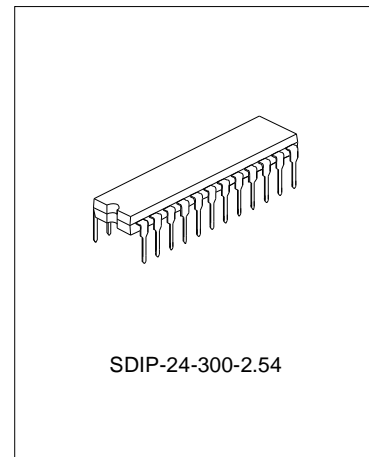


## FAN REMTORE CONTROL DECODER

### DESCRIPTION

SC8204 is a high performance electronic fan controller. Speed control, off-timer, nature wind, sleep mode are all built into a single chip. Light control, buzzer output, key control input, two working mode as well as remote control decoding circuitry are all provided to build a full function electronic fan with remote control capability having the highest performance with the least external components. Pin assignment and application circuit are optimized for easy PCB layout and cost saving for electronic fan application.

SC8204 adopted SDIP-24 package.



### FEATURES

- \* High performance CMOS Technology
- \* Low power consumption
- \* Two speed modes: strong and low
- \* Memory start-up mode
- \* Two working mode : extension “ F”
- \* Buzzer indicator function operation.
- \* Independent light controlling: extension “ L”
- \* Two bits consumer code
- \* Built-in 455kHz oscillator circuit
- \* Time mode: A4: 0.5, 1, 2, 4 hour accumulated  
                   N4: 0.5, 1, 2, 4hour non-accumulated  
                   N3: 1, 2, 4 hour non-accumulated  
                   N8: 1, 2, 4, 8 hour non-accumulated

### APPLICATIONS

- \* Fan remote controller
- \* Air cleaner
- \* Humidifier
- \* Heater
- \* Wind-warmer

### ORDERING INFORMATION

Part	Package	Accumulated	Non-accumulated	Independent ON/OFF	Light control
SC8204N3F	SDIP-24-300-2.54	--	√	--	--
SC8204N3FL		--	√	--	√
SC8204N3KF		--	√	√	--
SC8204N3KFL		--	√	√	√
SC8204N4F		--	√	--	--
SC8204N4FL		--	√	--	√
SC8204N4KF		--	√	√	--
SC8204N4KFL		--	√	√	√
SC8204A4F		√	--	--	--
SC8204A4FL		√	--	--	√

(To be continued)

(Continued)

Part	Package	Accumulated	Non-accumulated	Independent ON/OFF	Light control
SC8204A4KF	SDIP-24-300-2.54	√	--	√	--
SC8204A4KFL		√	--	√	√
SC8204N8F		--	√	--	--
SC8204N8FL		--	√	--	√
SC8204N8KF		--	√	√	--
SC8204N8KFL		--	√	√	√

**Note:** "A4" indicated have four time output (0.5, 1, 2, 4 hours) accumulated timer mode.

"N4" indicated have four time output (0.5, 1, 2, 4 hours) non-accumulated timer mode.

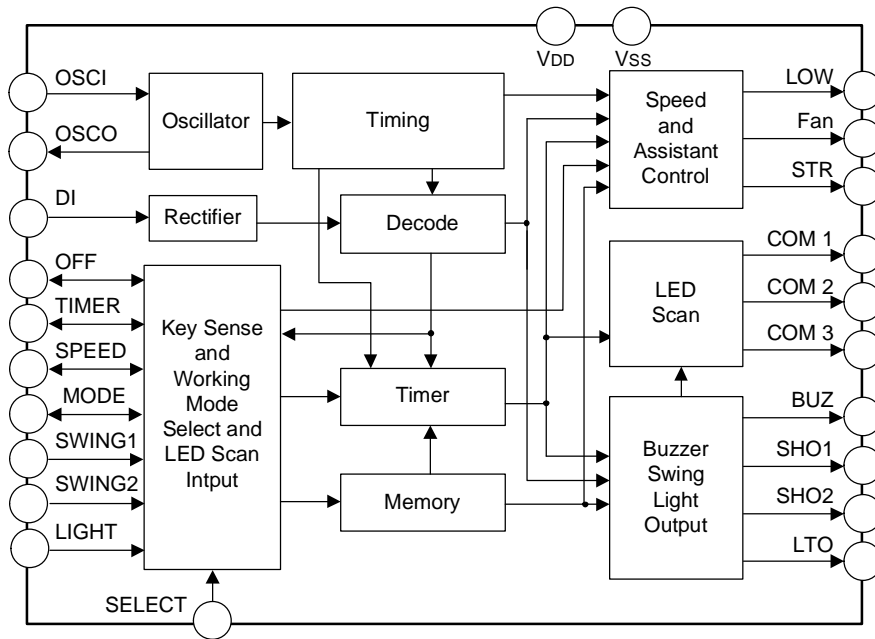
"N3" indicated have three time output (1, 2, 4 hours) non-accumulated timer mode.

"N8" indicated have four time output (1, 2, 4, 8 hours) non-accumulated timer mode.

"F" indicated have two working mode for selectable, and low wind start-up mode.

"L" indicated have light output mode.

**BLOCK DIAGRAM**



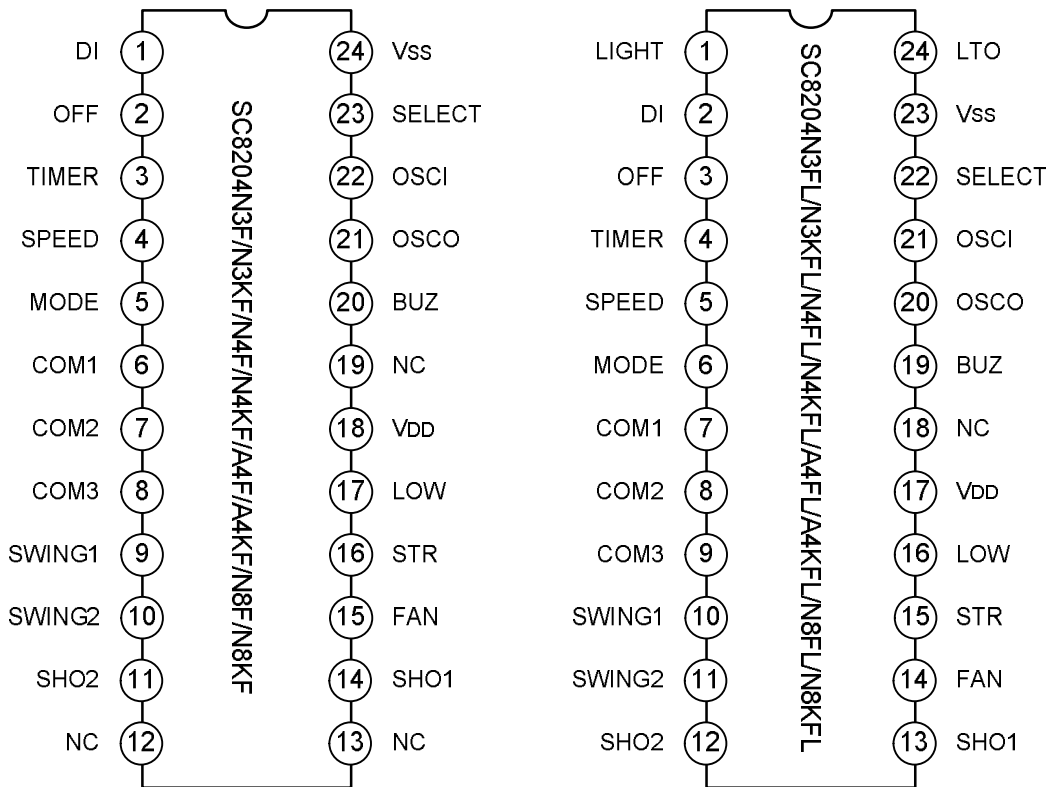
**ABSOLUTE MAXIMUM RATING (Tamb=25°C)**

Characteristics	Symbol	Ratings	Unit
Supply Voltage	VDD	-0.3~6	V
Input/output Voltage	VIN	VSS -0.3V~VDD+0.3V	V
Power Consumption	PD	500	mW
Operating Temperature	Topr	-10 ~ +70	°C
Storage Temperature	Tstg	-40~+125	°C

DC ELECTRICAL CHARACTERISTICS (unless special, T<sub>amb</sub>=25°C, V<sub>DD</sub>=5.0V)

Characteristics	Symbol	Test condition	Min.	Typ.	Max.	Unit
Supply Voltage	V <sub>DD</sub>	--	3.0	5.0	6.0	V
Static Consumption Current	I <sub>SB</sub>	V <sub>DD</sub> =5V, OSC stop, no load	--	1	--	μA
Input High Level Voltage	V <sub>IH</sub>	--	0.7V <sub>DD</sub>	--	V <sub>DD</sub>	V
Input Low Level Voltage	V <sub>IL</sub>	--	0	--	0.3V <sub>DD</sub>	V
OFF, MODE, SPEED, TIMER Scan Output Current	I <sub>OH</sub>	V <sub>DD</sub> =5.0V, V <sub>O</sub> =3.5V	--	10	--	mA
COM1~COM3 Scan Output Sink Current	I <sub>OL</sub>	V <sub>DD</sub> =5.0V, V <sub>O</sub> =0.7V	--	-40	--	mA
Drive Output Current	I <sub>OL</sub>	V <sub>DD</sub> =5.0V, V <sub>O</sub> =0.7V	--	-10	--	mA
Buzzer Output Current	I <sub>OH</sub>	V <sub>DD</sub> =5.0V, V <sub>O</sub> =3.5V	--	5	--	mA
Oscillated Frequency	f <sub>osc</sub>		--	455	--	kHz

PIN CONFIGURATION



## PIN DESCRIPTION

SDIP-24 (1)	SDIP-24 (2)	Symbol	Function
--	1	LIGHT	Light control key input
1	2	DI	Remote control sensor input
2	3	OFF	OFF control key input, shared with LED scan output
3	4	TIMER	TIMER control key input and LED scan output
4	5	SPEED	SPEED key control input and LED scan output
5	6	MODE	Normal wind and LED scan output (fan operating, the LED will on; fan stop, the LED will off.)
6	7	COM1	Consumer code C2 and LED scan common port
7	8	COM2	Consumer code C1 and LED scan common port
8	9	COM3	LED scan common port
9	10	SWING1	SWING1 key control input and consumer code select diode connect port
10	11	SWING2	SWING2 key control input and consumer code select diode connect port
11	12	SHO2	Swing2 drive output, level swing
14	13	SHO1	Swing1 drive output, level swing
15	14	FAN	Cold wind drive output ,for consumer select ( in working mode one)
16	15	STR	Strong wind drive output
17	16	LOW	Low wind drive output
18	17	VDD	Positive power
12,13, 19	18	NC	NC
20	19	BUZ	Buzzer drive output
21	20	OSCO	455kHz oscillator input/output port
22	21	OSCI	
23	22	SELECT	Working mode select pin ; Connect Vss: mode one; non-connect: mode two.
24	23	Vss	Negative power
--	24	LTO	Light drive output

## FUNCTION DESCRIPTION

SC8204 is an electronic fan control IC, it use electronic touch switch and timer replace the traditional switch and timer. SC8204 improved nature wind and sleep wind mode expect hold the traditional fan functions, and improved a swing control and light control function. SC8204 cooperate with the SC5104 encode IC; implement the remote control of the fan.

### “OFF” key

It used to shut down the power of motor, fan stop operating, and the control circuit resume static state, and stored the operate mode of power on. When started next time, it is activated into the operation mode stored in the operation memory. (Timer will not be stored)

### “ON/SPEED” key:

It start fan if pressed when fan is off.

Mode one: It turns on the fan with cold wind start-up. If successive pressing of ON/SPEED key, it will operate as low wind, strong wind, cold wind, low wind, strong wind .....go along with cycle. Or the operation mode stored in the operating memory. LED will on/off with key.

Mode two: It turns on the fan with low wind start-up .If successive pressing of ON/SPEED key, it will operate as strong wind, low wind, strong wind .....go along with cycle. LED will on/off with key.

### Separating “ON/OFF” key (extension K)

It start fan if pressed when fan is off.

Mode one: It turns on the fan with cold wind start-up. Cold wind LED will on.

Mode two: It turns on the fan with low wind start-up .Low wind LED will on.

It turn off the power when fan is on, fan stopped, control circuit resume static state, and stored the operate mode into memory. When the fan turn on next time, it start in the operate mode in the memory (timer will not be stored).

### Separating “SPEED” key (extension K)

SPEED key is used to turn on the fan change speed of the fan.

Mode one: When successive pressing of SPEED key, it will operate as low wind, strong wind, cold wind, low wind, strong wind .....go along with cycle. LED will on/off with key.

Mode two: When successive pressing of SPEED key, it will operate as low wind, strong wind, low wind, strong wind .....go along with cycle. LED will on/off with key.

### “WORKING MODE” select pin (extension F)

(Note: The consumer may connect Vss or disconnect anything to select working mode in PCB.)

It used to select the working mode. Two working mode selectable.

Working mode one (SELECT pin connect to Vss): press “ON/OFF” key or “ON/SPEED”, Buzzer output

“Bi-Bi”, pin” FAN” output to control cold assistant part, and always output. (Cold wind LED will on.)The “FAN” hasn't output, until off 30 second after. The “FAN” output has nothing to do with fan working. Follow successive pressing of “SPEED” or “ON/SPEED” key, it will operate as low wind, strong wind, cold wind, low wind, strong wind..... go along with cycle. LED will on/off with key.

Working mode two(SELECT pin disconnect anything): press “ON/OFF” key or “ON/SPEED” ,low wind start-up, follow successive pressing of “SPEED” or “ON/SPEED” key, it will operate as strong wind, low wind, strong wind, strong wind ..... go along with cycle. LED will on/off with key.

“TIMER” key:

This key used to set the preset off time.

Type mark with “A4” means have four section time output (0.5, 1, 2, 4hours) accumulated.

Type mark with “N4” means have four section time output (0.5, 1, 2, 4hours) non-accumulated.

Type mark with “N3” means have three section time output (1, 2, 4 hours) non-accumulated.

Type mark with “N8” means have four section time output (1, 2, 4, 8 hours) non-accumulated.

When fan is in the time mode, LED will indicate the remain time, means the fan will stop after the display time.

“SWING1” key:

If pressed when fan is in the operate mode, it can control the fan swing, it is invalid when fan stopped.

“SWING2” key: (the same as “SWING1” key)

If pressed when fan is in the operate mode, it can control the fan swing, it is invalid when fan stopped.

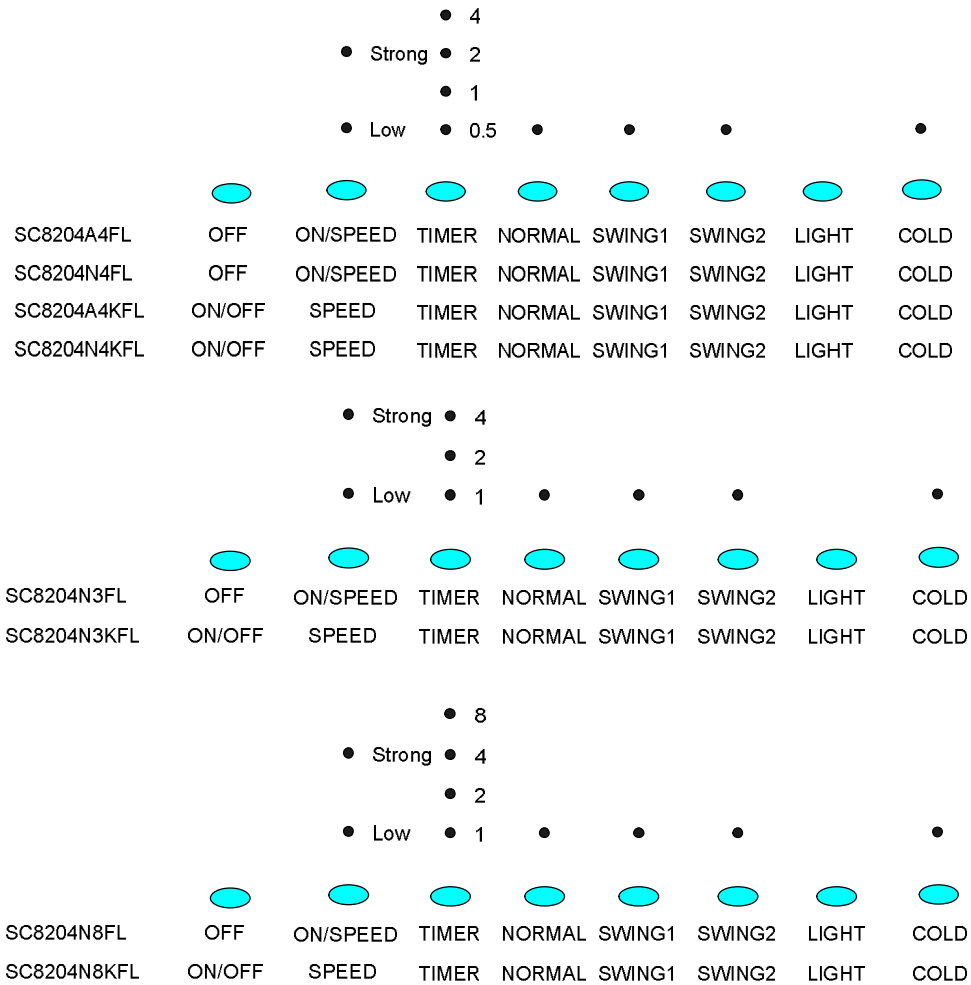
“LIGHT” key:

It is used to control light, is independent of the operate mode. “OFF” and “ON/OFF” key too control light.

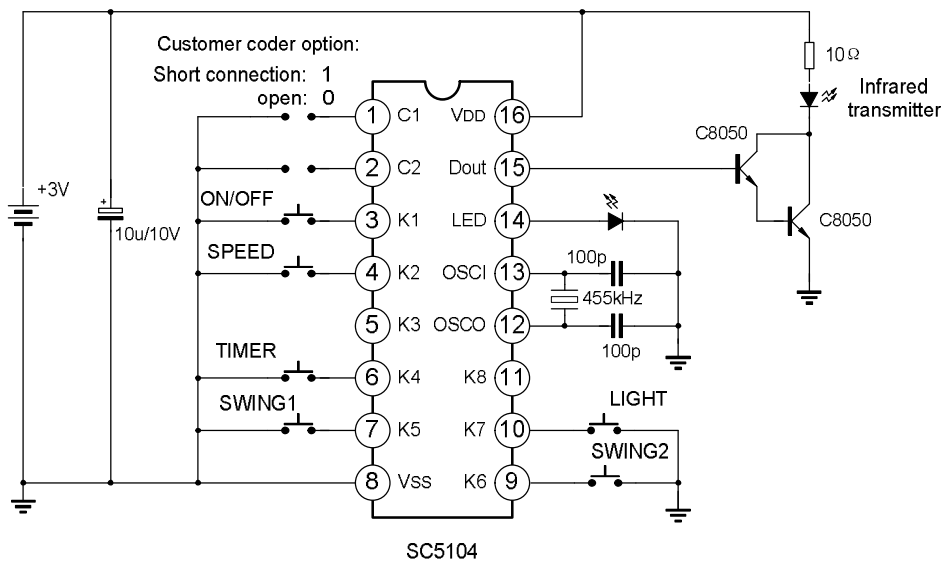
Buzzer output:

- a) Turn on send out “Bi-Bi”
- b) Turn off send out “Bi-“
- c) Other available operate (include key press and remote controller receive) send out “Bi”

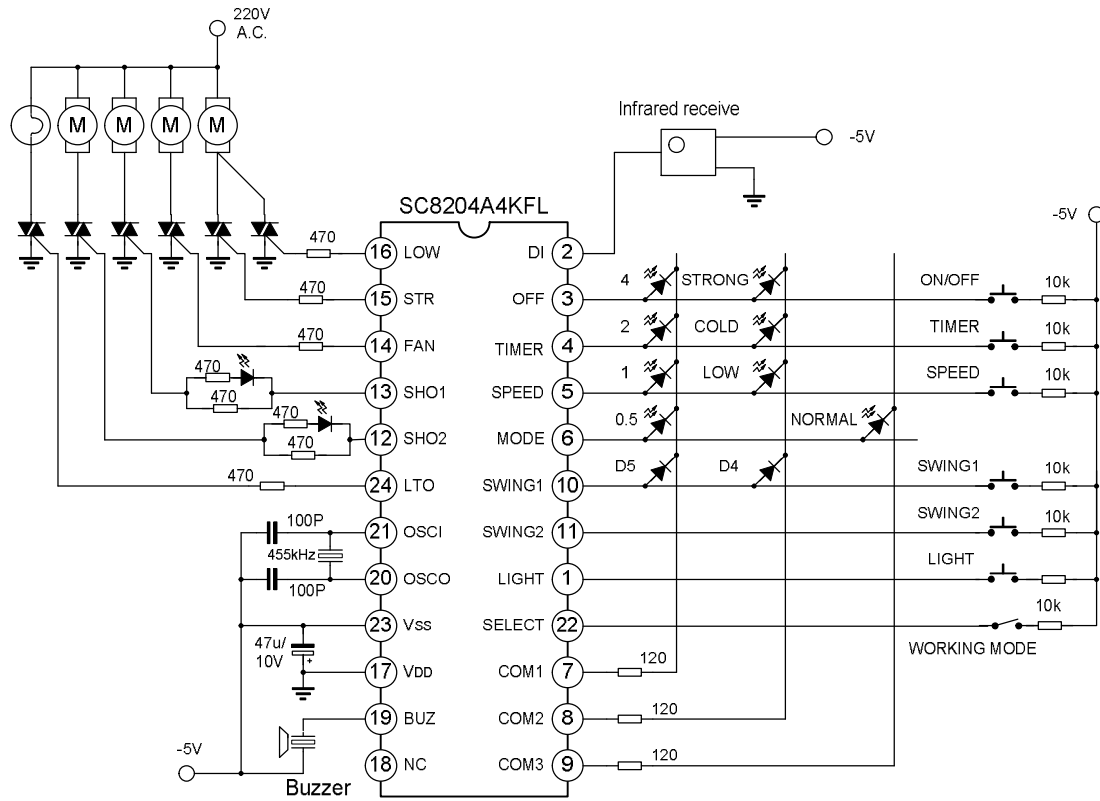
CONTROL PANEL



APPLICATION CIRCUIT (Transmitter controller unit)



TYPICAL APPLICATION CIRCUIT (Receive control unit)

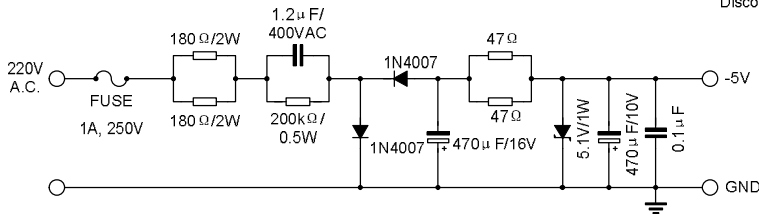


Note: D4,D5 bit customer code C1,C2

corresponding SC5104 customer code C 1,C2

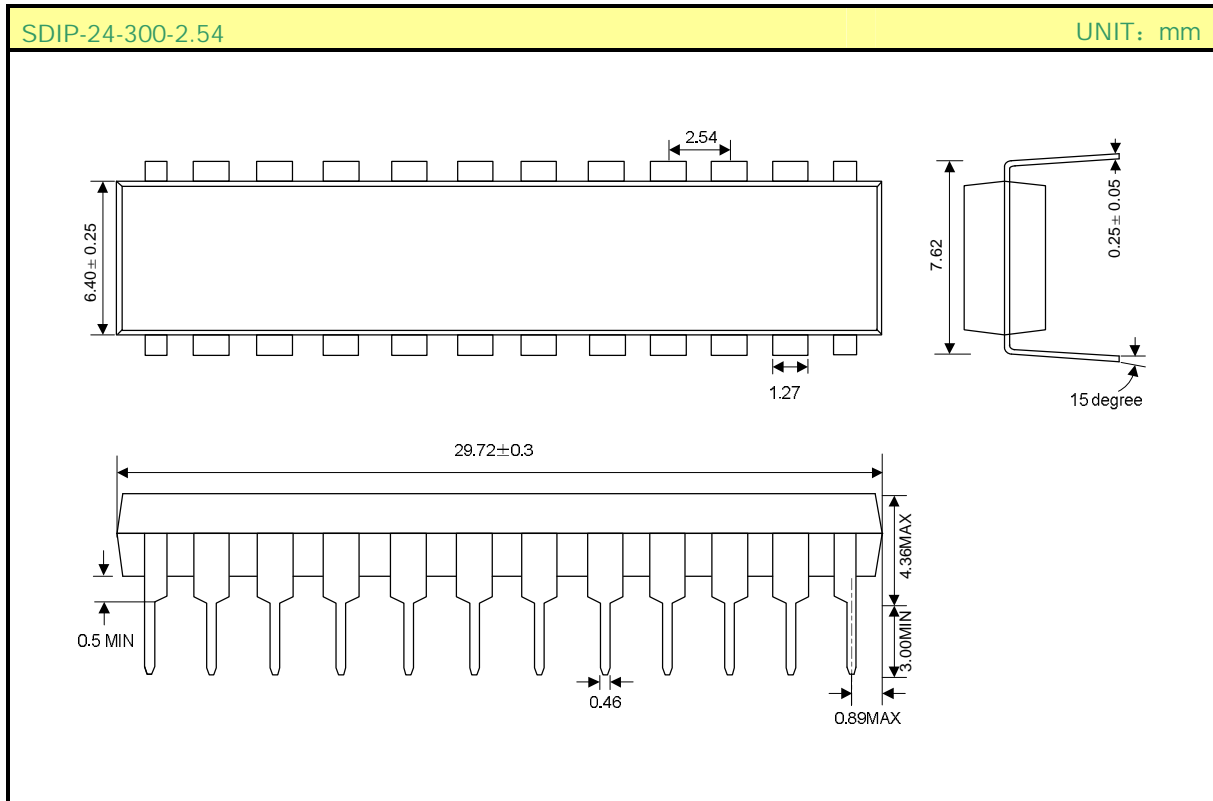
Connect diode: 1  
Disconnect diode: 0.

Power circuit





PACKAGE OUTLINE



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.