

REMOTE CONTROL ENCODER

DESCRIPTION

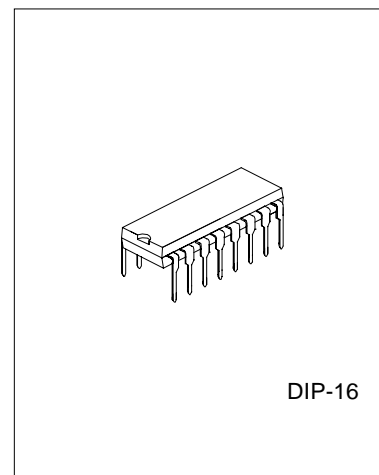
The SC2268 is a remote control encoder utilizing CMOS Technology specially designed for use with the SC2128. Using a special coding technique, SC2268 increases noise immunity to a very great extent. It is housed in 16-Pins DIP Package and has a maximum of eight input channels. Its high performance features makes SC2268 a must in every fan and other electrical home appliance remote control application.

FEATURES

- * CMOS Technology
- * Low power consumption
- * Very high noise immunity
- * Wide range of operating voltage: $V_{CC}=2.2 \sim 5.0$ Volts
- * Transmits signals to a maximum of 8 channels
- * Start word custom code options available

APPLICATIONS

- * Fan remote control
- * Air cleaner
- * Humidifier
- * Heater



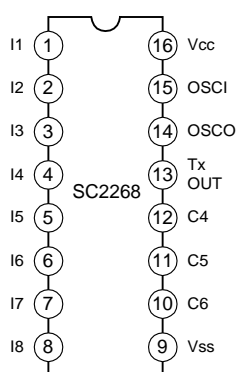
DataSheet4U.com

ORDERING INFORMATION

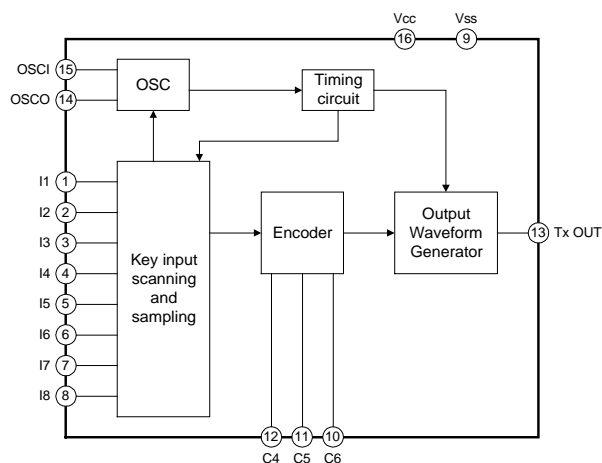
SC2268	Custom Cord C3=1
SC2268-00	Custom Cord C3=0

DataSheet4U.com

PIN CONFIGURATION



BLOCK DIAGRAM



— HANGZHOU SILAN MICROELECTRONICS JOINT-STOCK CO.,LTD —

Rev: 1.0 2000.12.31

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Supply Voltage	V _{CC}	0 ~ 6.0	V
Input/Output Voltage	V _{IN} /V _{OUT}	V _{SS} -0.2V ~ V _{CC} +0.3V	V
Power Dissipation	P _D	500	mW
Operating Temperature	T _{opr}	-20 ~ +70	°C
Storage Temperature	T _{stg}	-55 ~ +125	°C

ELECTRICAL CHARACTERISTICS(T_{amb}=0 ~ 70°C, V_{CC}-V_{SS} = 3 ± 10%V, Unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Operating Voltage	V _{CC}	--	2.2	3	5	V
Operating Current(note)	I _{OP}	OSC On, TxOUT is floating.	--	0.5	1	mA
Stand-by Current	I _{SB}	I1 ~ I8 = "L" OSC Stops. TxOUT is floating.	0.5	1	3	μA
Sinking Current of TxOUT	I _{SINK}	V _{OL} =2.2V, V _{DD} =3V	8	15	--	mA
		V _{OL} =1.5V, V _{DD} =3V	4	6	--	
Input Voltage of I1 ~ I8	High Level	V _{IH}	--	0.7V _{CC}	V _{CC}	V
	Low level	V _{IL}	--	0	0.3V _{CC}	
Input Pull-Low Resistor	R _L	--	30	50	80	kΩ
Input Pull-High Resistor	R _H	--	40	90	150	kΩ
Oscillation frequency	f _{OSC}	--	--	455	--	kHz

Note: For pins I1 ~ I8 : Any one of the said pins is set to HIGH while the others are set to LOW.

PIN DESCRIPTION

Pin No.	Symbol	I/O	Function
1~8	I1 ~ I8	I	Key input pins. These pins are used to connect a maximum of 8 keys. (each pin has a built-in pull-low resistor).
9	V _{SS}	--	Negative power supply.
11~12	C4~C5	I	Select input pin for start word. These pins have internal pull-low resistor.
10	C6	I	Select input pin for start word. This pins have internal pull-high resistor.
13	TxOUT	O	Transmission output pin. This pin is an open drain (NMOS) output and is used to transmit signals. The carrier frequency is 38kHz.
15	OSCI	I	Oscillator Input Pin
14	OSCO	O	Oscillator Output Pin
16	V _{CC}	--	Positive power supply.

— HANGZHOU SILAN MICROELECTRONICS JOINT-STOCK CO.,LTD —

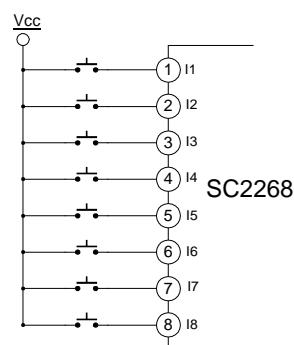
Rev: 1.0 2000.12.31

FUNCTIONAL DESCRIPTION

1. KEY INPUT

Up to eight keys can be directly connected to pins I1 ~ I8. Please refer to the diagram right.

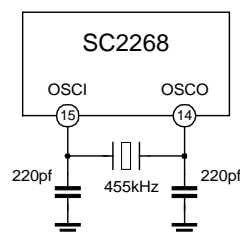
Furthermore, SC2268 has a built-in pull-low resistor of about 60K ~ 110K Ω which reduces the need for external components.



2. OSCILLATOR

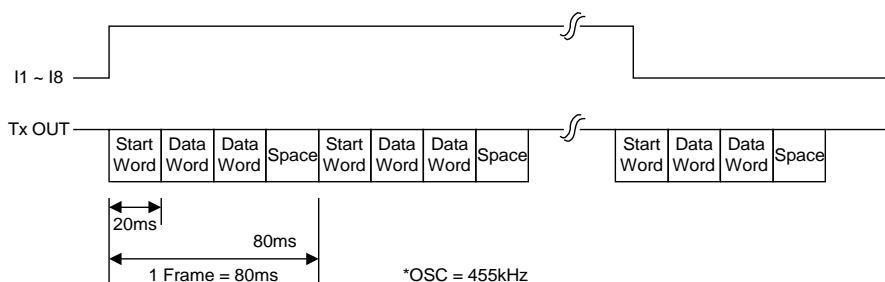
An oscillation circuit can be constructed using the CMOS inverter and Built-in Feedback resistor, 455kHz crystal and two 220pf capacitors. The carrier frequency is 38kHz.

Unless any of the 8 keys (I1~I8) is being operated, the oscillation is automatically stopped. Thus, power consumption is considerably reduced.



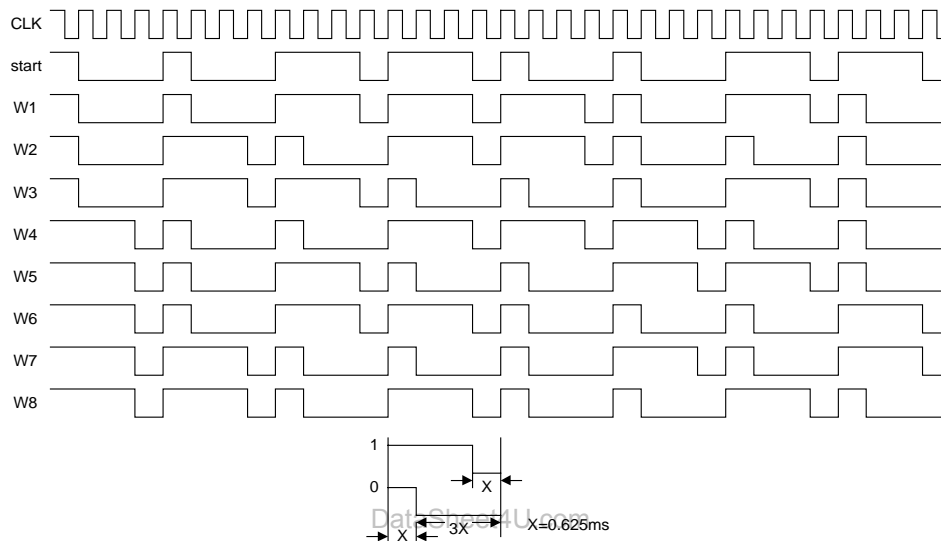
3. TRANSMISSION WAVEFORM

When any of the 8 keys (I1 ~ I8) is set to "High", the TxOUT outputs one start word followed by 2 identical data words and a space. The code will be continuously outputted until the key is released. If for any reason, the key was released during the code transmission process, the code that is being transmitted during the key release action will still be completely outputted. Please refer to the following diagram.



4. TRANSMISSION CODE WAVEFORM

The transmission waveforms of the Start Word and the different Data Words generated when a specific input key (I1~I8) is pressed are illustrated below (see also Transmission Code Pattern Section):

**5. TRANSMISSION CODE PATTERN**

The transmission code pattern of SC2268 is given in the table below.

	Transmission	LSB								MSB		Receiver
		C0	C1	C2	C3	C4	C5	C6	C7			
Start word		0	0	1	1	0	0	1	1			
		B0	B1	B2	B3	B4	B5	B6	B7			
Data Word (Key pressed)	W1 (I1)	0	0	1	1	1	0	1	0	0/p1		
	W2 (I2)	0	1	0	1	1	0	0	0	0/p2		
	W3 (I3)	0	1	1	0	0	0	1	0	0/p3		
	W4 (I4)	1	0	0	1	1	1	0	0	0/p4		
	W5 (I5)	1	0	1	0	0	1	1	0	0/p5		
	W6 (I6)	1	0	1	1	0	0	0	1	0/p6		
	W7 (I7)	1	1	0	0	0	1	0	1	0/p7		
	W8 (I8)	1	1	0	1	0	0	1	0	0/p8		

— HANGZHOU SILAN MICROELECTRONICS JOINT-STOCK CO.,LTD —

Rev: 1.0 2000.12.31

6. START WORD CUSTOM CODE

The start word custom code has the following format:

LSB									MSB
0	0	1	C3	C4	C5	C6	1		

Where: C3 = 1 (default value)

= bonding option available

C4 = "0" when floating or connected to Vss

= "1" when connected to Vcc

C5 = "0" when floating or connected to Vss

= "1" when connected to Vcc

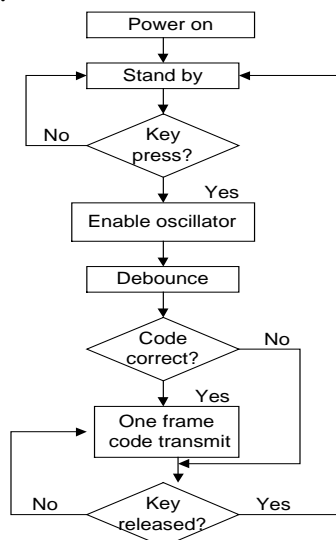
C6 = "0" when connected to Vss

= "1" when floating or connected to Vcc

Note: C4 and C5 have internal pull-low resistors while C6 has an internal pull-high resistor.

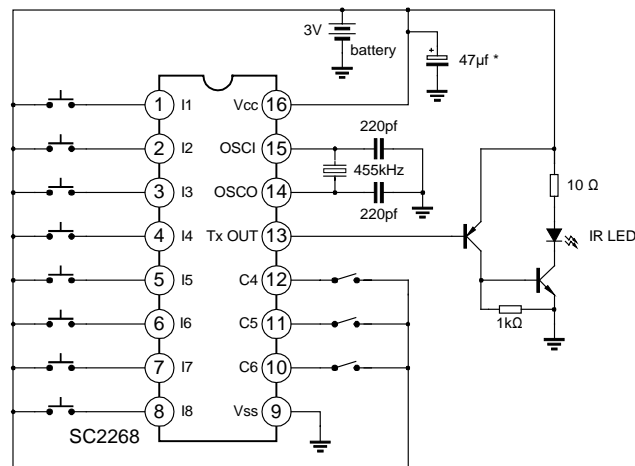
The start word custom code table is given below :

C3=0				C3=1(default)
C4	C5	C6	Custom Code (C0 to C7)	Custom Code (C0 to C7)
0	0	0	00100001	00110001
0	0	1	00100011	00110011
0	1	0	00100101	00110101
0	1	1	00100111	00110111
1	0	0	00101001	00111001
1	0	1	00101011	00111011
1	1	0	00101101	00111101
1	1	1	00101111	00111111

OPERATION FLOW CHART

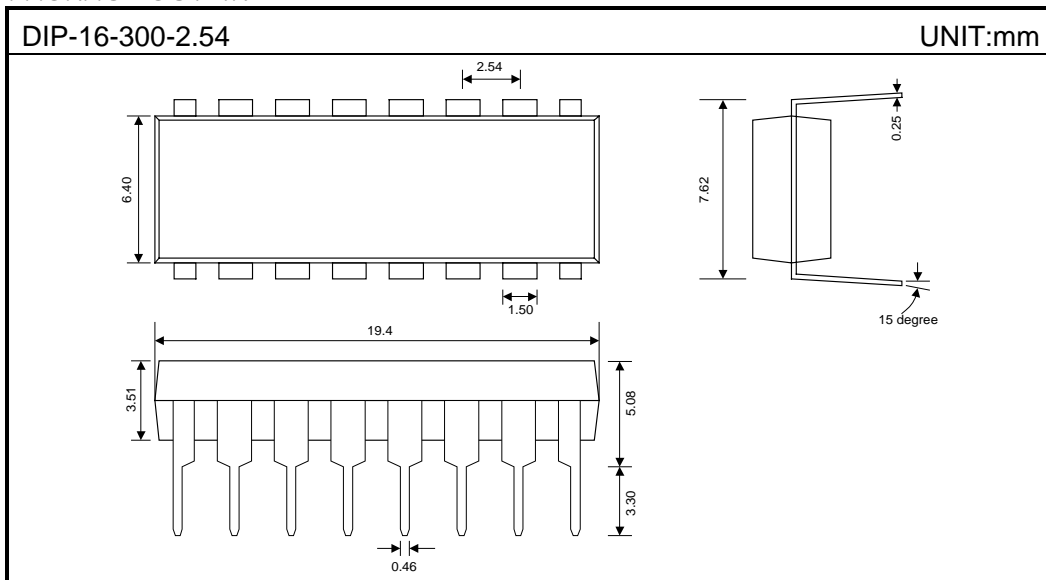
— HANGZHOU SILAN MICROELECTRONICS JOINT-STOCK CO.,LTD —

Rev: 1.0 2000.12.31

APPLICATION CIRCUIT

Note: Please take note that C3(default value)=1. For more details, please refer to Start Word Custom Cord Section.

* Place 47uf capacitor as near as possible to the SC2268 Vss pin.

PACKAGE OUTLINE

— HANGZHOU SILAN MICROELECTRONICS JOINT-STOCK CO.,LTD —

Rev: 1.0 2000.12.31