

## FAN CONTROLLER

### Features

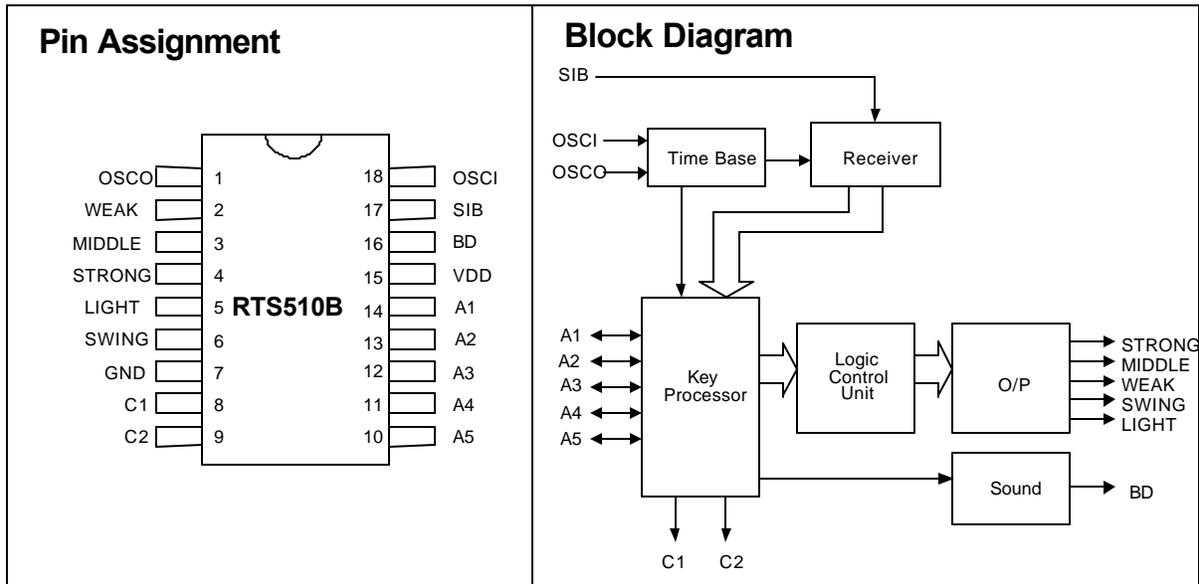
- Wide operating voltage range: 3.5V - 5.5V
- Use 32768Hz quartz crystal as time base
- Two wind modes:
  - Constant-speed wind, Rhythmical wind
- Three wind grades for each wind mode:
  - Soft, Medium & Strong wind
- Special protections preventing key-in mistakes
- Power-ON Reset
- One key controlling fan "Swinging" and "Lighting" functions
- Low power consumption
- Combined with RTS715-2, which functions as an infrared remote controller of fan.

### General Description

The fan controller RTS510B, embedded with a remote control receiver, is a CMOS LSI designed for use in fan applications. By combining RTS510B with RTS715-2, the infrared transmitter, this remote control system for fans comes with two wind modes, three wind grades, and six timing functions. In the Rhythmical wind mode, the wind speed is programmable. For example, it can be soft-medium--strong--soft etc., according to the program. In the Sleep wind mode, the wind speed automatically decreases to help fall asleep. There are six types of fan controller as the following: (bonding option 1, option 2, and option 3).

Function Type \	Timer	Bonding Option 1	Bonding Option 2	Bonding Option 3	Swing & Light, Key Control
RTS510B-000	0.5→1→2→4 summable	F	F	GND	Two dependent* swing & light with one key control
RTS510B-010	1→2→4→8 summable	F	VDD	GND	

\* Dependent: only when fan controller RTS510B is initiated, "light" functions only when "swing" is working.



## Absolute Maximum Ratings

DC Supply Voltage.....	3.5V to 5.5V
Input/Output Voltage.....	GND -0.2V to VDD + 0.2V
Operating temperature.....	-10 C to 60 C
Storage Temperature.....	-25 C to 125 C

### Comments\*

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 values 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

(VDD=4.5V, GND=0V, T<sub>A</sub>=25 C, unless otherwise specified.)

Parameter	Symbol	Min.	Typ.	Max.	Conditions
Operating Voltage	VDD	3.5V	4.5V	5.5V	
Current on TRIAC Sinking Pin	I <sub>TRIAC</sub>	-	7mA	-	V <sub>OL</sub> = 0.8V
Current on LED Driver Pin	I <sub>DRIVING</sub>	-	9mA	-	V <sub>OH</sub> = 2.0V
Current on C1, C2 pin	I <sub>SINKING</sub>	-	13mA	-	V <sub>OL</sub> = 0.8V
Current on BD pin	I <sub>DRIVING</sub> & I <sub>SINKING</sub>	-	4mA	-	V <sub>OH</sub> = 2.0V
Crystal Oscillator Frequency	F <sub>REQ.</sub>	-	32768Hz	-	

## Operation Function

There are two ways of sending the control signals: from the keypad of the control panel and the infrared-ray receiving module. There are six operations on these signal controllers: Turn off, Wind speed, Wind mode, Timer setting, Head swing, and Lighting. When control signals other than "Turn off" are received, the control system echos an "Beep" sound. If any two or more keys are simultaneously pressed, neither of the corresponding functions will be activated. If any key is pressed over 6 seconds, the fan controller will automatically echo four "Beep" sounds for warning and then power Off. The "Speed" start the fan, initializing the speed at "Soft wind". Pushing the "Speed" key, the sequence of the wind speed follows "Soft → Medium → Strong...". The sequence of the "Mode" follows "Constant → Rhythmical → Constant". Shown in the later section is the detailed "Speed" & "Mode" function graph:

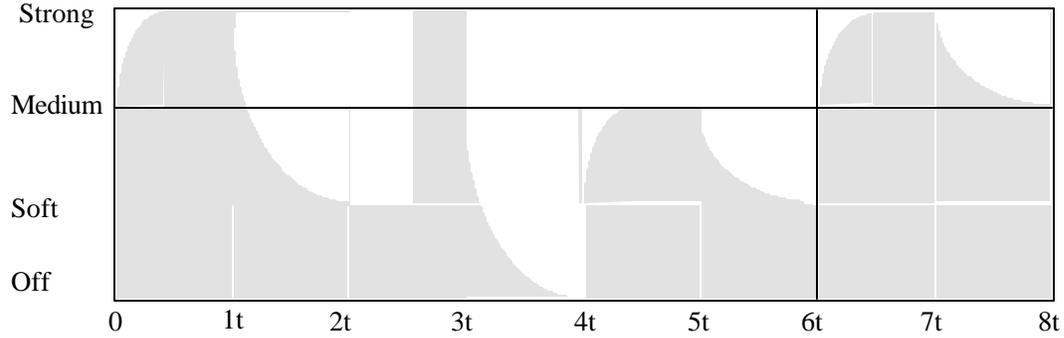
**Note: Strong wind begins to move one second before soft wind starts.**

## Pin Description

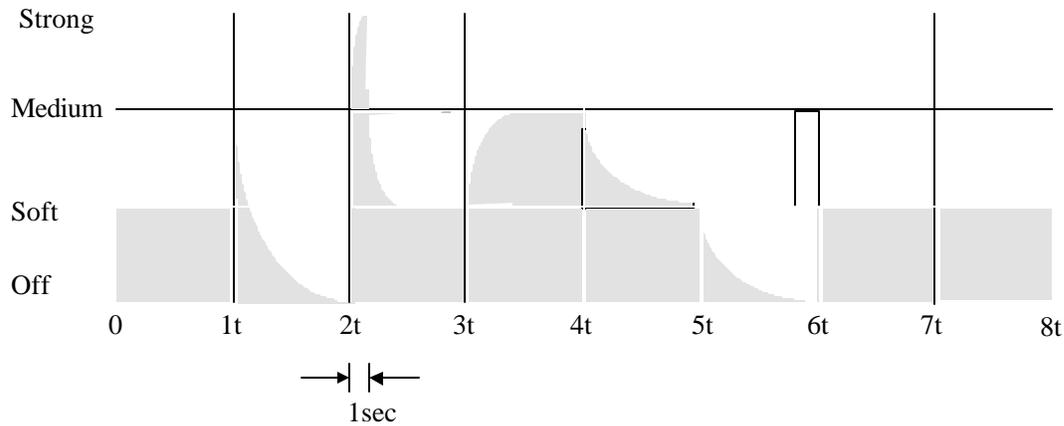
Pin No.	Designation	Description
1	OSCO	32768Hz crystal oscillator output pin
2	WEAK	Soft wind (driving TRIAC)
3	MIDDLE	Medium wind (driving TRIAC)
4	STRONG	Strong wind (driving TRIAC)
5	LIGHT	Lamp (driving TRIAC)
6	SWING	Swing head output (driving TRIAC)
7	GND	Negative power supply
8	C1	LED pattern common pin 1
9	C2	LED pattern common pin 2
10	A5	Enable swing head, toggle function (low active) and LED output
11	A4	Time setting (low active) and LED output
12	A3	Wind mode selector (low active) and LED output
13	A2	Wind speed selector (low active) and LED output
14	A1	Low active, all function and LED output will be "OFF"
15	VDD	Positive power supply
16	BD	Sound output
17	SIB	Remote control signal input
18	OSCI	32768Hz crystal oscillator input pin

**Rhythmical Wind mode programmed with speed (t=6 sec)**

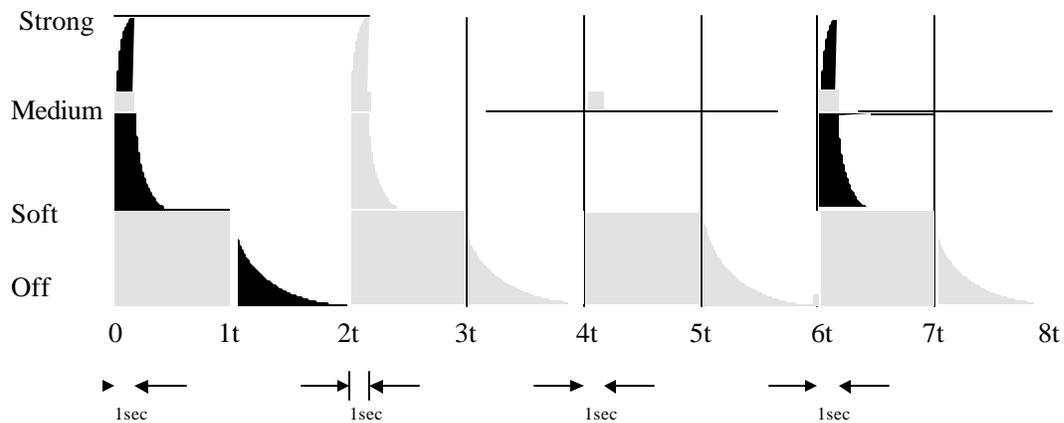
**Strong-Rhythmical Wind**



**Medium-Rhythmical Wind**

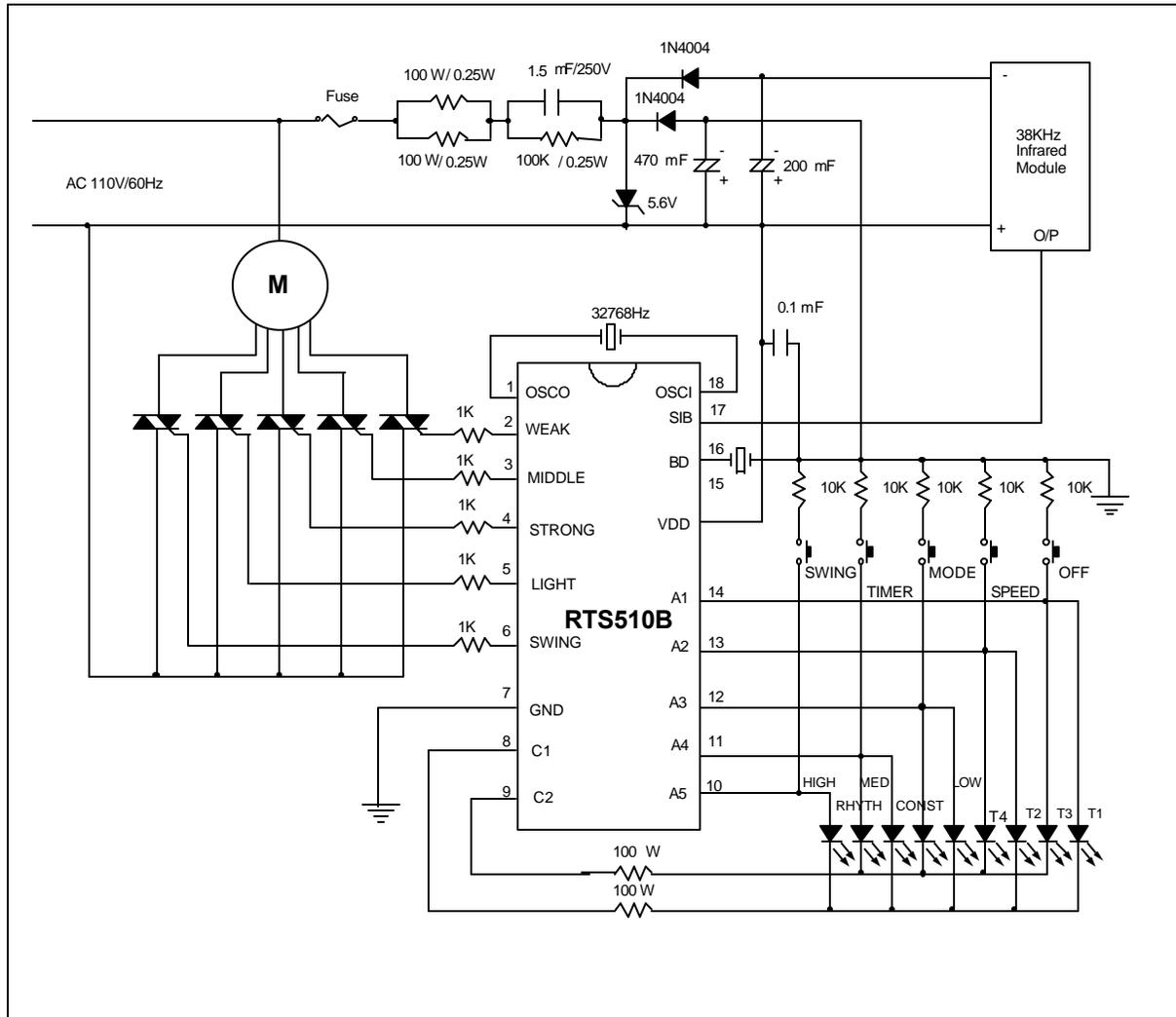


**Soft-Rhythmical Wind**

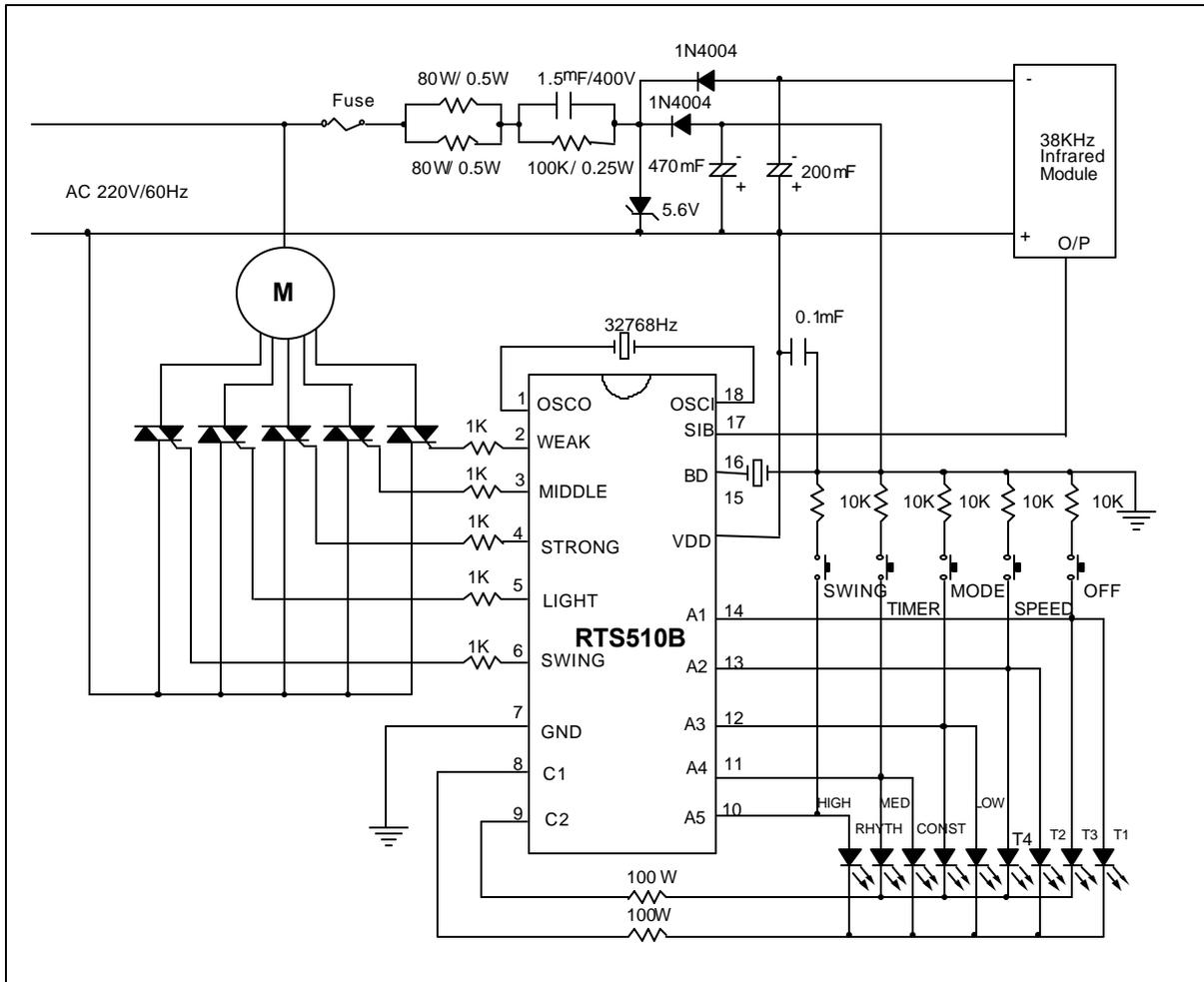


**Application Circuit**

1.



2.



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