



SCTX5A/RX5A(文件编号: S&CIC00238)

### REMOTE CONTROLLER WITH NINE FUNCTIONS

#### Features

- Wide operating SCTX5A voltage range: 3.6V to 12V
- SCR5A voltage range: 3.0V to 12V
- SCTX5A very low Stand-by current
- Auto power-OFF function for SCTX5A
- Few external components needed
- SCR5A built-in 3.6V zener
- 9-function remote controller controlling forward/ backward/ turbo/ right-turn/ left-turn/ trigger1~4 functions

#### General Description

The SCTX5A/RX5A are a pair of CMOS LSIs designed for remote controlled car applications. The SCTX5A/RX5A have nine control keys controlling the motions ( i.e. Forward. Backward. Rightward. Leftward. Trigger 1-4 functions and Turbo function ) of the remote controlled car. SCTX5A/RX5A have Forward ( Backward ) combined with the Turbo application. During normal operation without Turbo. Forward ( Backward ) output sends a 60Hz signal from SCR5A when Forward ( Backward ) and Turbo are both in effect. The output signal becomes completely high. This function is depicted as below.

Input condition	O/P Condition		
	Forward	Backward	Turbo
Forward	=60Hz	Low	Low
Backward	Low	=60Hz	Low
Forward +turbo	=high	Low	= high
Backward +turbo	Low	= high	= high

An Auto Shut-Off mechanism is built-in according to Toy Safety Requirement and effective during over-current situation in motor driver. The active high input applying to this Auto Shut-Off pin will turn off the motor. ( VT pin, when unused. Has to be connected to ground. The transfer point=1.4V)

#### Absolute Maximum Ratings

DC Supply Voltage-----0.3V to 5.0V

Input/Output Voltage-----GND -0.2V to VDD +0.2V

Operating temperature-----10°C to 60°C

Operating temperature----- -25°C to 125°C

#### Comments\*

Never allow a stress to exceed the values listed under “ Absolute Maximum Ratings.” Otherwise the device would suffer from a permacnt damage. Nor is a stressat the listed value be allowed to persist over a period. Since an extended exposure to the absolute maximumrating condition may also affect the reliability of thedevice. If not causing a damage thereof.



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#### Electrical Characteristics

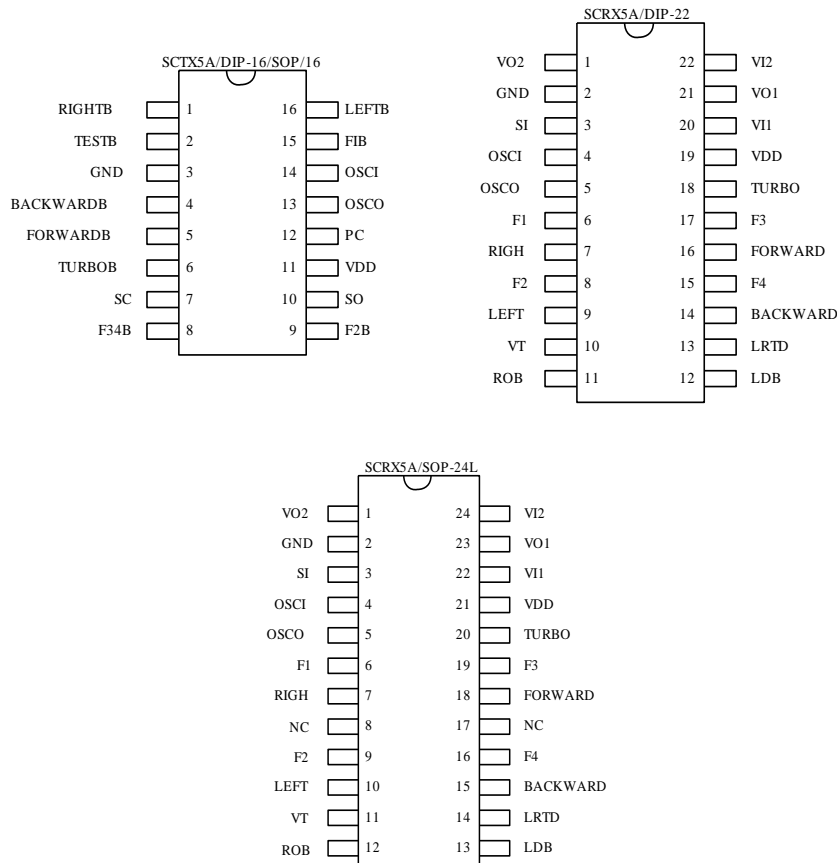
SCTX5A (VDD=9V, Fosc=100KHz, TA=25°C, unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.
Operating Voltage	VDD	3.6V	9V	12V
Operating Current	IDD	-	-	1.5mA
Stand-by Current	ISTB	-	-	1uA
DC O/P Driving Current (RF)	Idrive	-	10mA	-
AC O/P Driving Current (IR)	Idrive	-	6mA	-
AC O/P Frequency	Faudio	-	500Hz	-

SCRX5A (VDD=9V, Fosc=100KHz, TA=25°C, unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.
Operating Voltage	VDD	3.0V	9V	12V
Operating Current	IDD	-	30mA	-
O/P Driving Current	Idrive	5mA	-	-
O/P Driving Current (F1-F4)	Idf	5mA	-	-
Effect Decoding Frequency Variation	Ftolerance	-50%	-	50%

#### PIN ASSIGNMENTS





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#### Pin Description

##### SCTX5A/DIP-16/SOP-16

Pin No.	Designation	Description
1	RIGHTB	The rightward function will be selected when this pin is connected to GND
2	TESTB	This pin is used for testing mode
3	GND	Negative power supply
4	BACKWARDB	The backward function will be selected when this pin is connected to GND
5	FORWAROB	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 of GND
7	SC	Output pin of the encoding signal with carrier frequency
8	F34B	F3 and F4 function select ( sequential trigger )
9	F2B	F2 function select
10	SO	Output pin of the encoding signal without carrier frequency
11	VDD	Positive power supply
12	PC	Power control output pin
13	OSCO	Oscillator output pin
14	OSCI	Oscillator input pin
15	F1B	F1 function select
16	LEFTB	The leftward function will be selected when this pin is connected t GND

##### SCRX5A/DIP-22

Pin No.	Designation	Description
1	VO2	Inverter 2 output pin for power amplify
2	GND	Negative power supply
3	SI	Input pin of the encoding signal
4	OSCI	Oscillator input pin
5	OSCO	Oscillator output pin
6	F1	F1 function output pin
7	RIGHT	Rightward output pin
8	F2	F2 function output pin
9	LEFT	Leftward output pin
10	VT	Auto shut-OFF input pin If VT voltage exceeds 1.4V, all outputs shut off automatically
11	RDB	Right disable pin
12	LDB	Left disable pin
13	LRTD	Left/right turbo disable pin
14	BACKWARD	Backward output pin
15	F4	F4 function output pin
16	FORWARD	Forward output pin
17	F3	F3 function output pin



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18	TURBO	TURBO output pin
19	VDD	Positive power supply
20	VI1	Inverter 1 input pin for signal amplify
21	VO1	Inverter 1 output pin for signal amplify
22	VI2	Inverter 2 input pin for signal amplify

### SCRX5A/SOP-24L

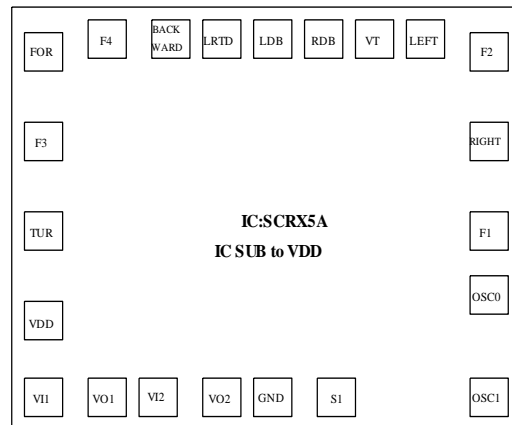
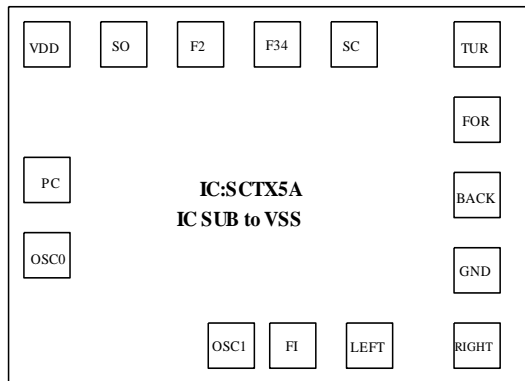
Pin No.	Designation	Description
1	VO2	Inverter 2 output pin for power amplify
2	GND	Negative power supply
3	SI	Input pin of the encoding signal
4	OSCI	Oscillator input pin
5	OSCO	Oscillator output pin
6	F1	F1 function output pin
7	RIGHT	Rightward output pin
8	NC	
9	F2	F2 function output pin
10	LEFT	Leftward output pin
11	VT	Auto shut-OFF input pin If VT voltage exceeds 1.4V, all outputs shut off automatically
12	RDB	Right disable pin
13	LDB	Left disable pin
14	LRTD	Left/right turbo disable pin
15	BACKWARD	Backward output pin
16	F4	F4 function output pin
17	NC	
18	FORWARD	Forward output pin
19	F3	F3 function output pin
20	TURBO	TURBO output pin
21	VDD	Positive power supply
22	VI1	Inverter 1 input pin for signal amplify
23	VO1	Inverter 1 output pin for signal amplify
24	VI2	Inverter 2 input pin for signal amplify



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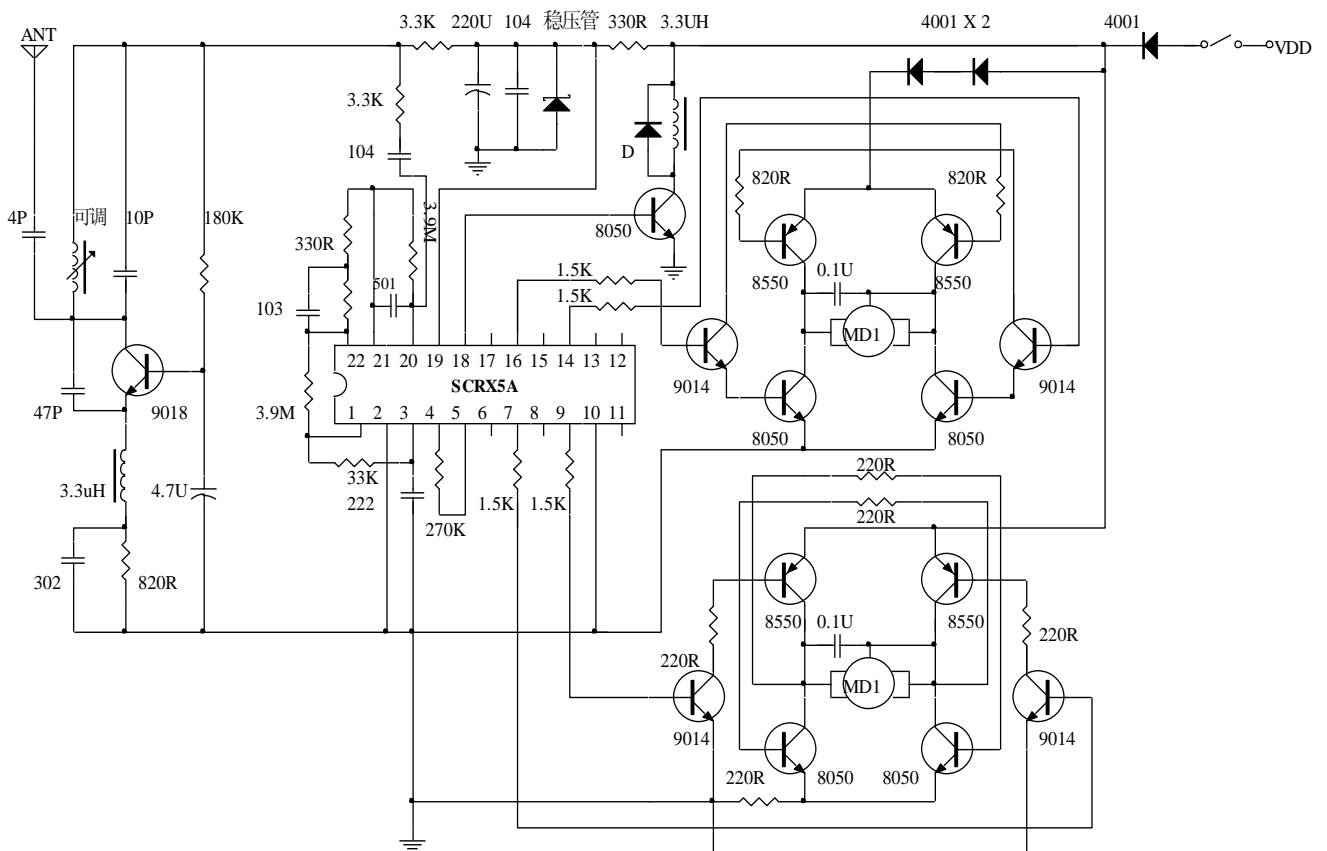
### REMOTE CONTROLLER WITH NINE FUNCTIONS

#### Pad Assignment



#### APPLICATION CIRCUIT

##### SCRX5A

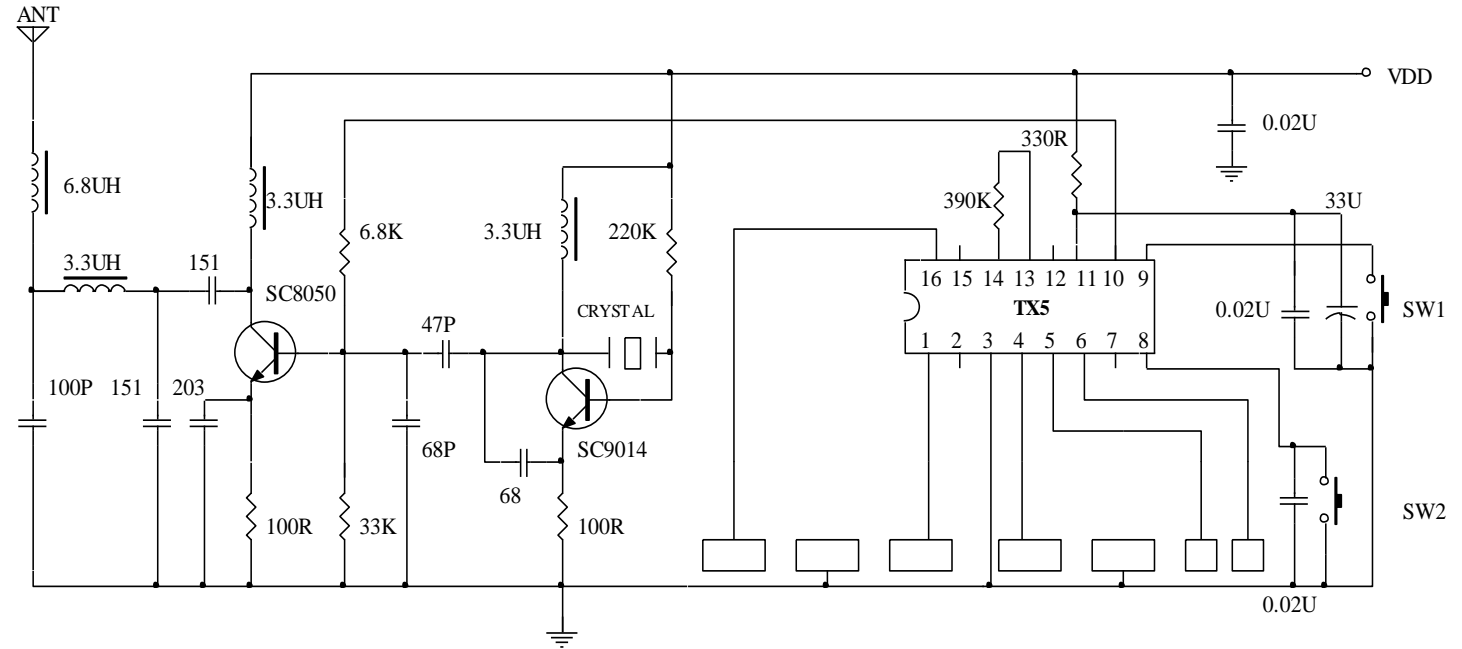




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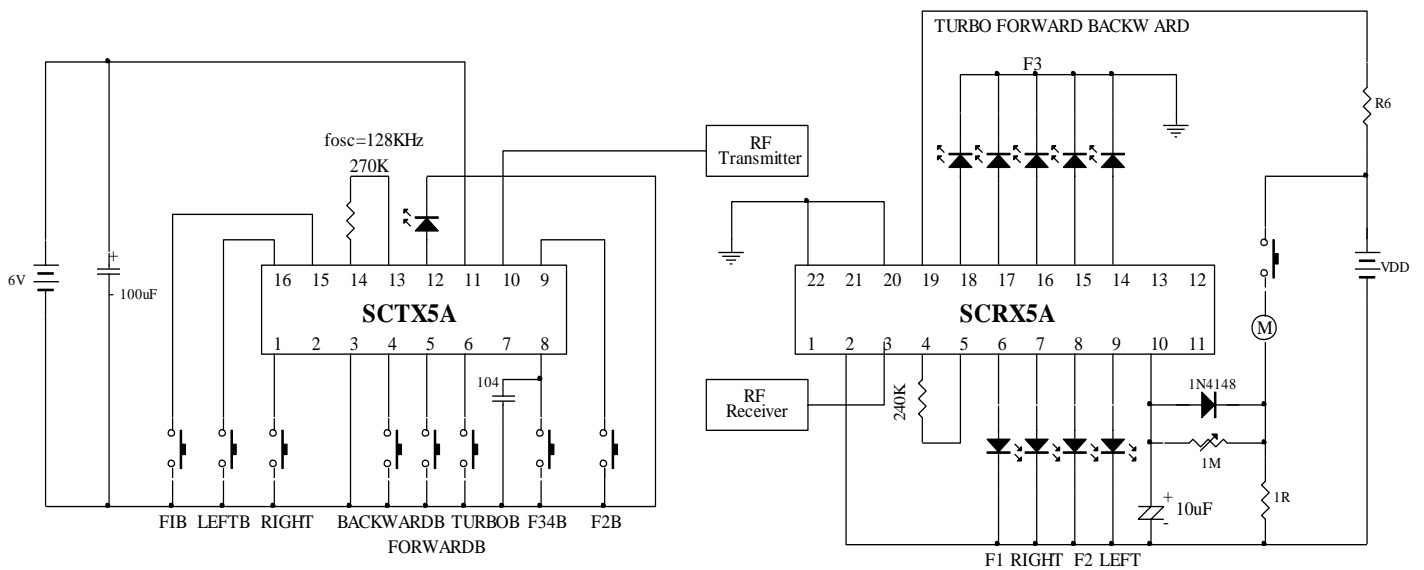
#### SCTX5A



#### Testing Circuit

Fosc for (SCRX5A)  $\cong$  100KHz

Fosc for (SCTX5A)  $\cong$  100KHz

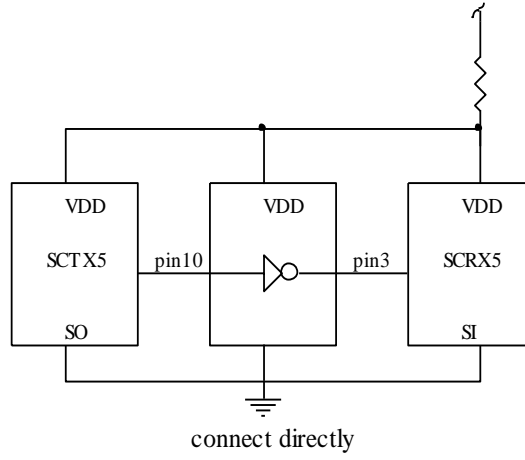


SCTX5A output pin (so) has an inverted phase with SCRX5A input (SI). If SCTX5A&SCRX5A are connected without using a RF module. An inverter has to be inserted between this 2 pins.



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## REMOTE CONTROLLER WITH NINE FUNCTIONS



### RX5A R6 INDEX

VDD	(V)R6
12	1.2K
9	750 Ω
6	300 Ω