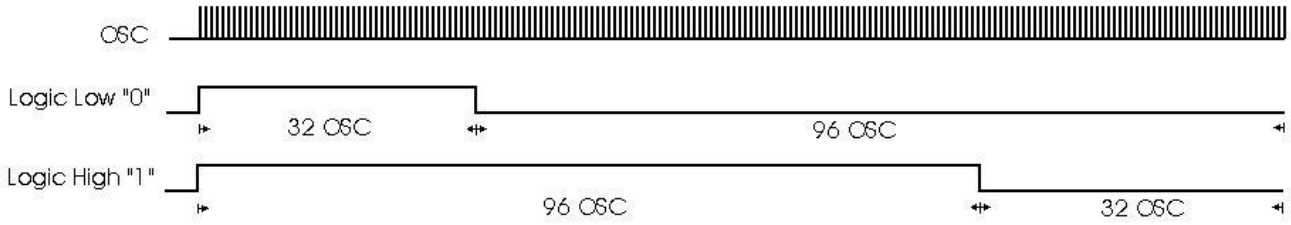
Sync.	20 Address Bits (C0~C19)	4 Data Bits (D0~D3)

Each code word consists of 20 address bits, 4 data bits and a synchronous bit. The transmission sequence is as the diagram shown:

Sync	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	D0	D1	D2	D3

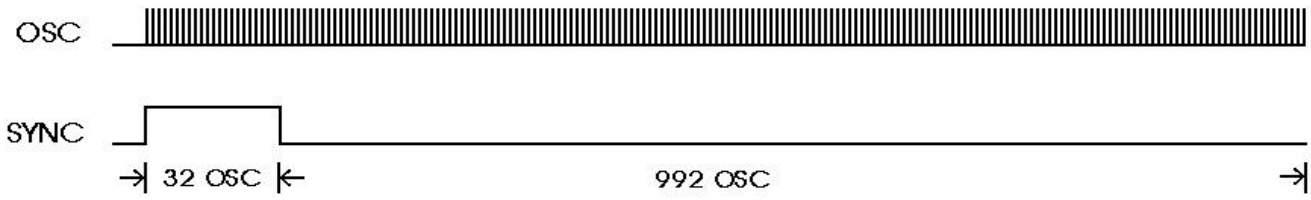
CODE BIT

Code bit is the combination of address and data bits, RT1540 transmit a serial of waveform is consist of code bits and sync. Code bit can be defined into 2 states: Logic low (“0”) and Logic high (“1”). Each length of code bit is equal to 128 oscillation pulse. Please refer to the diagram shown below:

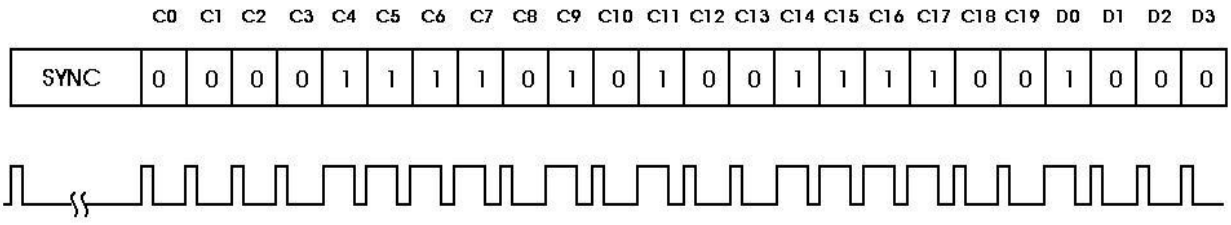


SYNC BIT

The synchronous bit length is equal to 1024 oscillation pulse.



EXAMPLE: SERIAL DATA OUT



Transmission address code is : “3CAF0”; Data code is : “1”.

DATA COMBINATION TABLE(K3~K0)

K3	K2	K1	K0	D3	D2	D1	D0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	0
0	0	1	1	0	0	1	1
0	1	0	0	0	1	0	0
0	1	0	1	0	1	0	1
0	1	1	0	0	1	1	0
0	1	1	1	0	1	1	1
1	0	0	0	1	0	0	0
1	0	0	1	1	0	0	1
1	0	1	0	1	0	1	0
1	0	1	1	1	0	1	1
1	1	0	0	1	1	0	0
1	1	0	1	1	1	0	1
1	1	1	0	1	1	1	0
1	1	1	1	1	1	1	1

ABOSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Condition	Rating	Unit
VCC	supply voltage		-0.3 ~ 15	V
VI	input voltage		-0.3 ~ Vcc +0.3	V
VO	output voltage		-0.3 ~ Vcc +0.3	V
Tst	storage Temp.		-40 ~ 125	℃
Top	operating Temp.		-20 ~ 70	℃
Pdis	Max. power dissipation	Vcc=12V	300	mW

DC ELECTRICAL CHARACTERISTICS:

Symbol	Parameter	Condition	min.	Type	Max.	Unit
VCC	operating voltage		1.8	—	13	V
Isb	stand by current	OSC STOP output unloaded			1	μA
Iop	operating current	VCC = 12V, OSC = 80KHZ		0.5	1	mA
Ioh	source current	VCC = 12V, Voh = 6V	3			mA
Iol	skin current	VCC = 12V, Vol = 6V	3			mA

OSCILLATION RESISTANCE AND FREQUENCY