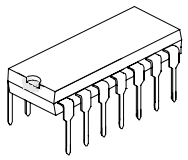
ENCODER FOR REMOTE CONTROLLER WITH FIVE FUNCTIONS



DIP-14

DESCRIPTION

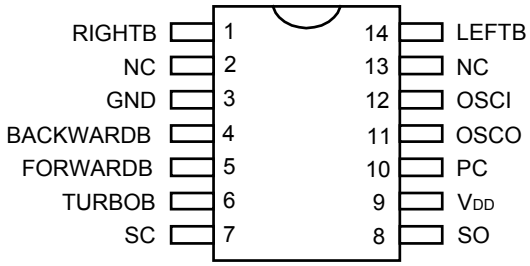
The UTC RCT2E can be used with the decoder UTC RCR2C to provide a complete control functions to the remote-controlled toy. The UTC RCT2E is the transmitter. It is provide five function keys to control forward, Backward, Rightward, Leftward and Turbo motions. Beside, a combination of these five motions can be played.

UTC RCT2E is built with auto Power-OFF function. When input key is pulled low, UTC RCT2E will wake up, SC and SO will continuously send out code in RF format (Non-Carrier) and IR format (Carrier). However, when a complete code is sent out and the key is released, UTC RCT2E will automatically go into powered-off mode.

FEATURES

* Wide and Low operating voltage range: 1.8V ~ 5.0V
* 5-function remote controller controlling forward/ backward/ turbo/ right/ left.
* Provide two transmissive interface (RF and IR) for different application.
* Auto Power-OFF function
* Few external components needed and Oscillator with an external resistor.
* Low Standby current and low operating current.
* Long distance Remote Control to 100M in UTC RCT2E and UTC RCR2C pairing.
* Typical oscillator frequency:
  RF: 116 ~ 140KHz.
  IR: 114KHz(Carrier Frequency: 57KHz).
  IR: 76KHz(Carrier Frequency: 38KHz).

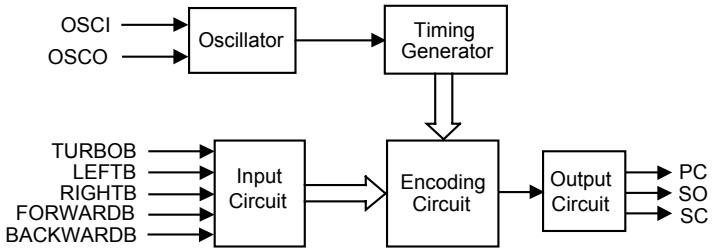
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.	PIN NAME	FUNCTION
1	RIGHTB	The rightward function will be selected when this pin is connected to GND.
2	NC	No connection
3	GND	Negative power supply
4	BACKWARDB	The backward function will be selected when this pin is connected to GND.
5	FORWARDB	The forward function will be selected when this pin is connected to GND.
6	TURBOB	The turbo function will be selected when this pin is connected to GND.
7	SC	Output pin of the encoding signal with carrier frequency
8	SO	Output pin of the encoding signal without carrier frequency
9	V_{DD}	Positive power supply
10	PC	Power control output pin. When any function key is pulled low, PC will be high logic.
11	OSCO	Oscillator output pin
12	OSCI	Oscillator input pin
14	LEFTB	The leftward function will be selected when this pin is connected to GND.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply Voltage	V_{DD}	-0.3 ~ 6.0	V
Input/Output Voltage		GND -0.2 ~ V_{DD}+0.2	V
Operating Temperature	Topr	-10 ~ 60	℃
Storage Temperature	Tstg	-25 ~ 125	℃

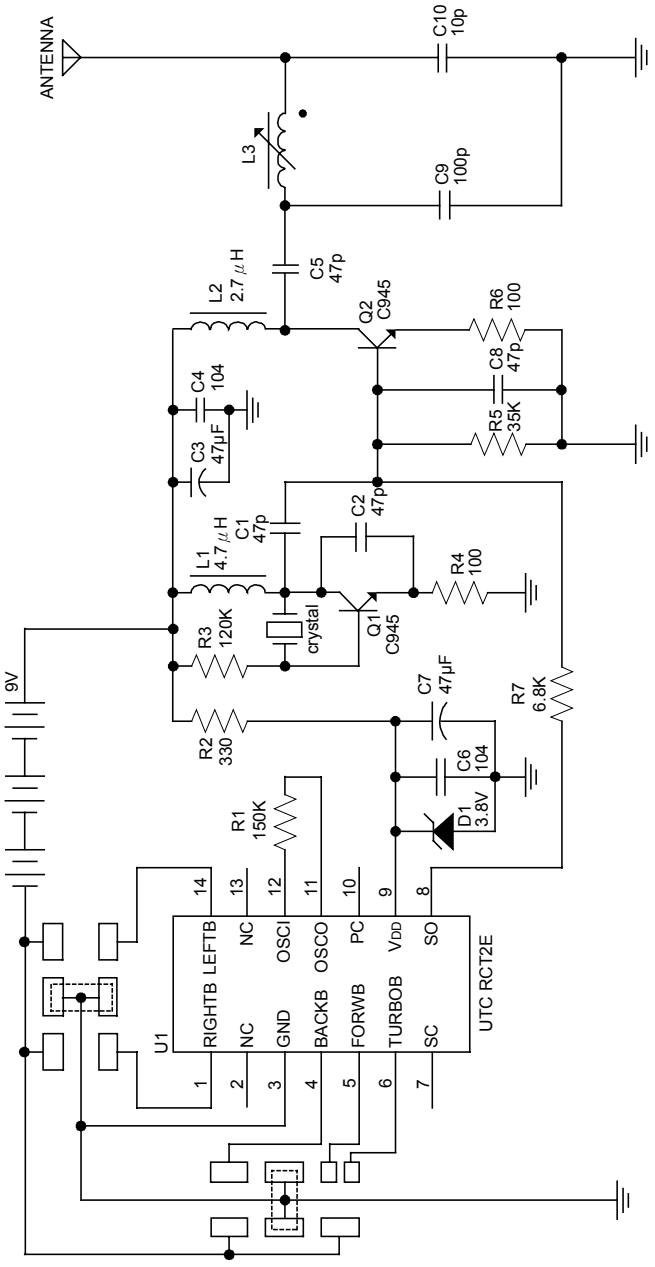
ELECTRICAL CHARACTERISTICS

(V_{DD}=4.5V, Fosc=116 ~ 140KHz, Ta=25℃, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}		1.8	4.5	5.0	V
Input Low Voltage	V_{iL}	Function Input Pin			2.3	V
Stand by Current	$I_{StandBy}$	Unload			10	μA
Operating Current	I_{DD}	Unload			0.6	mA
SO Driving Current	I_{DrSO}	Load=0.7V	6.5			mA
SC Driving Current	I_{DrSC}	Load=0.7V	6.5			mA
PC Driving Current	I_{DrPC}	Load=0.7V	6.5			mA
Oscillator Frequency Tolerance	$F_{tolerance}$	UTC RCR2C F_{OSC}=128KHz	-20		+20	%

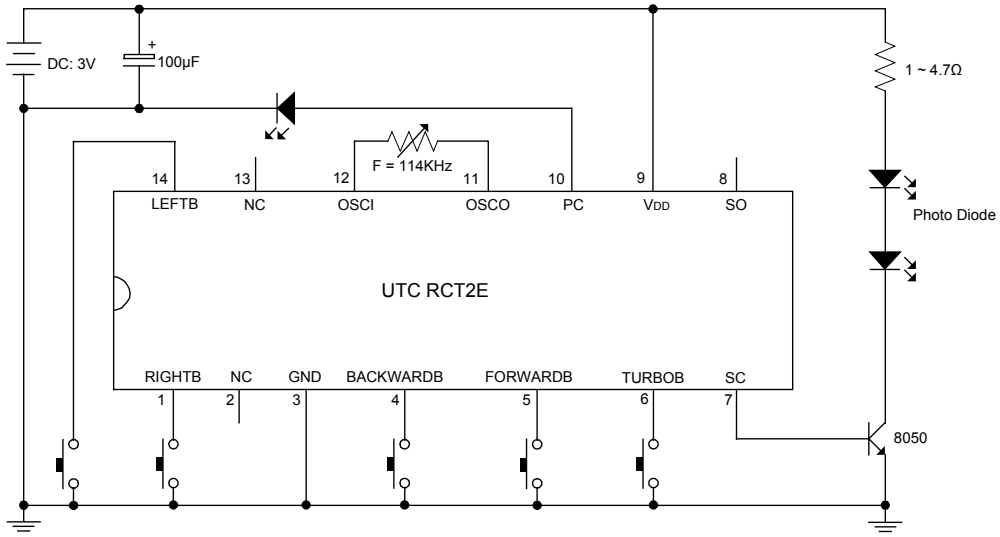
TYPICAL APPLICATION CIRCUIT

Transmitter (F_{OSC} = 116 ~ 140 KHz)



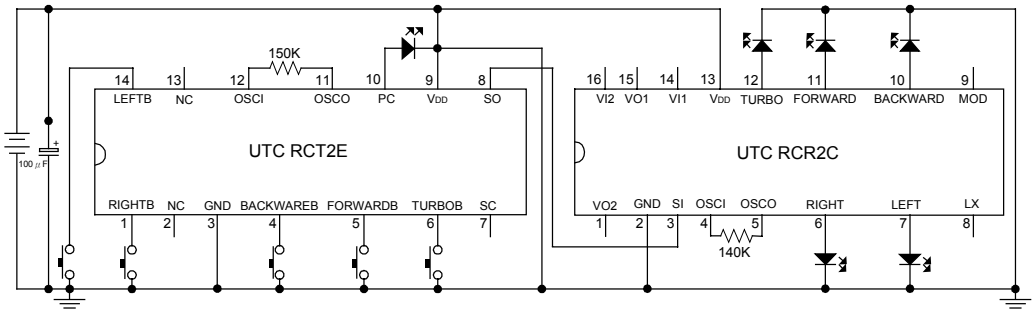
INFRARED APPLICATION CIRCUIT

Transmitter (FOSC = 114 KHz）

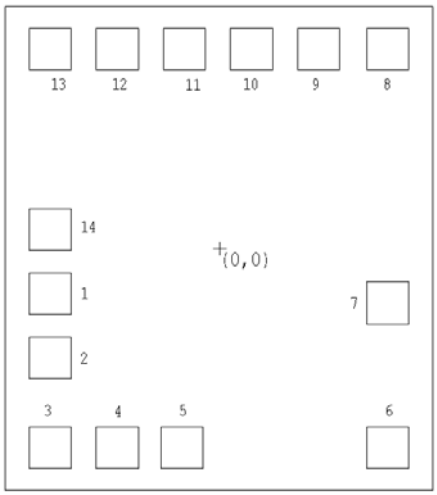


TESTING CIRCUIT

The oscillator frequency is 116 ~ 140KHz



COB BONDING FIGURE



CHIP SIZE: 900×1020 μm^2
SUBSTRATE: V_{DD}

NO	NAME	X	Y
1	RIGHTB	-354.5	-95.5
2	NC	-354.5	-231
3	GND	-354.5	-420
4	BACKWARDB	-213.5	-420
5	FORWARDB	-78	-420
6	TURBOB	354	-420
7	SC	354	-115
8	SO	354	419.5
9	V_{DD}	209.5	419.5
10	PC	68.5	419.5
11	OSCO	-72.5	419.5
12	OSCI	-213.5	419.5
13	NC	-354.5	419.5
14	LEFTB	-354.5	40

UNIT: μm