

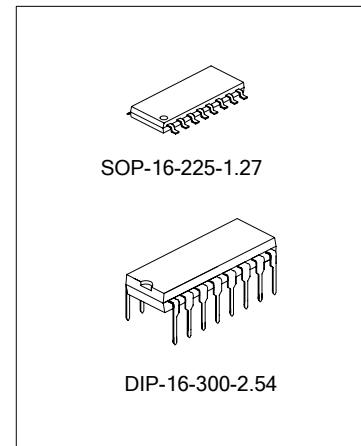
FAN REMOTE CONTROL ENCODER

DESCRIPTION

SC5104 is a remote control encoder paired with SC8206 utilizing CMOS technology. Using a special coding technique, SC5104 increases noise immunity to a very great extent. SC5104 has a maximum of 8 input channel. Its high performance features makes SC5104 a must in every fan and other electrical home appliance remote control application.

FEATURES

- * CMOS technology
- * High noise immunity
- * Wide range of voltage: $V_{cc}=2.2 \sim 4.0\text{ V}$
- * LED indicator
- * Transmits signal of maximum 8 channels
- * 2 bits custom code options available
- * Key-in oscillation, reduce static current dissipation.
- * 38kHz carrier transmits output.



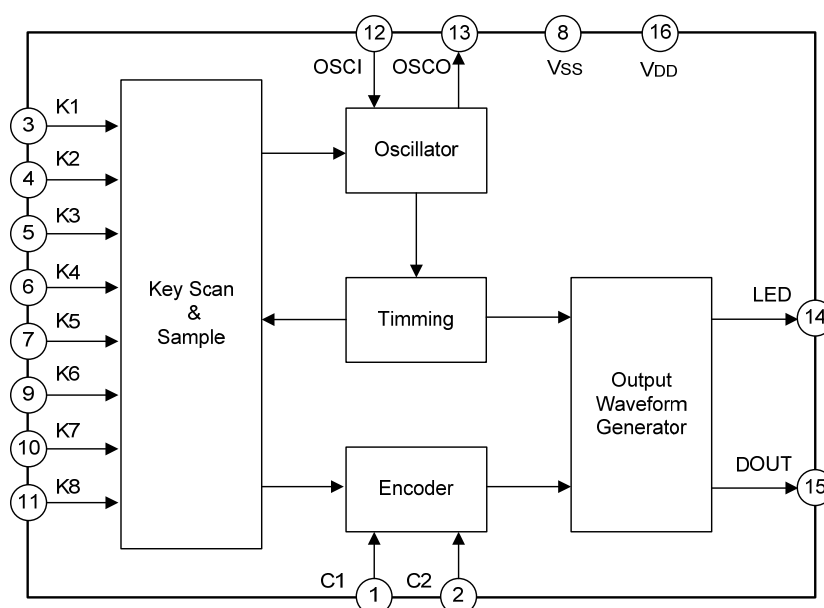
ORDERING INFORMATION

Device	Package
SC5104	DIP-16-300-2.54
SC5104S	SOP-16-225-1.27

APPLICATIONS

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

BLOCK DIAGRAM



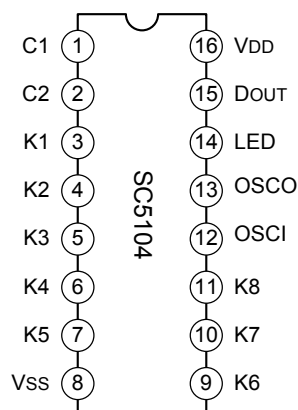
ABSOLUTE MAXIMUM RATING (T_{amb}=25°C)

Characteristics	Symbol	Ratings	Unit
Supply Voltage	VDD	-0.3~6.0	V
Input/Output Voltage	VIN	VSS -0.3V~VDD+0.3V	V
Power Dissipation	PD	500	mW
Operating Temperature	T _{opr}	-10 ~ +70	°C
Storage Temperature	T _{stg}	-40~+125	°C

DC CHARACTERISTICS (unless other specified, T_{amb}=25°C, VDD=3V)

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Supply Voltage	VDD	--	2.0	3.0	4.0	V
Static Power Dissipation	ISB	no load, oscillation is stopped, C1=C2=0	--	0.1	--	μA
		no load, oscillation is stopped, C1=C2=1	--	1.8	--	μA
DOUT Output High Current	IOH	VOH=2.7V	--	0.74	--	mA
DOUT Output Low Current	IOL	VOL=0.3V	--	-2.5	--	mA
High Input Voltage	VIH	--	0.7VDD	--	VDD	V
Low Input Voltage	VIL	--	0	--	0.3VDD	V
LED High Output Current	IOH	VOH=2.7V	--	2.5	10	mA
LED Low Output Current	IOL	VOL=0.3V	--	-1.0	--	mA
Oscillation Frequency	fosc		--	455	--	kHz
Pull-up resistor at C1, C2	Rc	VIN=0V	--	4	--	MΩ
Pull-up resistor at K1~K8	Ri	VIN=0V	--	250	--	KΩ

PIN CONFIGURATION



PIN DESCRIPTION

Pin no.	Symbol	I/O	Descriptions
1~2	C1, C2	I	Custom Code Option: Built In Pull-Up Resistor, Grounding Denote "1", Floating Denote "0".
3~7	K1~K5	I	Key Input Pins, Built In Pull-Up Resistor.
8	VSS	--	Negative Power Supply.
9~11	K6~K8	I	Key Input Pins, Built In Pull-Up Resistor.
12	OSCI	I	455kHz Oscillator Input Pin.
13	OSCO	O	455kHz Oscillator Output Pin.
14	LED	O	LED Driver Output Indication
15	DOUT	O	Code Data Output(Contain 38kHz Carrier Signal)
16	VDD	--	Positive Power Supply.

FUNCTION DESCRIPTIONS

1. Key inputs K1~K8

In static mode, key inputs K1~K8 are set as high level through pull-up resistor and there is no current flows in circuit. When one key is pressed, corresponding code is transmitted.

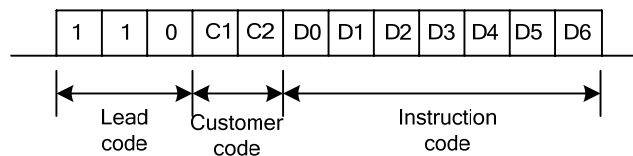
2. Customer code C1, C2

In static mode, C1 and C2 are internal pulled as high level. Four different customer code combination are available by the two bits. For these two bits, "1" indicates corresponding pin is grounded while "0" indicates floating or connected to VDD.

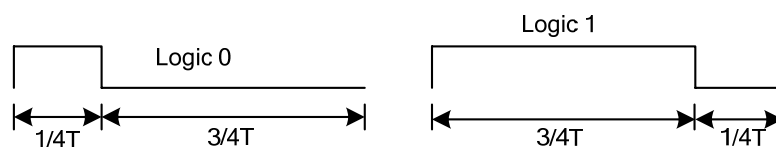
3. Code format

A frame consists of:

- 1) Lead code——110
- 2) Customer code——C1C2
- 3) Instruction code——7 bits key code (see SC5104 key code table for details)

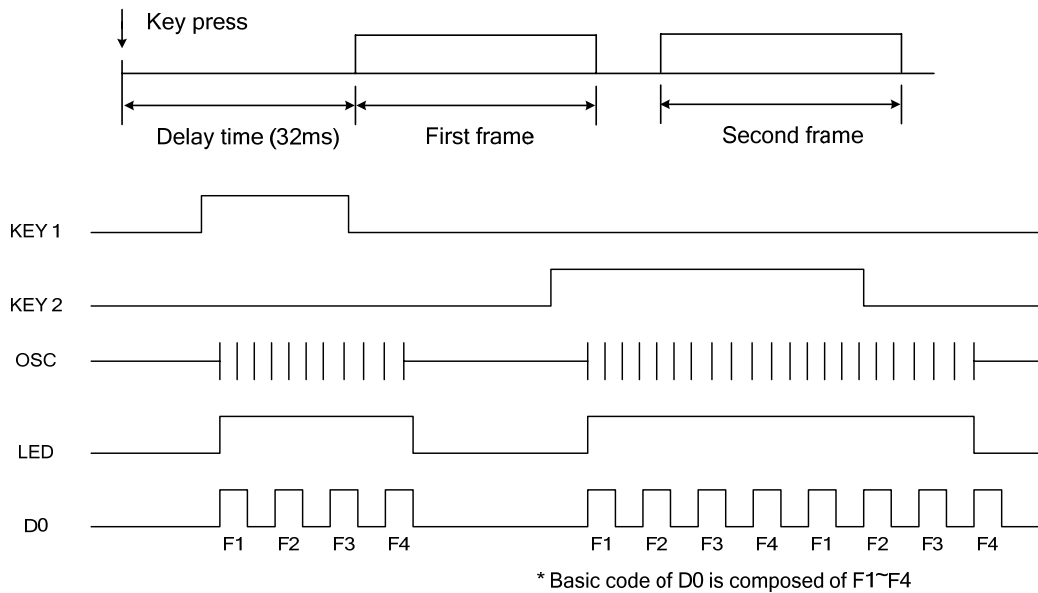


- 4) Logic 0: 1/4T high level, 3/4T low level; Logic 1: 3/4T high level, 1/4T Low level.
- 5) Code cyclic time T=1.6879ms
- 6) Intern\val between two frame: 4T



4. Data out

Data code is output at Dout. When one key is pressed, high level is output at pin LED and data (four frames at least) is output at Dout after 32ms delay. Data is continuously output if the key is kept pressed and there is 4 code interval between frames.



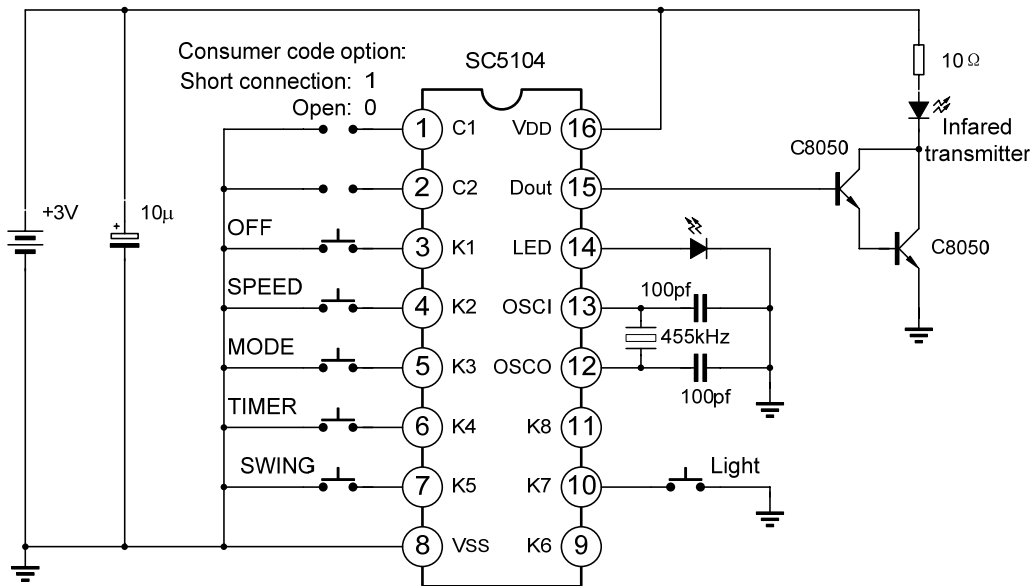
5. Oscillator

Internal oscillator integrates advanced key-press start power saving function. The oscillator is in sleep mode when there is no key pressed and there is no current; it only works when key is pressed. This is for power saving. 455KHz oscillator is connected to pins OSC1 and OSC0 for using.

6. Key code table

Key No.	Instruction code						
	D0	D1	D2	D3	D4	D5	D6
K1	0	0	0	0	0	0	1
K2	0	0	0	0	0	1	0
K3	0	0	0	0	1	0	0
K4	0	0	0	1	0	0	0
K5	0	0	1	0	0	0	0
K6	0	1	0	0	0	0	0
K7	1	0	0	0	0	1	1
K8	1	0	0	00	1	1	0

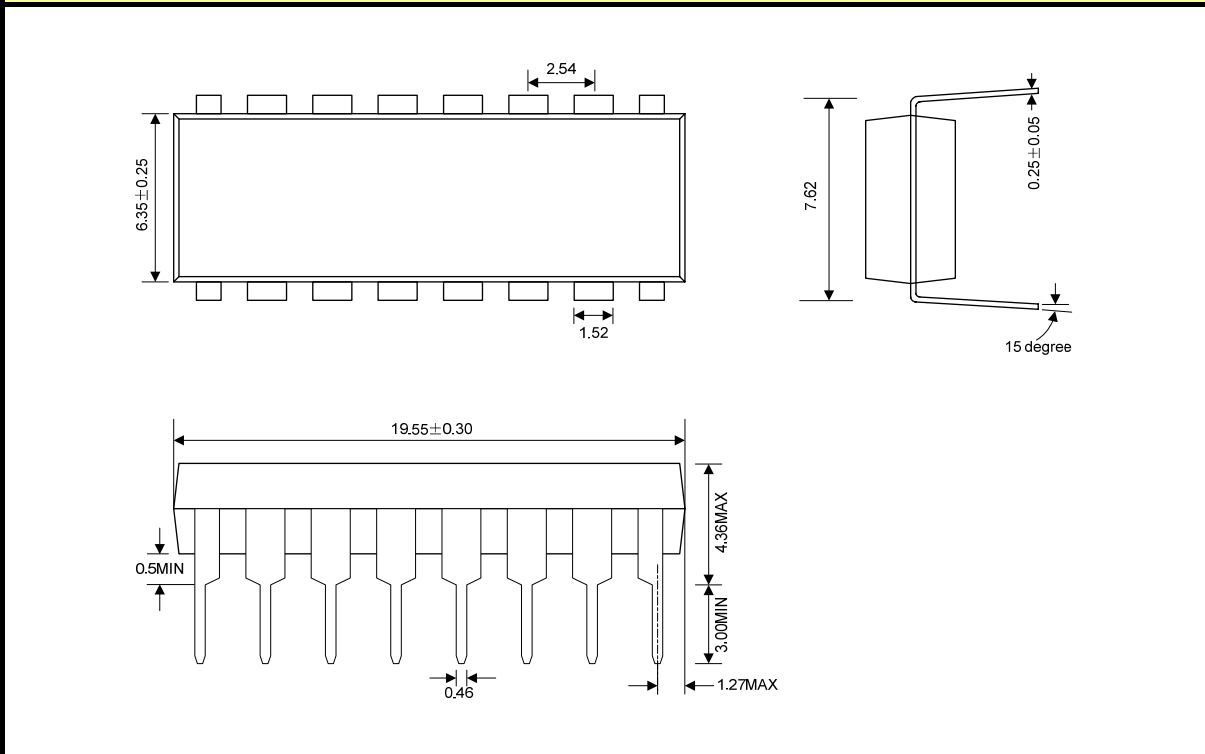
TYPICAL APPLICATION CIRCUIT



PACKAGE OUTLINE

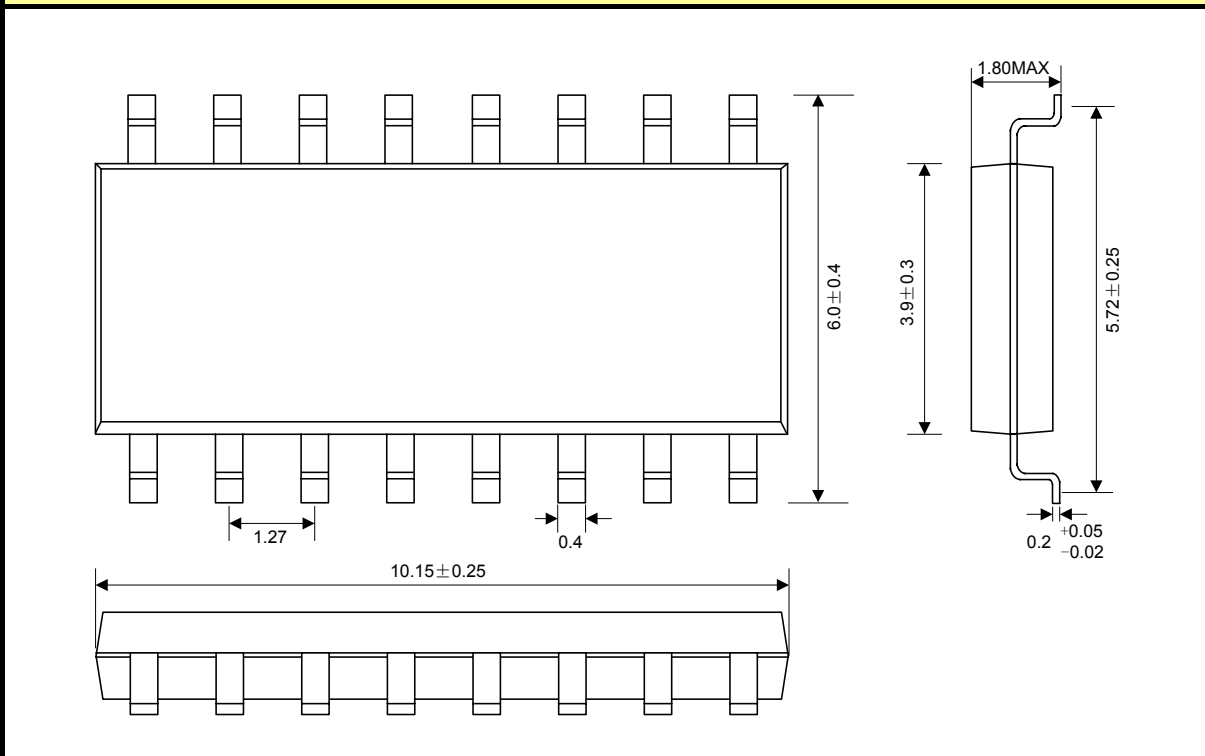
DIP-16-300-2.54

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.

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