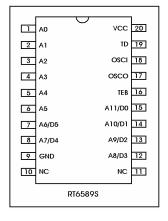## Description:

RT6589 IS A REMOTE CONTROL ENCODER AND DECODER PAIRED WITH RT6688 UTILIZING CMOS TECHNOLOGY. RT6589 HAS 12 BITS OF TRI-STATE ADDRESS PINS PROVIDING A MAXIMUM OF 531,441 ADDRESS CODES
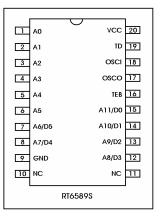
FEATURES :

1. CMOS TECHNOLOGY.
2. LOW STANDBY CURRENT <1 A.
3. OPERATING VOLTAGE 2.4V-15V.
4. UP TO 12 TRI-STATE CODE ADDRESS PINS.
5. UP TO 6 DATA ADDRESS PINS.
6. BUILD IN OSCILLATOR.
7. Auto stop function

PIN ASSIGNMENT :

1	A0	VCC 20
2	A1	TD 19
3	A2	OSCI 18
4	A3	OSCO 17
5	A4	TEB 16
6	A5	A11/D0 15
7	A6/D5	A10/D1 14
8	A7/D4	A9/D2 13
9	GND	A8/D3 12
10	NC	NC 11

RT6589S

APPLICATIONS :

1. CAR AND MOTORCYCLE SECURITY SYSTEMS.
2. WIRELESS DOOR BELL.
3. HOME AUTOMATION SYSTEM

1	A0	VCC 20
2	A1	TD 19
3	A2	OSCI 18
4	A3	OSCO 17
5	A4	TEB 16
6	A5	A11/D0 15
7	A6/D5	A10/D1 14
8	A7/D4	A9/D2 13
9	GND	A8/D3 12
10	NC	NC 11

RT6589S

PIN DESCRIPTION :

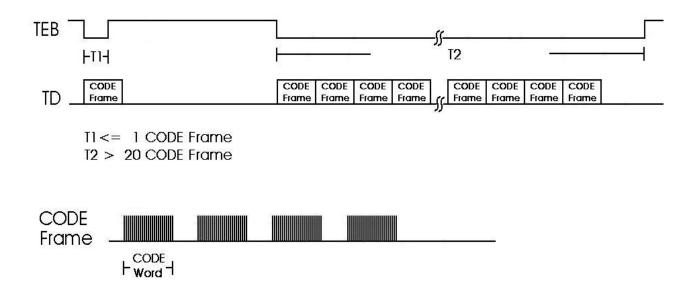| PIN NO.		PIN Name	DESCRIPTION	I/O
18PIN	20PIN			
1~6	1~6	A0~A5	CODE ADDRESS INPUT PIN, EACH PIN CAN SET TO 3 STATE "0", "1" OR "F"(floating).	I
7~8 10~13	7~8 12~15	A6/D5~A7/D4 A8/D3~A11/D0	CAN BE SET TO CODE ADDRESS INPUT PIN OR DATA INPUT PIN. WHEN CODE ADDRESS SET TO BE INPUT PIN, EACH PIN CAN SET TO 3 STATE "0", "1" OR "F" (floating). WHEN DATA INPUT IS SET, EACH CAN BE SET TO "0" OR "1" STATE	I
14	16	TEB	TRANSMISSION ENABLE. WHEN THE SIGNAL FROM HIGH VOLTAGE TO LOW VOLTAGE, TD WILL TRANSMIT SERIAL OF DATA OUTPUT.	I
15	17	OSCO	OSCILLATOR OUTPUT PIN	O
16	18	OSCI	OSCILLATOR INPUT PIN	I
17	19	TD	SERIAL DATA OUTPUT PIN	O
18	20	VCC	POSITIVE POWER SUPPLY	
9	9	GND	NEGATIVE POWER SUPPLY	

FUNCTIONAL DESCRIPTION :

WHEN TEB IS SET TO "0" (LOW VOLTAGE STAGE), RT6589 WILL TRANSMIT SERIAL OF DATA WAVEFORM THROUGH A0~A5, A6/D5~A11/D0, WAVEFORM TRANSMITTED THROUGH RADIO FREQUENCY (RF) MODULATION AND RECEIVED BY RF DEMODULATION AND RESHAPED TO SPECIAL WAVEFORM, RT6688 IS THEN DECODE THE SPECIAL WAVEFORM AND SET THE CORRESPONDING OUTPUT PINS. THUS COMPLETE A REMOTE CONTROL ENCODING AND DECODING FUNCTION. THIS CAN BE USE IN MOST OF THE REMOTE CONTROL APPLICATION

DATA TRANSMITTION FORMAT

CODE Frame
A COMPLETE CODE FRAME CONSISTS OF 4 SERIAL DATA OF CODE WORDS. WHEN TEB IS SET TO "0" (LOW VOLTAGE STAGE),TD WILL TRANSMIT SERIAL OF DATA OUTPUT. MOST IMPORTANTLY, THE TD WILL BE STOPPED TRANSMITTING WHEN THE LENGTH OF TEB IS MORE THAN 20 TIMES OF CODE FRAME. FORMAT IS AS FOLLOW

T1 <= 1 CODE Frame
T2 > 20 CODE Frame

CODE Word
A CODE WORD CONSISTS OF CODE BITS TO FORM ONE FULL SET SERIAL DATA FORMAT, THE COMBINATION IS AS FOLLOW
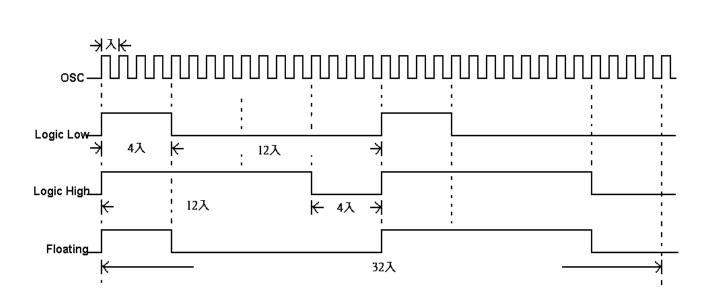
12 ADDRESS AND DATA COMBINATION BITS	SYNC. BIT

EACH CODE WORD CONSIST OF 12 ADDRESS BITS OR 6 ADDRESS BIT AND 6 DATA BITS, THE TRANSMITION SEQUENCE IS AS THE DIAGRAM SHOWN

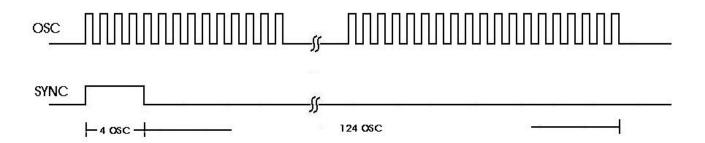|	A0	A1	A2	A3	A4	A5	A6/ D5	A7/ D4	A8/ D3	A9/ D2	A10/ D1	A11/ D0	Sync
6 Data	A0	A1	A2	A3	A4	A5	D5	D4	D3	D2	D1	D0	Sync
5 Data	A0	A1	A2	A3	A4	A5	A6	D4	D3	D2	D1	D0	Sync
4 Data	A0	A1	A2	A3	A4	A5	A6	A7	D3	D2	D1	D0	Sync
3 Data	A0	A1	A2	A3	A4	A5	A6	A7	A8	D2	D1	D0	Sync
2 Data	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	D1	D0	Sync
1 Data	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	D0	Sync
No Data	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	Sync

CODE BIT

CODE BIT IS THE COMBINATION OF ADDRESS AND DATA BITS. RT6589 TRANSMIT A SERIAL OF WAVE FORM IS CONSIST OF CODE BITS AND SYNC, CODE BIT CAN BE DEFINE INTO 3 STATE: Logic Low("0"), Logic High("1"), Floating state, EACH LENGTH OF CODE BIT IS EQUAL TO 32 OSCILLATION PULSE, PLEASE REFER TO THE DIAGRAM SHOWN BELOW

SYNC BIT

EACH SYNC BIT LENGTH IS EQUAL TO 128 OSCILLATION PULSE

Rato

Absolute Maximum Ratings

Symbol	Parameter	Condition	Rating	Unit
V_{CC}	Supply voltage		-0.3~16	V
V_I	Input voltage		-0.3~Vcc+0.3	V
V_O	Output voltage		-0.3~Vcc+0.3	V
P_{dis}	Max. power dissipation	V_{CC}=12V	300	mW
T_{OP}	Operating Temperature		-20 ~ 70	
T_{St}	Storage Temperature		-40 ~ 125	

DC Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V_{CC}	Supply Voltage		2.4		15	V
I_{sb}	Stand By Current	V_{CC}=12V			1	µA
I_{OH}	Output Driving Current	V_{CC}=12V V_{OH}=6V	10			mA
I_{OL}	Output Sinking Current	V_{CC}=12V V_{OL}=6V	9			mA