

BA8206 BA4New applications of remote control fan controllers

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summary:BA8206 BA4Dedicated controllers for remote-controlled fans have been widely used in various series of fan remote controls; however,BA8206 BA4It can also be used for purposes other than fan remote control. The article introduces...BA8206 BA4existPTC Application schemes for air heaters and integrated timer/speed controllers for home use are presented, along with actual application circuits.

Keywords:Remote control controller for fans and heaters in home appliancesBA8206 BA4

1 BA8206 BA4Introduction

BA8206 BA4useDIP-18Pin-mounted enclosure. (Image)1yesBA8206 BA4Controller pinout diagram, table1yesBA8206 BA4 Pin function descriptions,BA8206 BA4The main characteristic parameters are as follows:

surface1 BA8206 BA4Pin functions

foot position	name	I/O	Function Description	foot position	name	I/O	Function Description
1	DI	I	Remote signal input	10	SHO	O	Head oscillating drive output terminal
2	OFF	I/O	Power button or power/short key input andledScan output terminal	11	STRONG	O	Strong wind drive output end
3	TIMER	I/O	Timer key input andledScan output terminal	12	MEDIUM	O	Stroke drive output terminal
4	SPEED	I/O	Wind speed key input andledScan output terminal	13	LOW	O	Weak wind drive output end
5	MODE	I/O	Wind-type key input andledScan output terminal	14	VDD	-	Positive power supply
6	COM1	O	User codeC1Selection andledScan public terminal	15	BUZ	O	Buzzer driver output terminal
7	COM2	O	User codeC2Selection andledScan public terminal	16	OSC2	O	Crystal oscillator output terminal
8	COM3	O	ledScan public terminal	17	OSC1	I	Crystal input terminal
9	SWING	I	Swing key input and user code selection diode connection terminal	18	VSS	-	negative power supply

- Power supply voltage: -0.3V~6V;
 - Input/output voltage:Vss-0.3~VDD+0.3V;
 - Power loss:500mW;
 - Operating temperature: -10~70°C;
 - Storage temperature: -40~125°C.
- in addition,BA8206 BA4It also has the following features;
- It has normal wind, natural wind, sleep wind, and strong, medium, and weak wind.
- Wind speed;
- It has a timer mode: it can be used in timer mode.0.5~7.5Hourly cumulative count hour;

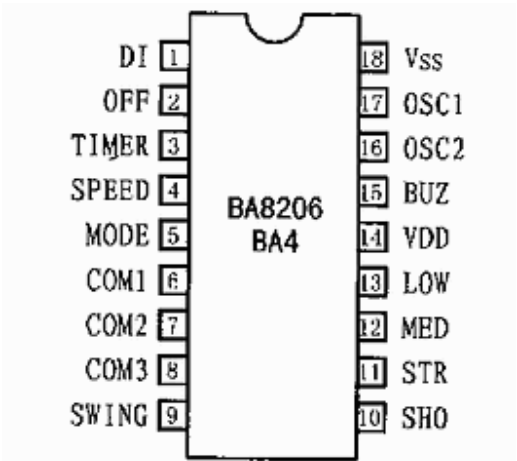
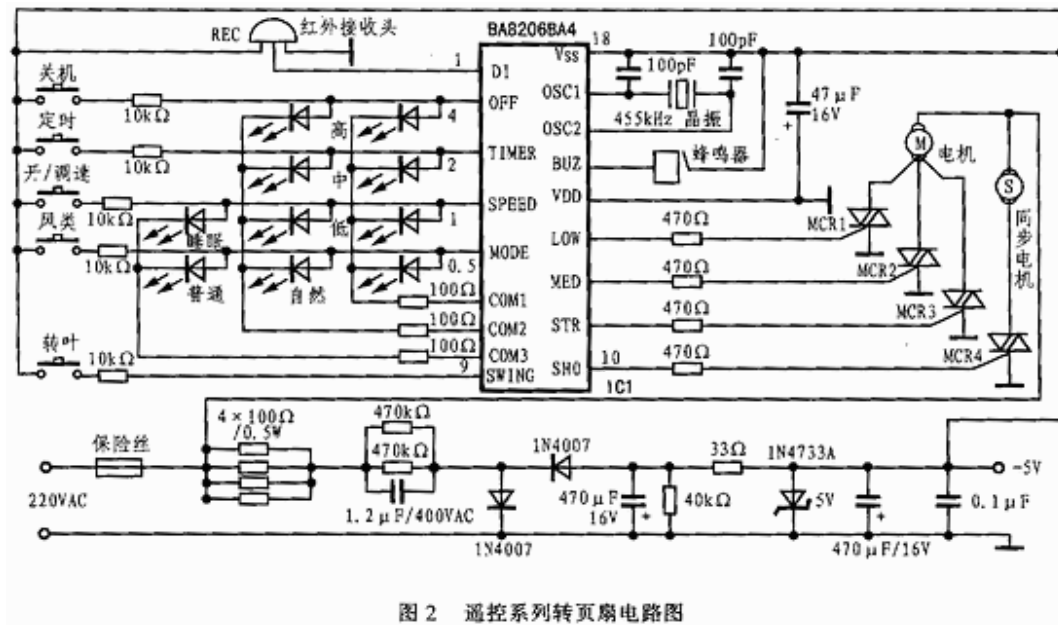


图 1 BA8206 BA4 的引脚说明

- It has a set of non-independent oscillating head (rotating blade) control functions;
- Built-in buzzer sound: Power on "Bi-Bi" Shut down "Bi-" Other operations "Bi";
- 455kHz oscillator serves as the input to the oscillation circuit.
- Stroke start-up is adopted;
- It has a memory function: all states before shutdown are remembered, eliminating the hassle of resetting the operating mode every time you turn it on.
- BA5104 Encoder matching enables full-function remote control;
- 2 User code setting;
- Pressing the button more than 6 times Instant Bi-Bi-Bi-Bi Warning sound.



2 BA8206 BA4Working principle

BA8206 BA4It was once the core control component of Gree's remote control system oscillating fan, and the excellent operation of various fans costing nearly 100 yuan has fully proven its effectiveness. BA8206 BA4To demonstrate the practicality and reliability of the application circuit, its working principle will be introduced below using a practical circuit as an example; Figure 2 This is the circuit diagram of a Gree brand series rotating fan.

The entire line is based on BA8206 BA4 (hereinafter referred to as IC1). The core is a capacitor-based step-down circuit, where the power supply section uses a common capacitor-based step-down circuit to provide power to the integrated circuit. 5V Operating voltage.

In the figure 2 middle, IC1 The 14 pin D1 An external infrared receiver is connected to the terminal to receive signals from the remote control, such as power off, timer, on/off/adjustment, fan speed, and blade control. 14 Pin 1 is the positive power supply terminal. 18 The pin is the negative power supply terminal.

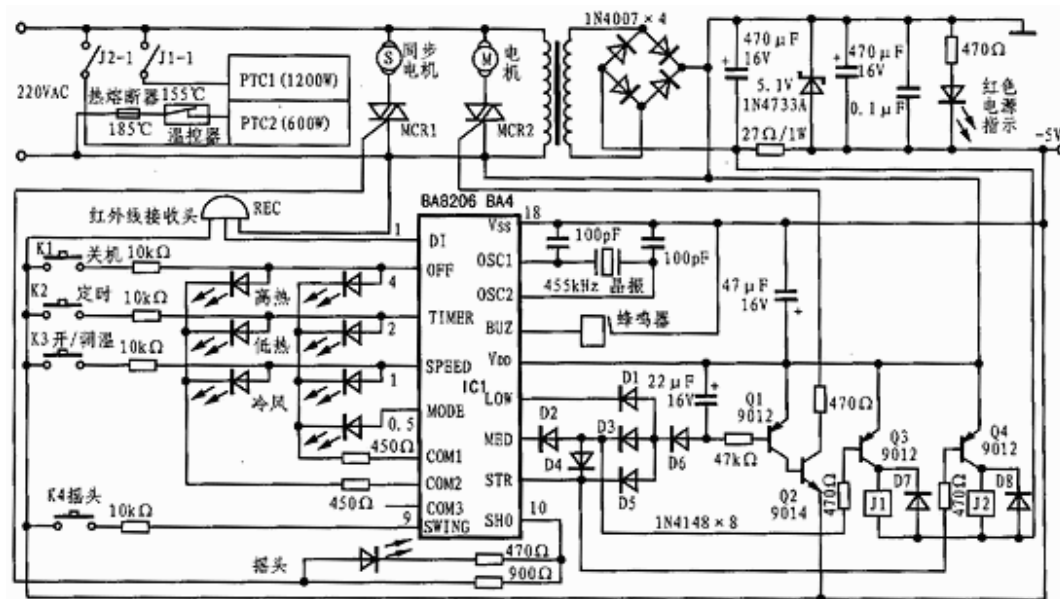


图3 PTC暖气机电路原理图

IC1The16,17Foot outside455kHzCrystal oscillator and2individual100pFCapacitors, together with internal capacitors, can form a clock oscillation circuit; the first15foot BUZAn external buzzer is connected at the end, whenIC1Upon receiving a remote control or programmable operation signal, issue a "BI"The sound alerts the user that the operation is effective.

IC1The2The pins are respectively the input terminals for programmable operation shutdown, timer, on/off speed adjustment, and fan type signals, and are connected to...6,7,8Foot Composition4x3 MatrixledThe function display circuit displays the fan's operating status, including time, wind type, and wind speed.

IC1The9The foot is the input terminal for the programmable blade rotation signal.

IC1The10~13This pin is the output terminal for the high, medium, and low speed functions of the blade and fan motor; it is active low.

3 BA8206 BA4New usage

3.1existPTCAplications in heating systems

BA8206 BA4It is designed specifically for fans. applicationICHowever, it can still be applied to

Other small home appliance sectors. Of course, this requires a different approach.

BA8206 BA4Make some adjustments, diagram3yes

BA8206 BA4ForPTCCircuit diagram of a space heater.

ShouldPTCwarm air blower has0.5~7.5Hourly timer shutdown, louvered air supply, single cold air supply,

Features such as high-heat air supply, as shown in the diagram3You can watch it in the middle.

The remote control receiver, oscillation circuit, buzzer, timing operation, and display section are exactly the same as the aforementioned fan circuit. The working principle of the oscillating blade synchronous motor is also exactly the same as the aforementioned rotary blade stepper motor. The aforementioned wind type selection function is...PTCThe heater is completely unused.

PTOnce a heater is turned on, regardless of its operating state, the fan motor must continuously blow air. Dry burning without airflow will cause thermal deformation and damage to the related plastic parts. The method to achieve this is shown in the diagram.3middleIC1The11~13The pin can be made of three diodes.D1,D3,D5This forms a three-AND gate circuit. Its working principle is: pressing the power/temperature control button...K3The heater starts and enters cold air operation mode.IC1The13footLOW

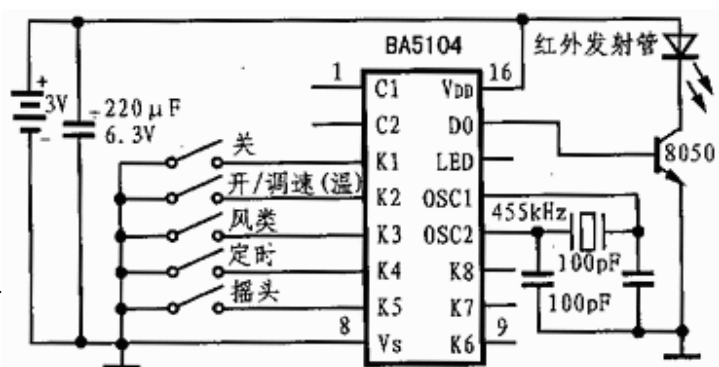


图4 遥控器电路原理图

The terminal outputs a low level, which is passed through a three-AND gate.D1~D6Branch circuit makes transistorQ1 Conductive,Q2Saturation and triggering of the thyristorMCR2When the circuit is turned on, the fan motor is powered on and the LED for cooling air is turned on.

Press the on/temperature control button againK3The heater enters low-heat air supply mode.IC1The13When the pin returns to high level, the first12footMEDThe terminal outputs a low level, which passes through a three-AND gate.D2—D3—D6Branch maintains thyristorMCR2One path is activated, maintaining the operation of the fan motor; the other path is activated through a two-AND gate.D2Branch circuit to transistorQ3The base makesQ3On, relay1When energized, it engages, and its normally open contacts... J1-1 Attraction,PTC1(1200WWhen the power is turned on for heating, the low-heat LED conducts, thus achieving the low-heat air supply function.PTCThe heater is only equivalent to one1200WThe heater.

Press the power/temperature control button for the third timeK3The heater enters high-heat air supply mode.IC1The12When the pin returns to high level, the first1footSTR The terminal outputs a low level, which is then divided into three control paths, one of which passes through a three-AND gate.D5,D6One branch keeps the fan motor running, and the other goes through a two-AND gate.D4Branch maintenanceQ3The conduction, i.e., maintaining the relay's operation,J1attraction andPTC1(1200WWhen the transistor is powered on, the third path goes directly to the transistor.Q4base, makingQ4On, relay2When energized, it engages, and its normally open contacts...J2-1Attraction,PTC2(600WWhen the power is applied for heating, the high-heat LEDs conduct, and at this time, the two groups...PTCSimultaneous heating is equivalent to one1800WThe heater.

Continue pressing the on/temperature adjustment buttonK3The heater is configured as follows: cold air - hot air - high heat -...The work method is cyclical.

picture4It is a rotating fan andPTCThe electrical schematics for the remote controls of heaters are, in principle, interchangeable; the differences are...PTCThe heater does not have a fan speed selection function. Therefore, if you are using a fan remote to control the heater, be careful not to use the fan speed selection button, as fluctuating natural wind speeds will cause problems. PTCThe inability to operate at its optimal state affects the heating effect, which is also...BA8206 BA4existPTCThe key to understanding the hidden function of airflow in heating systems.

3.2Use integrated timing and adjustment controllers

picture5This is a circuit diagram of a multi-purpose integrated timing and adjustment controller. Using the dedicated fan socket of this controller, not only can fans be controlled in various ways, but other sockets can also be used to control other household appliances such as televisions. In addition to a general socket and a dedicated fan socket, this controller also has dedicated timer power-on and power-off sockets. seatherefore, it can perform a variety of timing control functions.

(1Fan socketXS3

Insert a regular three-speed fan into a dedicated fan socket.XS3Inside, it can achieve nine wind speeds, nine natural wind levels, and nine sleep wind levels.0.5~7.5 Hourly timer shutdown function.

[illegible]

Normally, the TV can be plugged into a regular socket.XS4Enjoy CTV programs ____; XS4Directly with220VParallel connection, unaffected byC1Impact, if a certain

The World Cup is playing late at night, starting in the early morning.3To activate the timer, you can plug the TV power cord into the dedicated timer socket.XS1Continue watching

TV, then choose another time, such as in the evening.9Press the timer buttonK4,choose6Hourly timer (by)12Bit;"4""2"(The indicator light will illuminate), then before going to

sleep, tune the TV channel and press the dedicated button.K2,IC1No.10footSHOTThe terminal outputs a low level, which reaches the transistor.9012base, 9012When the circuit is

open, the relay is energized and engages, the "timing" LED is turned on, and the normally closed contact of the relay is activated,J1-2disconnect,XS1With the power outage, the TV

is off, and users can go to sleep peacefully in the early morning.3Point, timed6The hour ended.IC1No.10footSHOWWhen the terminal returns to a high level, the transistor...9012

When the relay is de-energized, its normally closed contact...J1-2Restore adhesion,XS1The power is turned back on, the TV starts working, and the exciting ball game will wake you

from your sleep without interrupting anything.

If an elderly person in the family has a habit of watching TV while falling asleep and often forgets to turn it off, the TV power plug can be inserted into a dedicated timer switch.XS2In the middle, it is used to press a dedicated button.K2,IC1No.10tfootSHOTThe terminal can output a low level.9012When the circuit is closed, the relay is energized and operates; its normally open contacts...J1-1closure,XS2When the power is on, the TV can be watched normally. It's estimated that the elderly person will watch about [amount missing] before going to bed. 2The TV is 24-hour long and can be set to a timer by pressing the timer button.K4,choose2Hourly timer (by45second-rate,"2"(The indicator light is on), so you can rest assured.2Hours later, the scheduled time arrived.IC1No.2The pin returns to a high level.9012When the relay is de-energized, its normally open contact...J1-1disconnect,XS2Power output; the television is turned off.

This article briefly describes BA8206 BA4of3These are some application examples, and it is believed that over time...BAThis series of fan controllers will be more widely used in the field of small household appliances.