

DIGITAL PROPORTIONAL REMOTE CONTROLLER

DESCRIPTION

The TX7/RX7 are a pair of IC designed for digital proportional radio control system, where TX7 is the transmitter and RX7 is the receiver. The TX7/RX7 provide a 3-channel remote controller for digital remote controlled car application. TX7/RX7 have 3 channels, CH1, CH2 and CH3. CH1 is a digitized control handling forward and backward motions, where 7 steps controlling motor forward speed, and another 7 steps for backward speed. CH2 is a digitized proportional control used to steer servo-motor consisted of 32 steps to drive angles in left and right directions. CH3 is the ON/OFF control. In addition, RX7 also provides auto power-off function to detect excessive current of forward/backward motor under special conditions according to toy safety requirements.

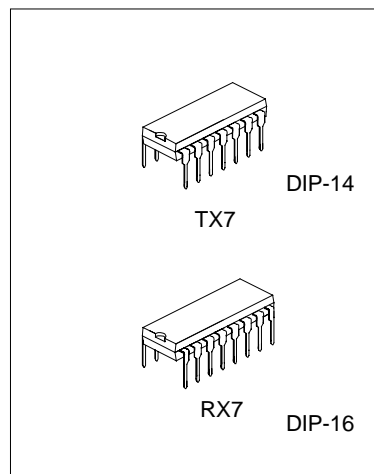
FEATURES

Transmitter: TX7

- Operating voltage :3.6V~5.5V
- RC oscillator
- 3 input control pins for CH1, CH2, CH3(CH1&CH2 with VR control, CH3 with ON/OFF control)
- Typical oscillator frequency: 80kHz

Receiver: RX7

- Operating Voltage : 3.6V~5.5V
- Proportional channel:
 - CH1 as forward and backward motor control with 8 steps, 7steps controlling motor speed and 1 step controlling dead band.
 - CH2 as smooth and accurate steering providing 32 steps to control angles in left and right

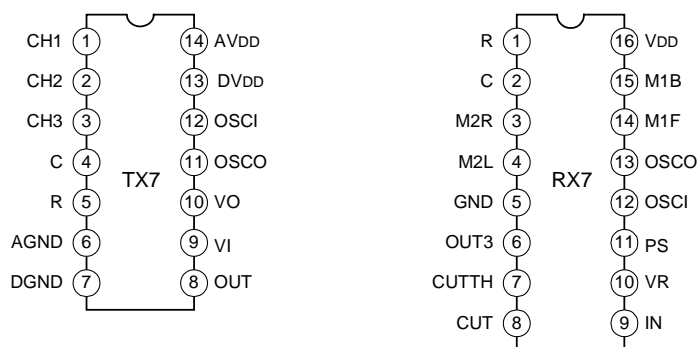


ORDERING INFORMATION

Part No.	Package
TX7	DIP-14-300-2.54
RX7	DIP-16-300-2.54

- Auto power cut-off pin provided to monitor forward and backward motor and whether there is excess operating current. The cut-off voltage can be control by "cutth" pin.
- adjustable (by mask option) signal detect threshold voltage to efface noise across
- Typical oscillator frequency: 80kHz

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
DC Supply Voltage	VDD	0.3 ~ 5.0	V
Input/Output Voltage	VIN, VOUT	GND-0.2V ~ VDD+0.2V	V
Operating Temperature	Topr	-10 ~ +60	°C
Storage Temperature	Tstg	-25~+125	°C

COMMENT

Never allow a stress to exceed the values listed under "Absolute Maximum Ratings", otherwise the device would suffer from a permanent damage. Nor is a stress at the listed value be allowed to persist over a period, since an extended exposure to the absolute maximum rating condition may also affect the reliability of the device, if not causing a damage thereof.

ELECTRICAL CHARACTERISTICS

TX7

Parameter	Symbol	Min	Typ	Max	Unit
Operating Voltage	VDD	3.6	4.5	5.5	V
Operating Current	IDD	--	--	0.5	mA
Out Driving Current	TDRIVE	5	--	--	mA
Oscillator Frequency Deviation Per Lot	$\Delta F/F$	--	--	±15%	

RX7

Parameter	Symbol	Min	Typ	Max	Unit
Operating Voltage	VDD	3.6	4.5	5.5	V
Operating Current	IDD	--	--	1.5	mA
Output Driving Current	IDRIVE	10	--	--	mA
OUT3 Driving Current	IOUT3	5	--	--	mA
Oscillator Frequency Deviation Per Lot	$\Delta F/F$	--	--	$\pm 15\%$	

PIN DESCRIPTION
TX7

Pin No.	Symbol	Description
1	CH1	Input pin for channel 1 control
2	CH2	Input pin for channel 2 control
3	CH3	Input pin for channel 3 control
4	C	Capacitor input pin for setting encoder pulse width
5	R	Resister input pin for setting encoder pulse width
6	AGND	Analog negative power supply
7	DGND	Digital negative power supply
8	OUT	Signal output pin for transmitting encoded data
9	VI	Inverter input pin
10	VO	Inverter output pin
11	OSCO	Oscillator output pin
12	OSCI	Oscillator input pin
13	DVDD	Digital positive power supply
14	AVDD	Analog positive power supply

RX7

Pin No.	Symbol	Description
1	R	Resister input pin for setting reference pulse width
2	C	Capacitor input for setting reference pulse width
3	M2R	Channel 2 right motor control pin
4	M2L	Channel 2 left motor control pin
5	GND	Negative power supply

(To be continued)

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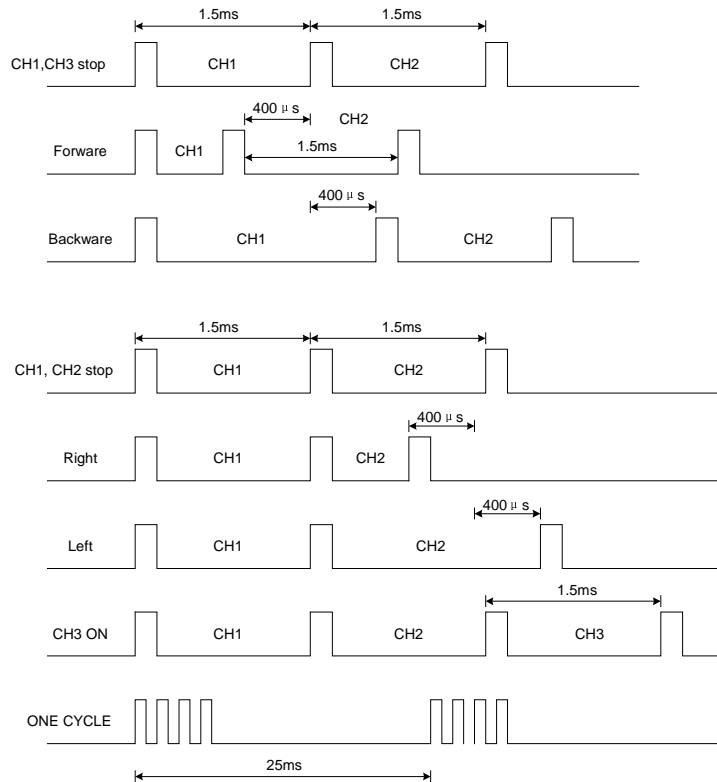
Rev: 1.1 2002-11-05

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Pin No.	Symbol	Description
6	OUT3	Channel 3 output control pin (active high)
7	CUTTH	Input pin, adjusting cut-off voltage
8	CUT	Input pin, detecting motor cut-off
9	IN	Encoded signal input pin
10	VR	Sever motor feedback signal input pin
11	PS	Input pin for setting reference pulse follow encoded data speed
12	OSCI	Oscillator input pin
13	OSCO	Oscillator output pin
14	M1F	Channel 1 forward motor control pin
15	M1B	Channel 1 backward motor control pin
16	VDD	Positive power supply

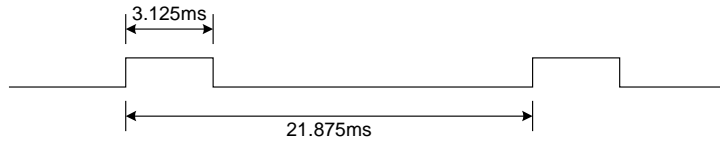
FUNCTION DESCRIPTION

Signal format

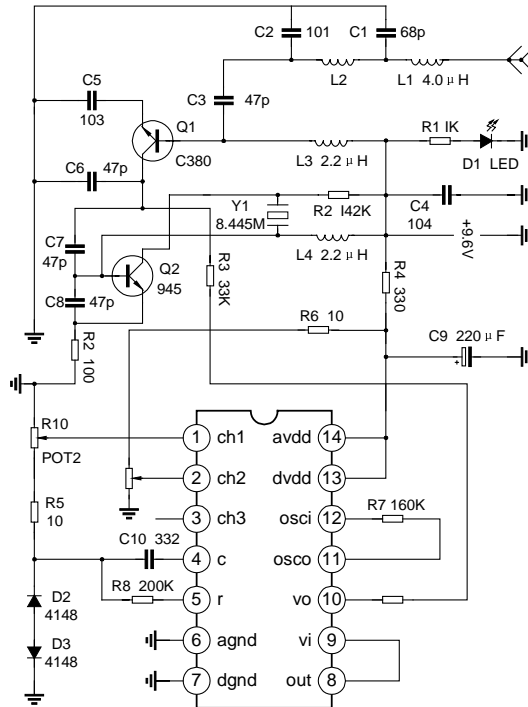


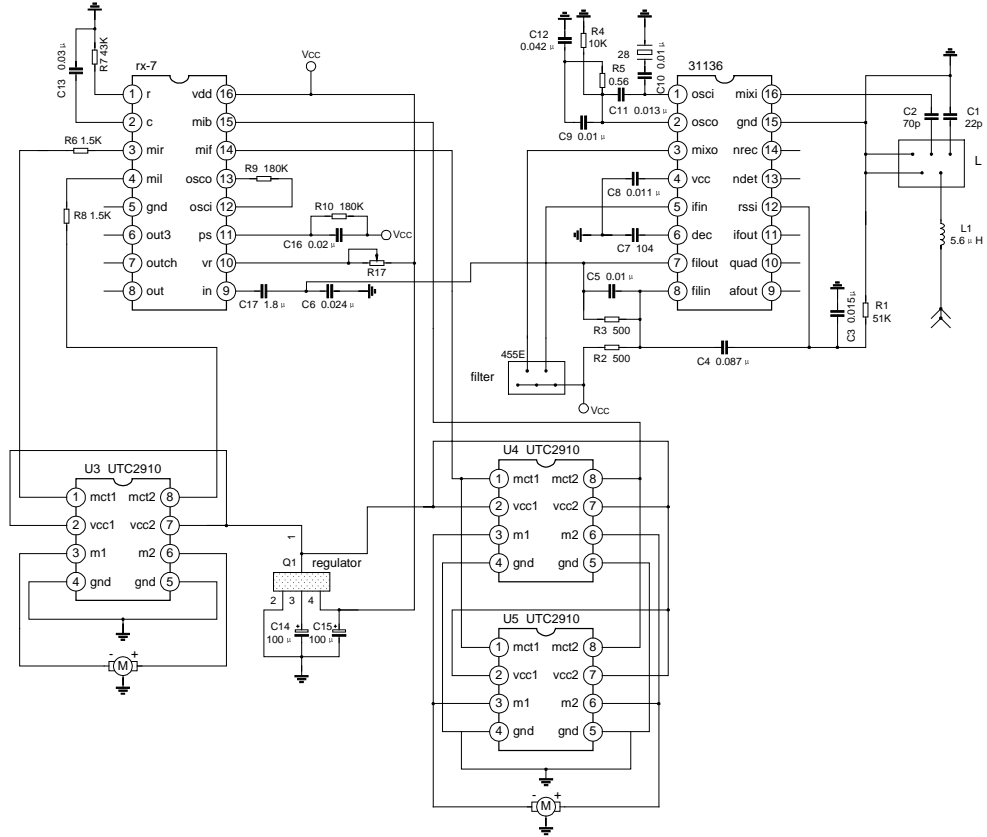
Dead band of forward/backward

The forward/backward function use 7 steps to drive the speed of motor, and 1 step to make dead band. Each step is 3.125ms

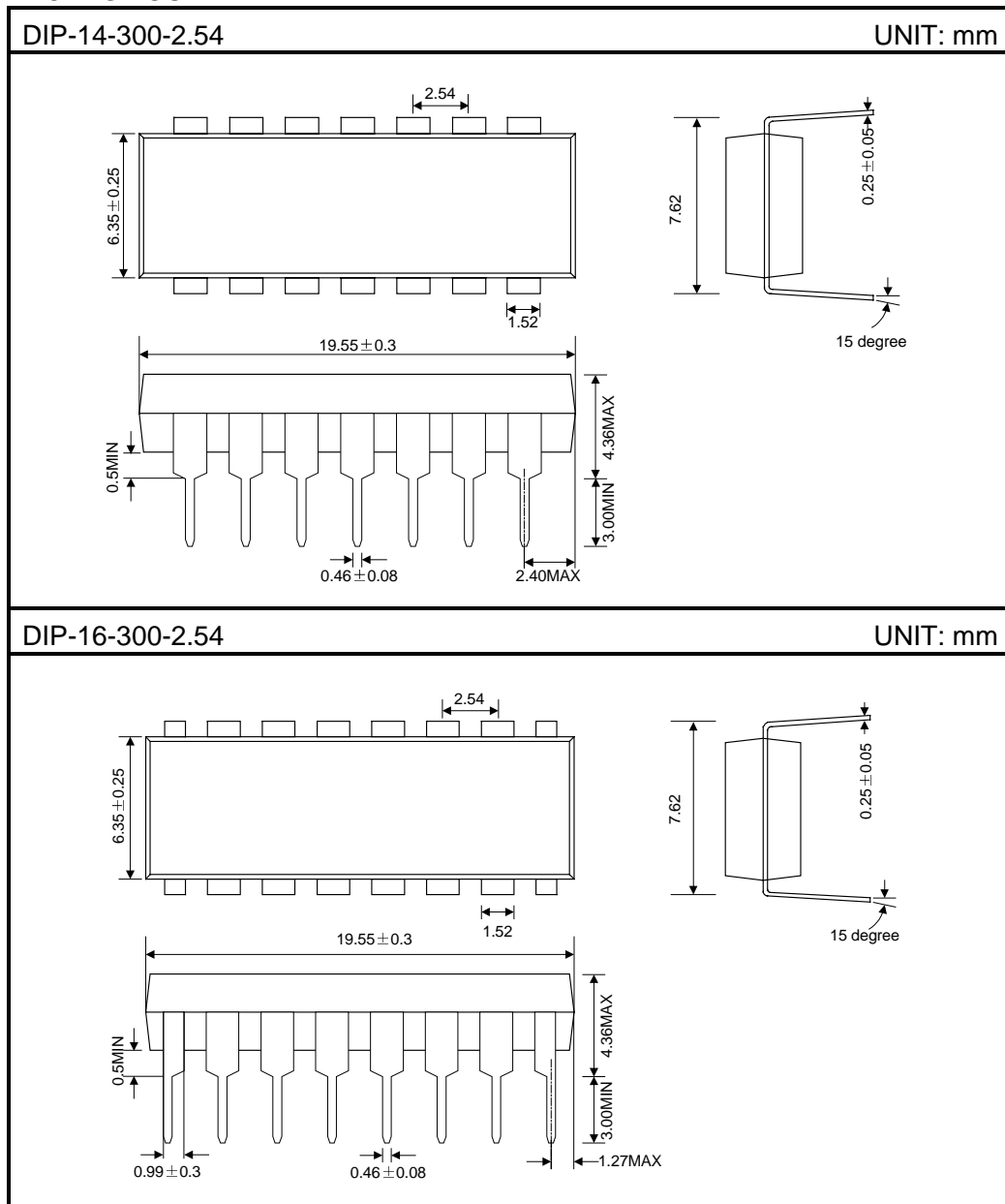


TYPICAL APPLICATION CIRCUIT





PACKAGE OUTLINE



Attach

Revision History

Data	REV	Description	Page
2002.03.21	1.0	Original	
2002.11.05	1.1	Modify the "TYPICAL APPLICATION CIRCUIT".	5, 6