

## REMOTE CONTROLLER WITH FIVE FUNCTIONS

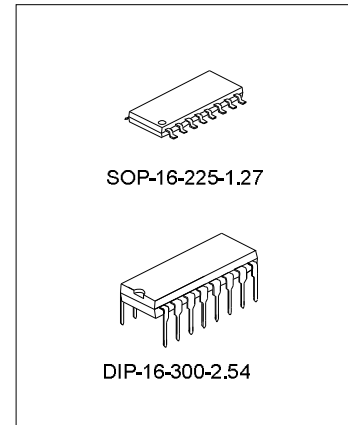
### DESCRIPTION

The RX-2D is a type of remote controller designed for toy cars, and it adopts CMOS technology.

The RX-2D has five control keys for controlling the motions (i.e. forward, backward, leftward, rightward and the turbo function) of the remote controlled car. It can be used together with TX-2B.

### FEATURES

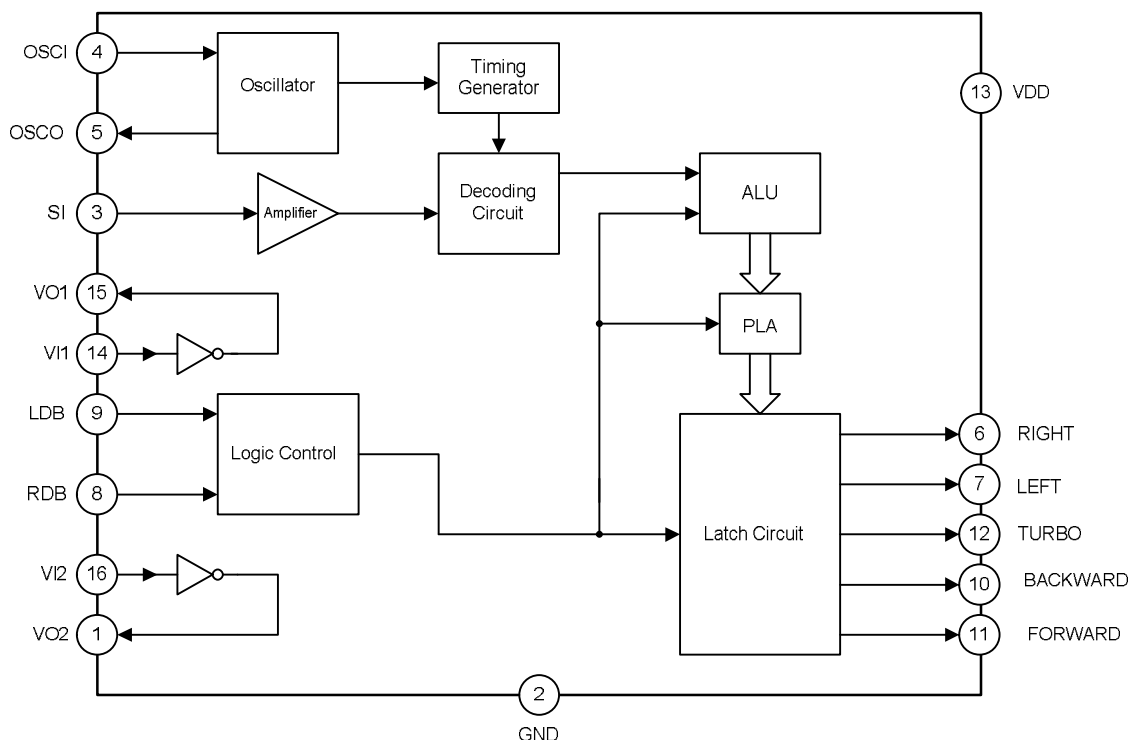
- \* Wide operating voltage range ( $V_{CC}=1.5 \sim 12.0V$ )
- \* CMOS technology with low power dissipation
- \* Built-in 4V voltage regulator
- \* Few external components are needed



### ORDERING INFORMATION

Device	Package
RX-2D	DIP-16-300-2.54
RX-2DS	SOP-16-225-1.27

### BLOCK DIAGRAM



Block diagram of RX-2D

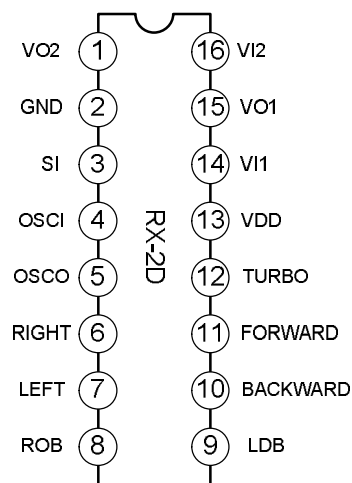
**ABSOLUTE MAXIMUM RATINGS**

Characteristics	Symbol	Value	Unit
Supply Voltage	VDD	0.3~ 12.0	V
Input / Output Voltage	VIN,VOUT	GND-0.3V~VDD+0.3V	V
Operating Temperature	T <sub>opr</sub>	-10 ~ +65	°C
Storage Temperature	T <sub>stg</sub>	-25 ~ +125	°C

**ELECTRICAL CHARACTERISTICS**

 Receiver RX-2D (unless other specified, T<sub>amb</sub>=25°C, VDD=4.0V, F<sub>osc</sub>=128kHz)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	VDD		1.5	3.0	12.0	V
Operating Current	I <sub>DD</sub>				4.0	mA
O/P Driving Current	I <sub>driver</sub>		1			mA
O/P Sinking Current	I <sub>sink</sub>		1			mA
Effect Decoding Frequency Variation	F <sub>torerance</sub>		-20		+20	%

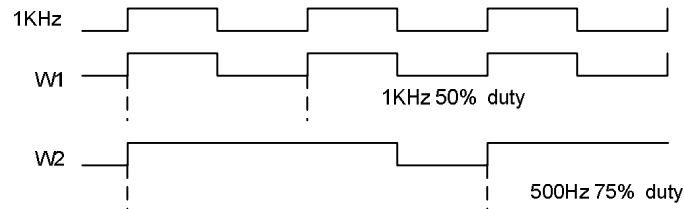
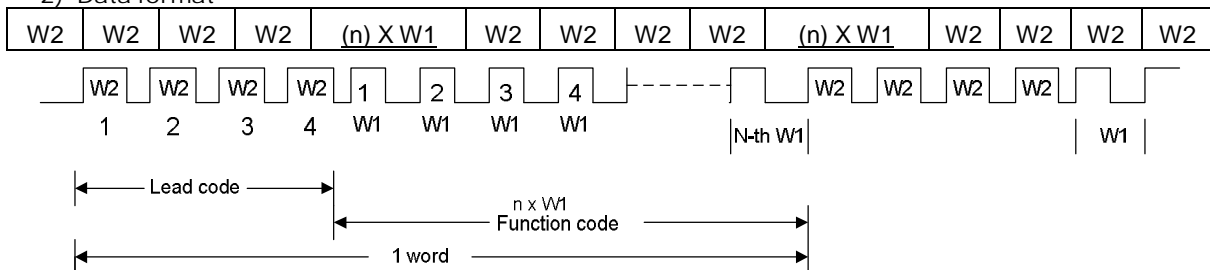
**PIN CONFIGURATION**

**PIN DESCRIPTION**

Pin No.	Symbol	I/O	Description
1	VO2	O	Inverter 2 output pin for signal amplify
2	GND	--	Negative power supply
3	SI	I	Input pin of the encoding signal
4	OSCI	I	Oscillator input pin
5	OSCO	O	Oscillator output pin
6	RIGHT	O	Rightward output pin
7	LEFT	O	Leftward output pin

(To be continued)

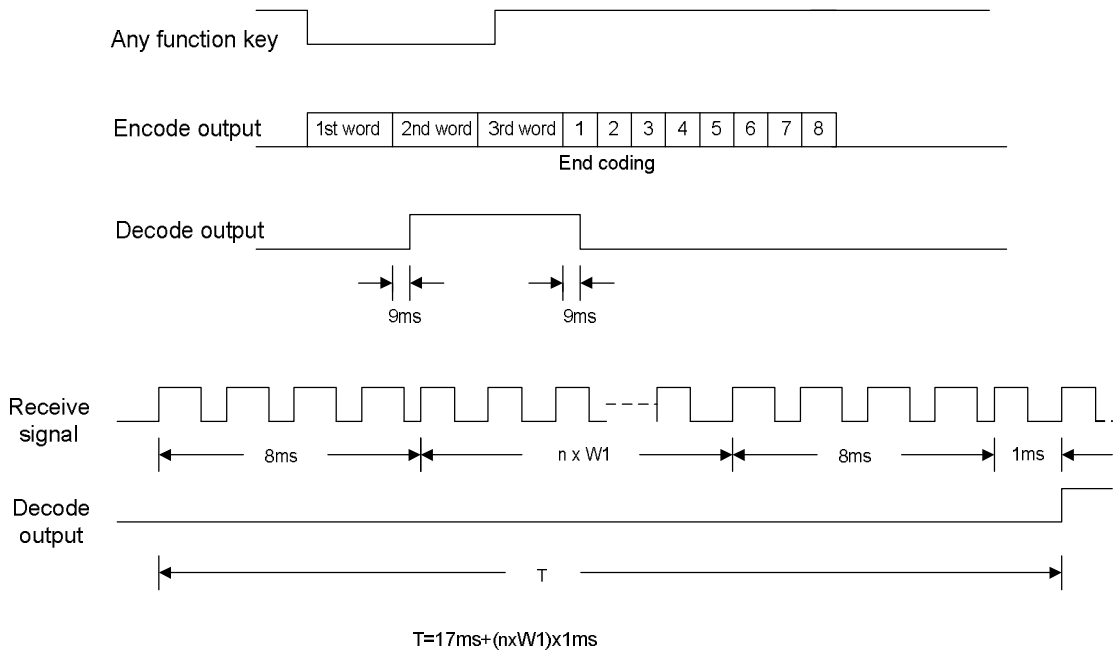
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Pin No.	Symbol	I/O	Description
8	ROB	I	Rightward function disable, if this pin is connected to GND
9	LDB	I	Leftward function disable, if this pin is connected to GND
10	BACKWARD	O	Backward output pin
11	FORWARD	O	Forward output pin
12	TURBO	O	TURBO output pin
13	V <sub>DD</sub>	--	Positive power supply
14	VI1	I	Inverter 1 input pin for signal amplify
15	VO1	O	Inverter 1 output pin for signal amplify
16	VI2	I	Inverter 2 input pin for signal amplify

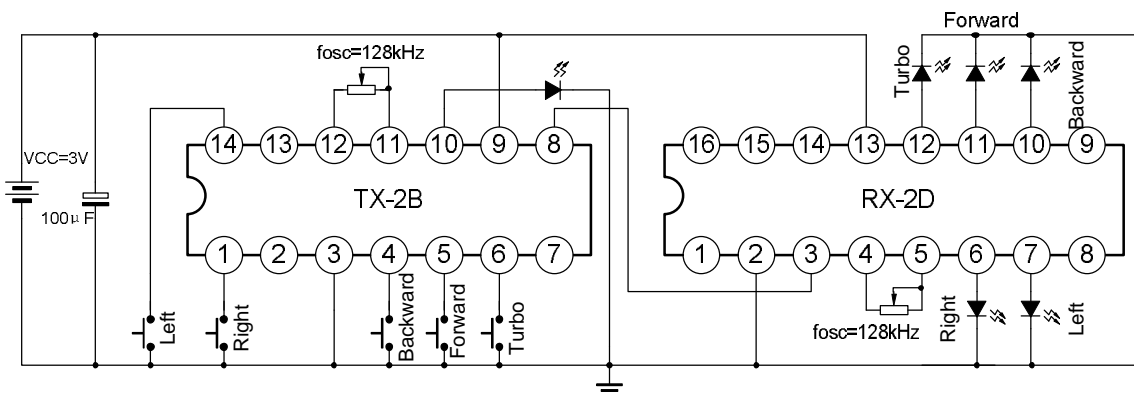
**FUNCTION DESCRIPTION**
**1. Encode Rule**
**1) Bit format**

**2) Data format**


Number Of Function Code(n x W1)	Function Key	Decode Result
4		End Code
10	Forward	Forward
16	Forward & Turbo	Forward
22	Turbo	Turbo
28	Turbo & Forward & Left	Forward & Left
34	Turbo & Forward & Right	Forward & Right
40	Backward	Backward
46	Backward & Right	Backward & Right
52	Backward & Left	Backward & Left
58	Left	Left
64	Right	Right

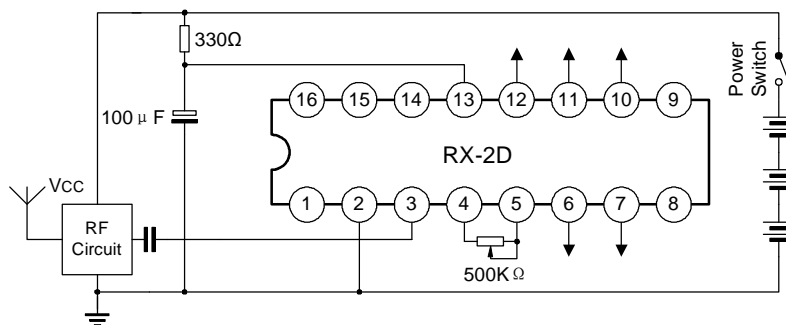
2. Encode/decode timing



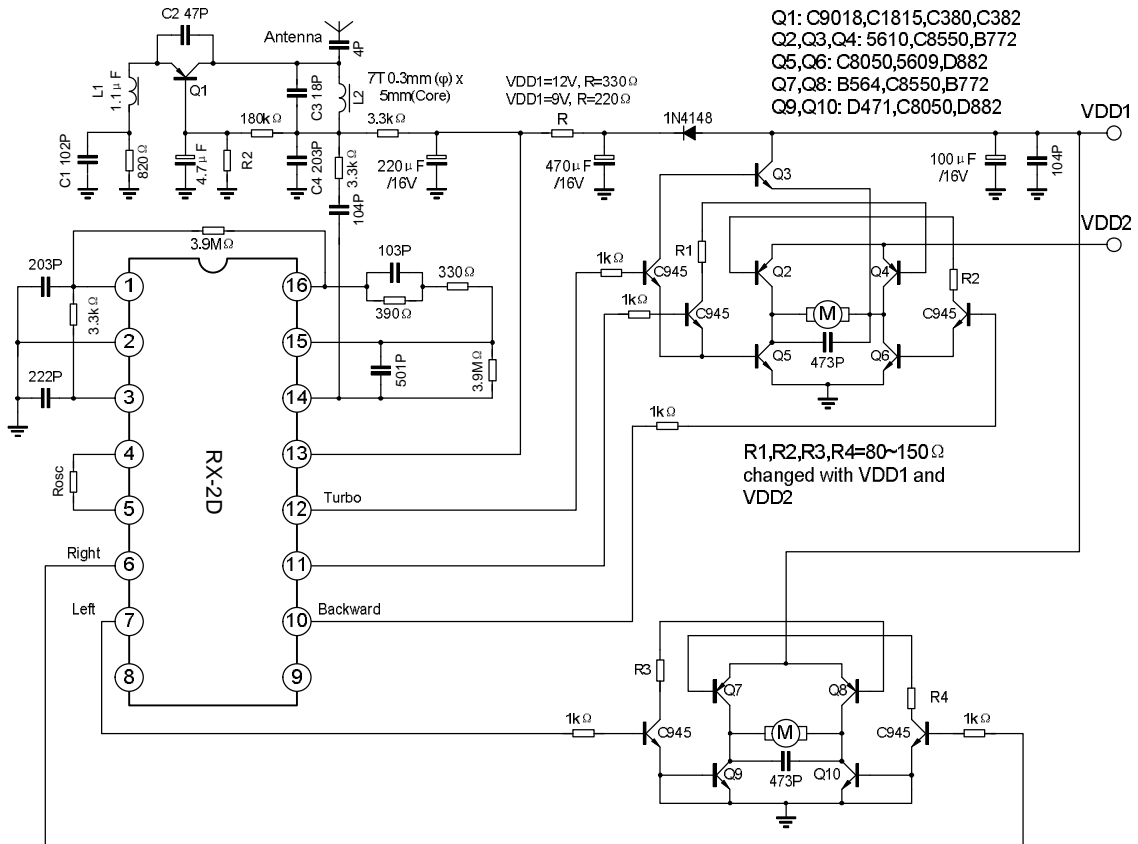
TEST CIRCUIT (TX-2B, RX-2D oscillator frequency is 128kHz, oscillator resistor are 160KΩ and 250KΩ)



TYPICAL APPLICATION CIRCUIT

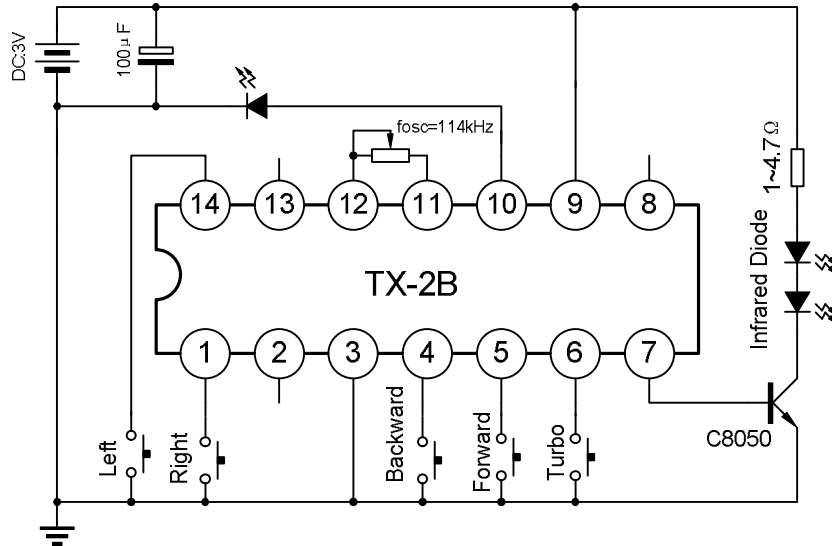


RECOMMENDED APPLICATION CIRCUIT

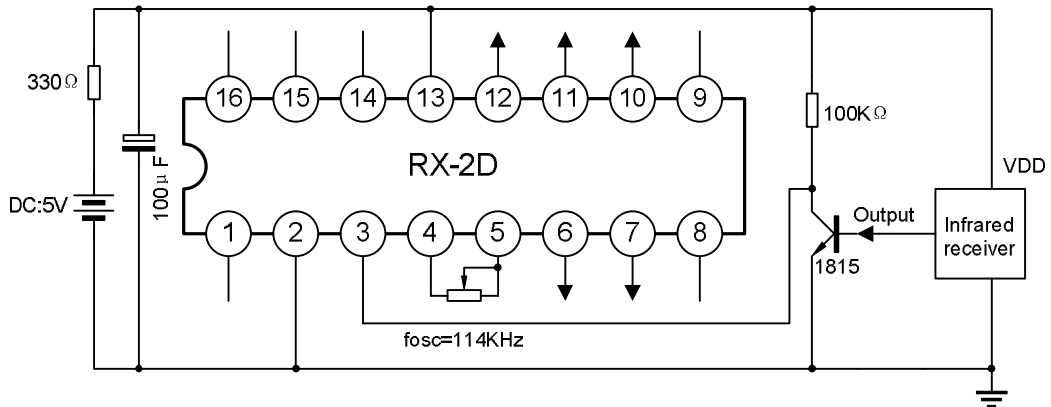


INFRARED APPLICATION CIRCUIT

TRANSMITTER



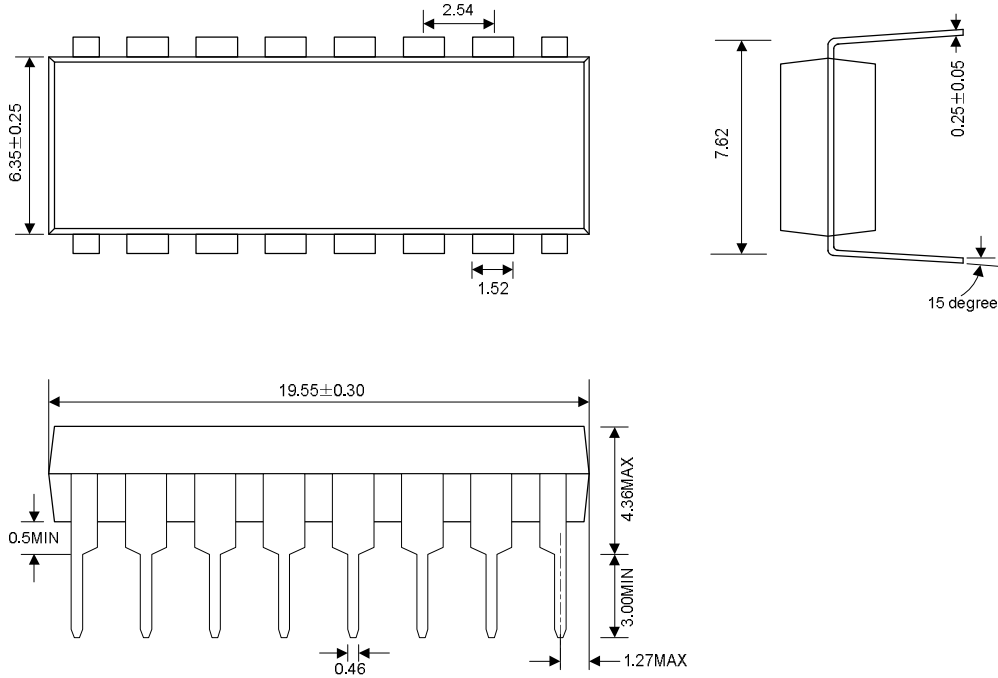
RECEIVER



PACKAGE OUTLINE

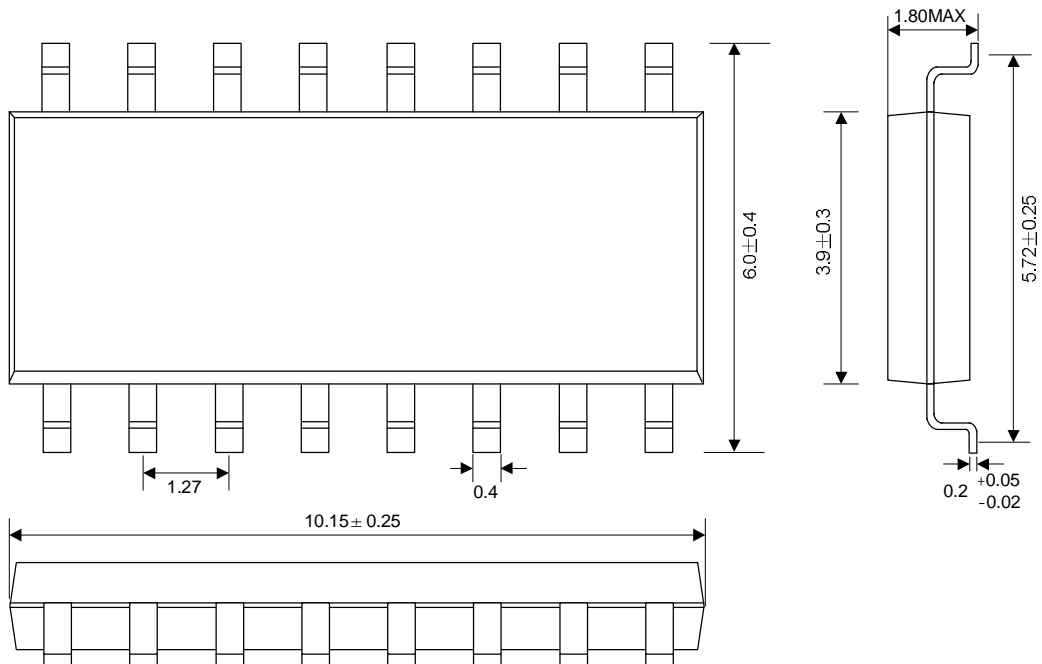
DIP-16-300-2.54

UNIT: mm



SOP-16-225-1.27

UNIT: mm





#### HANDLING MOS DEVICES:

Electrostatic charges can exist in many things. All of our MOS devices are internally protected against electrostatic discharge but they can be damaged if the following precautions are not taken:

- Persons at a work bench should be earthed via a wrist strap.
- Equipment cases should be earthed.
- All tools used during assembly, including soldering tools and solder baths, must be earthed.
- MOS devices should be packed for dispatch in antistatic/conductive containers.