

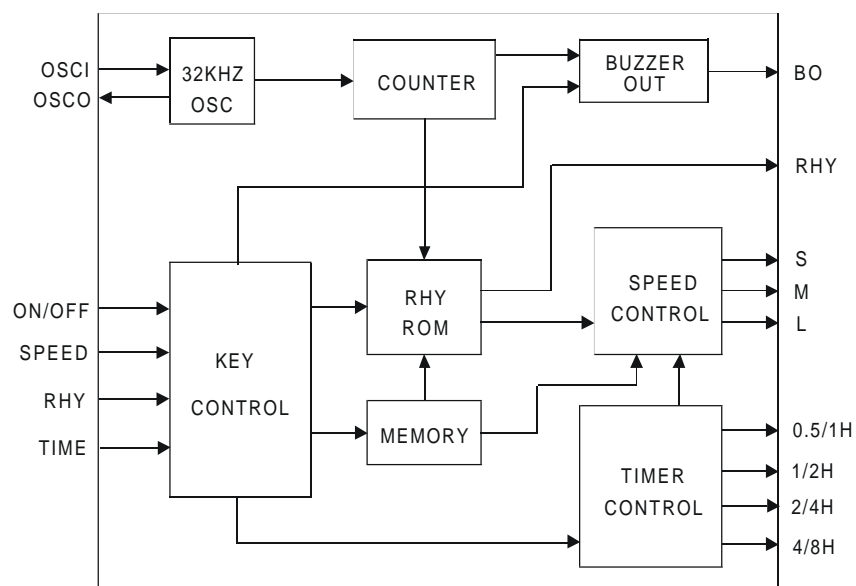
General Description :

CP8109 IC is the control IC of fan without remote , built-in ON/OFF, SPEED, TIME, RHY 4keys, and 8 LEDs to display the status of speed & timer.

Features :

- 2 Winds : Normal, RHY
- 4 Keys : ON/OFF, SPEED, TIME, RHY
- 3 Speeds available : Low (L), Medium (M), Strong (S)
- 2 timer setting : timer hours can be selected by OPTION, 0.5H, 1H, 2H, 4H or 1H, 2H, 4H, 8H mode
- 8 LEDs : display speeds : L, M, S, RHY ; time setting : 0.5/1H, 1/2H, 2/4H, 4/8H
- 3 outputs : 3 speeds: L, M, S
- ON/OFF KEY : memorize the last status, except timer
- 47 seconds RHY circulation
- W/buzzer output

Block Diagram :



Function :

A. ON/OFF key :

1ST pressing on ON/OFF is ON, and 2nd pressing is OFF. Each pressing makes buzzer bi

B. SPEED key :

When fan works, it will automatically start at SPEED L with the light of LED L. Once SPEED key pressed again, from SPEED L to SPEED M, LED L lights off & LED M lights on. The next pressing is from SPEED M to SPEED S, and the following from SPEED S to SPEED L. The action L → M → S → L → M, accompanying with LED display & buzzer bi, makes a circulation. Each pressing makes buzzer bi a sound.

C. TIME key :

When TIME pressed, LED 0.5H (1H) lights on as 0.5hr (1hr) time setting. Pressed again, LED 0.5H (1H) lights off & LED 1H (2H) lights on as 1 (2) hrs time setting. Timer action as same as LED display, OFF 0.5H(1H) 1H(2H) 2H(4H) 4H(8H) OFF, makes a cycle. Each pressing makes the buzzer bi a sound. LED displays the remaining time. 2 (4) hrs later, if timer is set at 4H (8H), LED 2H (4H) lights on & LED 4H (8H) lights off. It means 2 (4) hrs left. Then, after 1(2) hr, LED 1H (2H) lights on & 2H (4H) off; It means 0.5 (1) hr left. After the last 0.5 (1) hr, fan and all LEDs light.

D. RHY key :

When fan is ON, it is in status of Normal wind. When RHY key pressed, it turns to RHY status, accompanied with RHY LED light ON. When pressed again, it turns to OFF & RHY LED lights OFF. Each pressing makes the buzzer bi a sound.

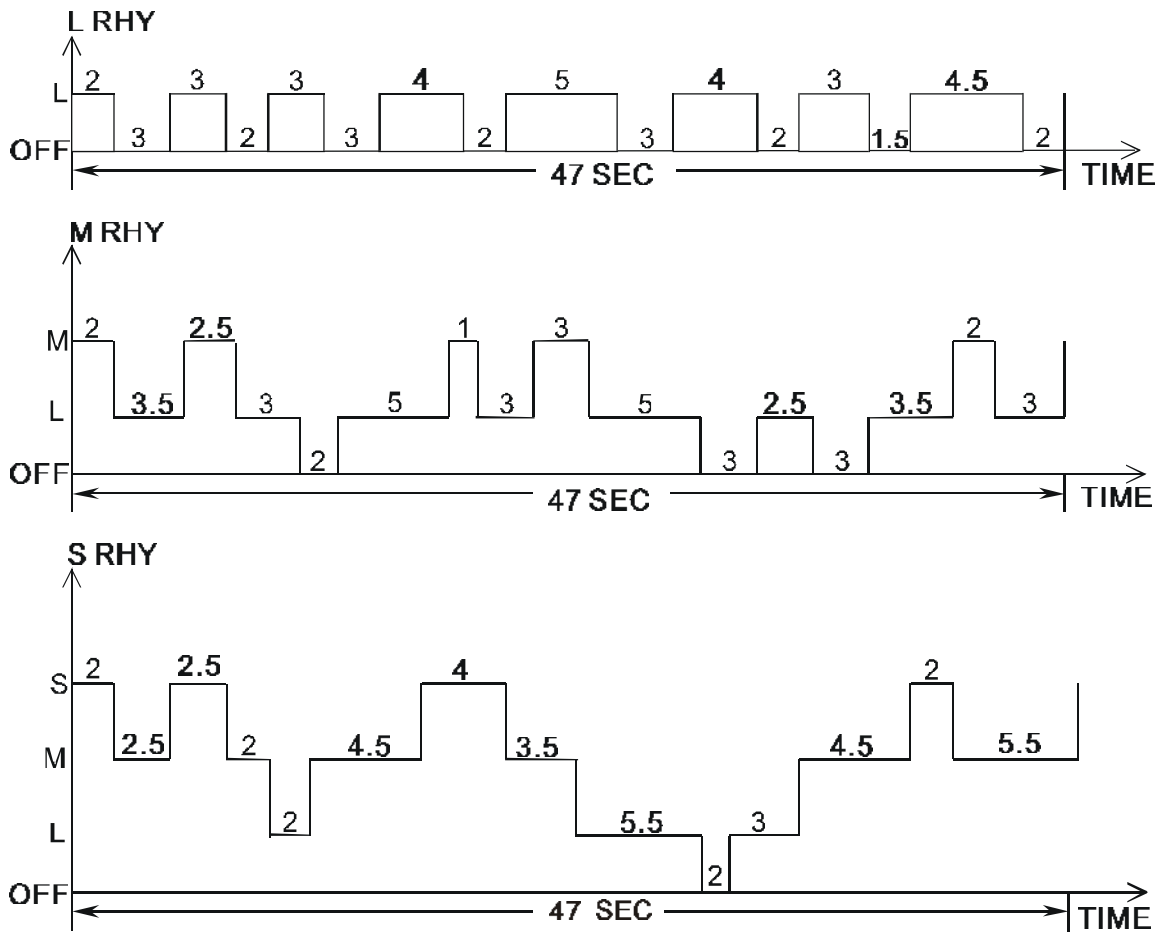
E. BUZZER bi: 4KHz

F. Oscillation frequency: 32.768KHZ。

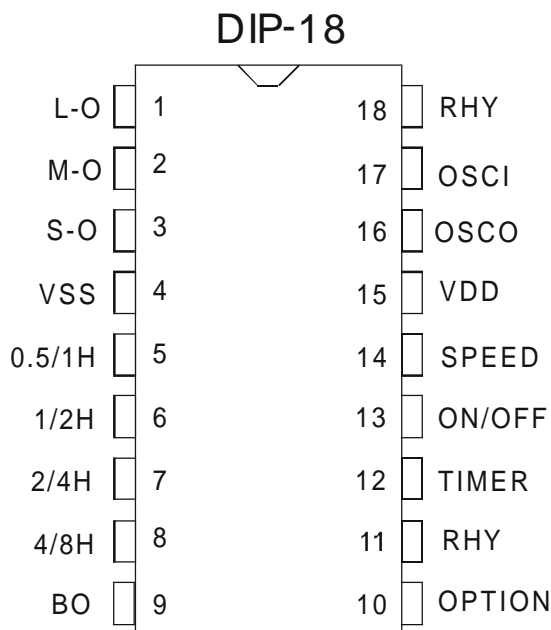
RHY Mode :

In RHY mode, LED RHY ON displays the present RHY status. LED displaying the speed simultaneously changes with SPEED.

Speed cycle of RHY is as follows:



Package Diagram :



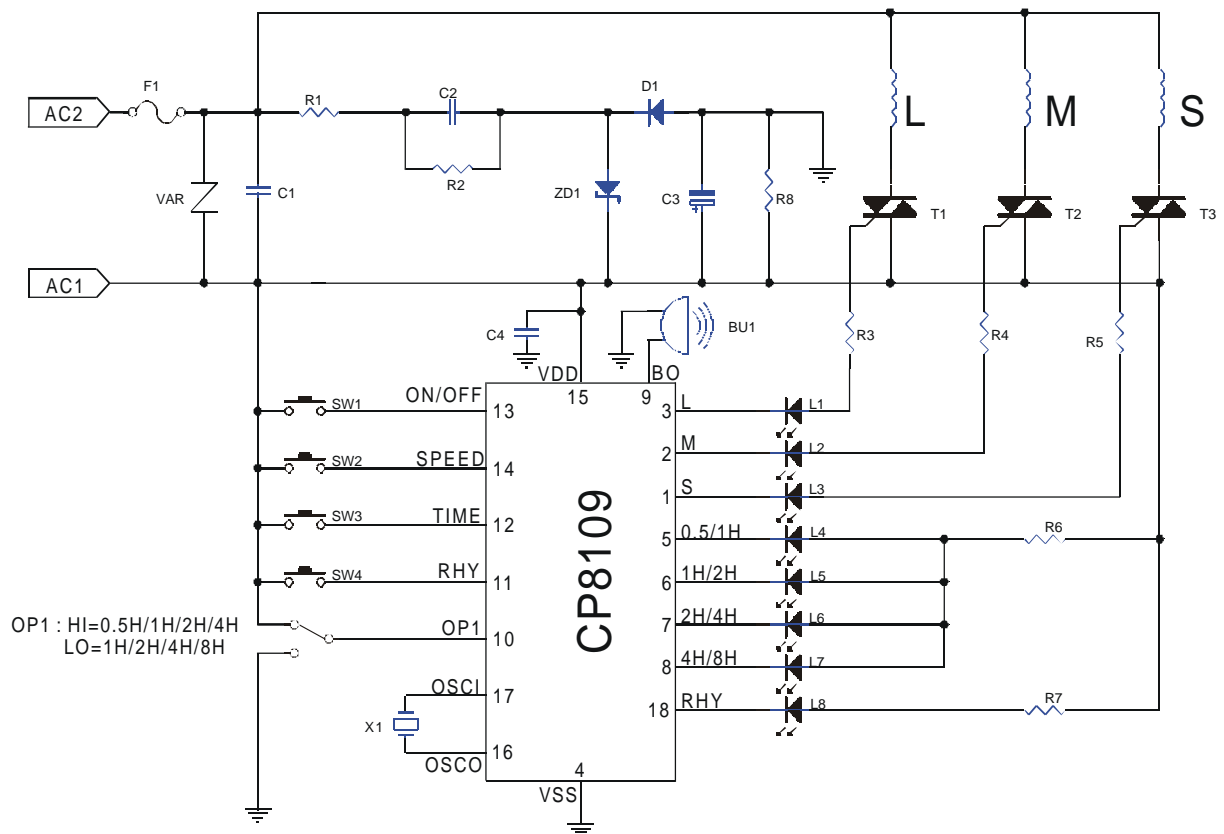
DC Characteristics :

PARAMETER	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
VDD	-----	4.5	5	5.5	VOLT
OPERATING CURRENT (IDD)	NO LOAD	-----	65	80	uA
PULL HIGH IMPEDENCE	VDD = 5V	22K	36K	54K	Ohm
PULL LOW IMPEDENCE	VDD = 5V	7K	9K	15K	Ohm
BO FREQUENCY	-----	-----	4096	-----	Hz
SINK CURRENT	VDD = 5V	-----	16	-----	mA
S, M, L	VO = 1V	-----	10	-----	mA
DRIVE CURRENT	VDD = 5V	-----	17	-----	mA

Pin Description :

PIN NAME	PIN NUMBER	I/O	FUNCTION
LED S	1	O	S SPEED LED OUTPUT
LED M	2	O	M SPEED LED OUTPUT
LED L	3	O	L SPEED LED OUTPUT
VSS	4	P	POWER PIN (-)
LED 0.5/1H	5	O	TIMER(0.5/1H) LED OUTPUT
LED 1/2H	6	O	TIMER(1/2H) LED OUTPUT
LED 2/4H	7	O	TIMER(2/4H) LED OUTPUT
LED 4/8H	8	O	TIMER(4/8H) LED OUTPUT
BO	9	O	BUZZER OUTPUT 4KHz
OPTION	10	I	TIMER MODE OPTION
RHY	11	I	RHY INPUT KEY
TIMER	12	I	TIMER INPUT KEY
ON/OFF	13	I	ON/OFF INPUT KEY
SPEED	14	I	SPEED INPUT KEY
VDD	15	P	POWER PIN (+)
OSCO	16	O	CRYSTAL 32.768KHz
OSCI	17	I	CRYSTAL 32.768KHz
LED RHY	18	O	RHY LED OUTPUT

Typical application Circuit (for reference only) :



Application Circuit BOM (for reference only) :

POWER : 110V		
SPARE PARTS	SPEC PARTS	LOCATION
VARISTOR	07D221K	VAR
CAPACITOR	0.1 μ f	C4
CAPACITOR	2.2 μ F / 250V	C2
CAPACITOR	0.1 μ F / 250V	C1
ELECTROLYTIC CAPACITOR	470 μ F / 10V	C3
RESISTOR	47 / 2W	R1
RESISTOR	100K / 0.25W	R2
RESISTOR	5.1K / 0.25W	R8
RESISTOR	1.2K / 0.25W	R6,R7
RESISTOR	470 / 0.25W	R4~R10
DIODE	1N4004	D1
ZENER DIODE	5.6V / 0.5W	ZD1
LED	as requirement	L1~L8
FUSE	1A / 125V	F1
CRYSTAL OSCILLATOR	32.768 KHZ	X1
BUZZER	4 KHZ	BU1
TACT SWITCH	as requirement	SW1~SW4
TRIAC	IGT = 3~5 mA	T1~T3
IC	CP8109	U1