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Products News

# BA8240F/BA8240FS

8×8 cross point mixer for telephone

### Description

The BA8240F/BA8240FS is features line switching and mixing functions for cordless telephone. The BA8240F/FS solve the problem of cross point switch (unsuitable to mixing) or analog switch (with many control signals). The BA8240F/FS consists of 64 switches and mixing resistors and 8 mixing amplifiers. The BA8240F/FS has a built-in shift resistor and latch to operate serial control of each switch.

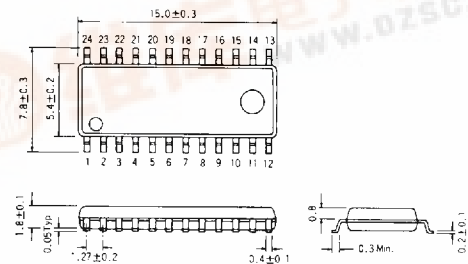
### Features

- 1) 8 input signals are selected and mixed by cross point and connected to 8 pins.
- 2) External reset is available by RST pin.
- 3) Serial binary data input.
- 4) Cascade connection by SOUT pin.
- 5) Bias voltage is supplied by VB pin.  
( $I_{OUT} = -1\text{mA Typ}$ )

### Dimensions

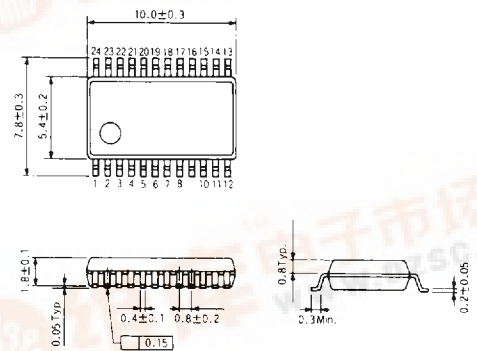
(Unit: mm)

#### BA8240F



#### SOP24

#### BA8240FS (Under development)



#### SSOP-A24

### Application

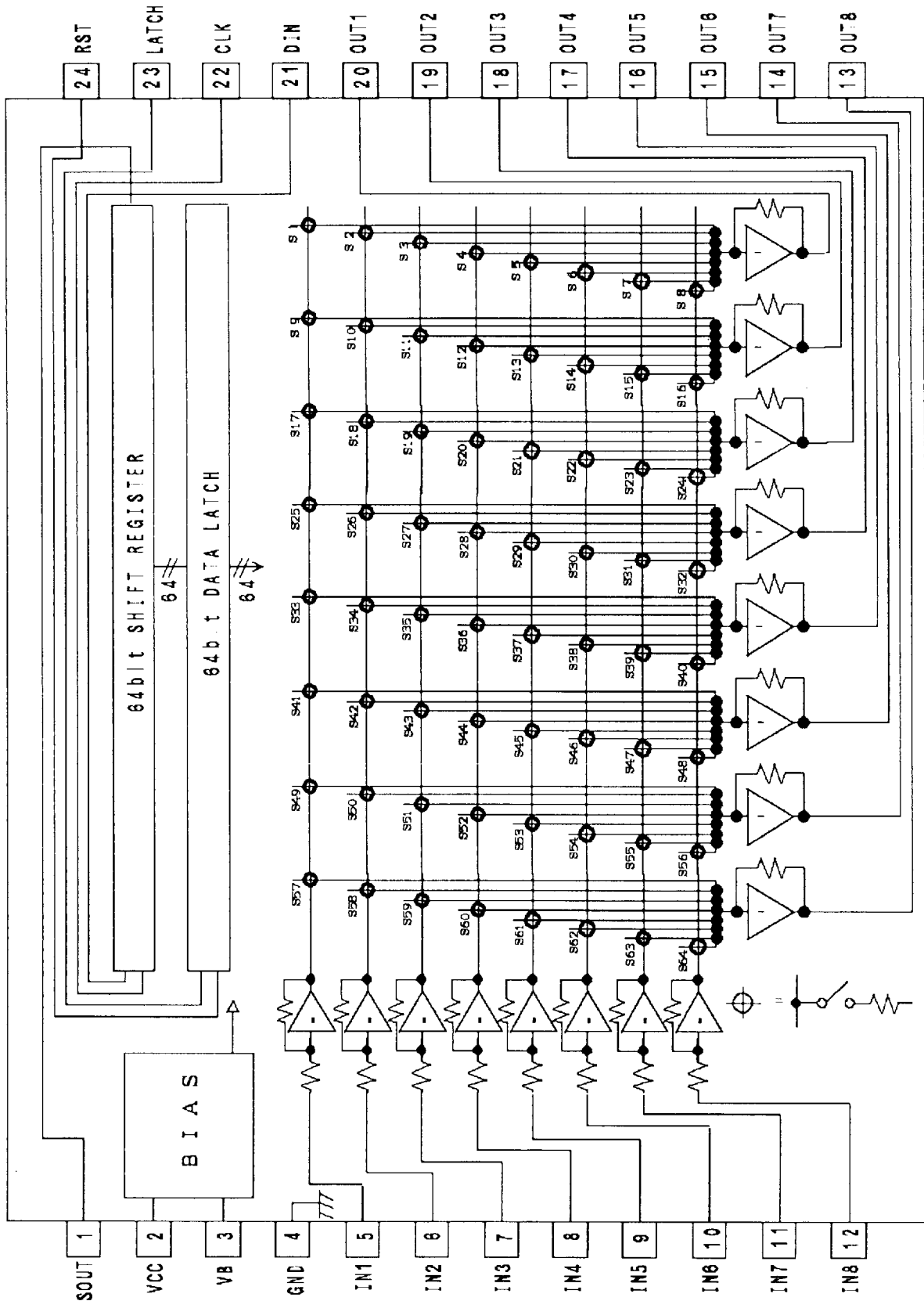
Telephone, Answering machine or Cordless phone.



●Recommended operating range(Ta=25°C)

Parameter	Symbol	Range	Unit	Remarks
Supply voltage	$V_{CC}$	4.5 to 5.5	V	
Input voltage	$v_{IN}$	to 0	dBV	
Clock frequency	$f_{CLK}$	to 100	kHz	Duty cycle 50%
Output load resistor	$R_L$	10 to	$k\Omega$	OUT1 to OUT8 pin

● Block diagram



●Pin descriptions

Pin No.	Symbol	Description
1	SOUT	Serial data output pin for cascade connection.
2	VCC	supply voltage pin
3	VB	Bias output pin
4	GND	Ground pin
5	IN1	Signal input pin
6	IN2	Signal input pin
7	IN3	Signal input pin
8	IN4	Signal input pin
9	IN5	Signal input pin
10	IN6	Signal input pin
11	IN7	Signal input pin
12	IN8	Signal input pin
13	OUT8	Signal output pin
14	OUT7	Signal output pin
15	OUT6	Signal output pin
16	OUT5	Signal output pin
17	OUT4	Signal output pin
18	OUT3	Signal output pin
19	OUT2	Signal output pin
20	OUT1	Signal output pin
21	DIN	Serial data input pin
22	CLK	Shift clock input pin of shift resistor
23	LATCH	Latch input pin of data latch
24	RST	Reset input pin of data latch

● Input/output circuit

Pin no.	Input/output circuit(output)	Pin no.	Input/output circuit(input)
1		5 ~ 12	
3		21 ~ 24	
13 ~ 20			

● Operational description

1) Analog input signal is supplied to 8 switches via input amplifier.

Analog input signal is supplied to each output amplifier by turning switches ON/OFF.

Output amplifier sends out maximum 8 analog input signals mixed by mixing resistor and feedback resistor connected to switch output.

2) Switch is set by 64 bit shift resistor and data latch. Shift resistor fetches the data at rising of shift clock and keeps the data till it fetches next data at next rising edge. Switch is set by giving "H" level at LATCH pin after stopping to supply leading edge of clock after fetching 64 bit of data.

Below is shown in "Fig.1. timing waveform".

To change switch-setting, 64 bit setting data, 64 bit shift clock and LATCH="H" need to be refreshed. Switch-setting can not be carried out if data shift clock is not up to 64 bit or LATCH="H" over 65 bit.

Data latch has a reset function and by setting RST pin "H" level, all switches become OFF regardless of the status of DIN, CLK and LATCH pin.(Ref. figure 1 timing waveform).

Logic of switch setting is shown in chart 1.

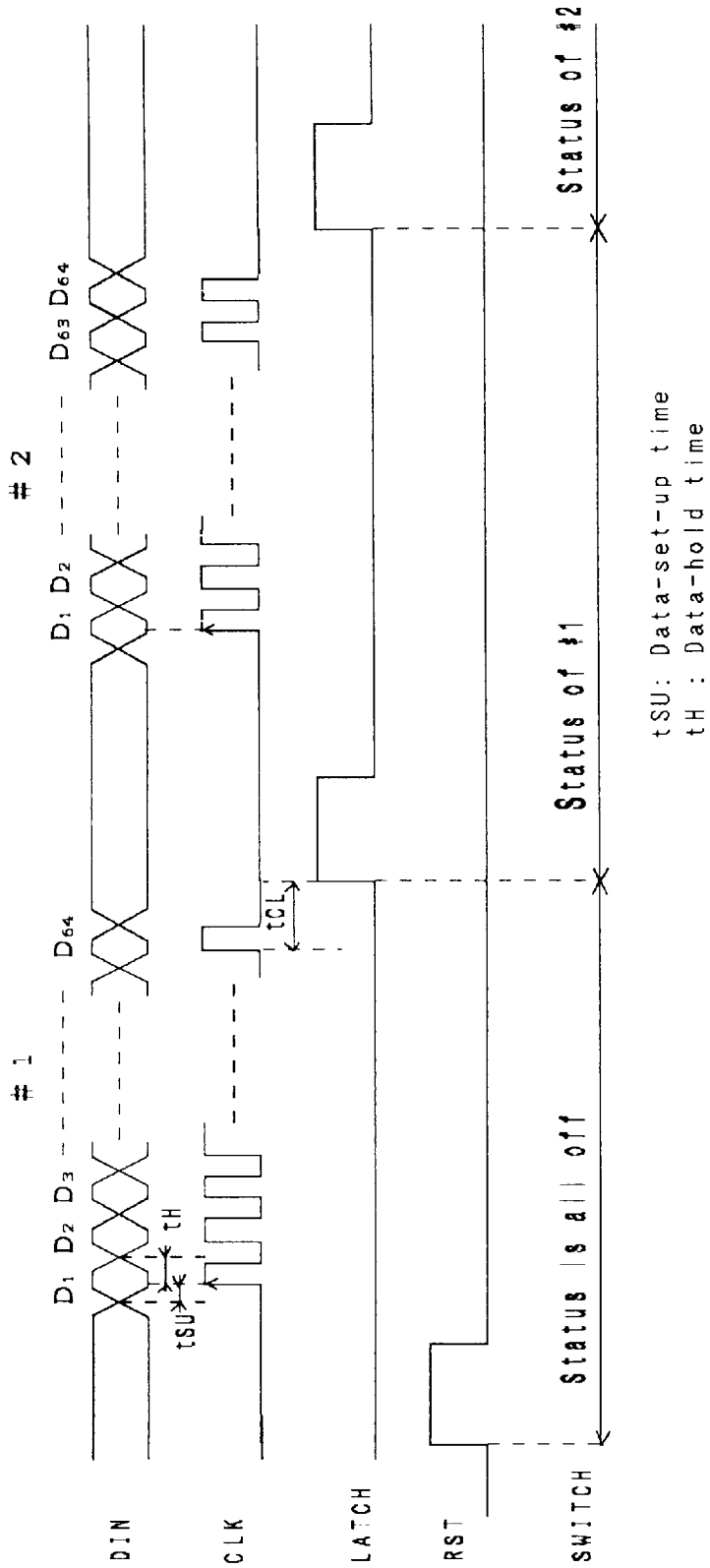


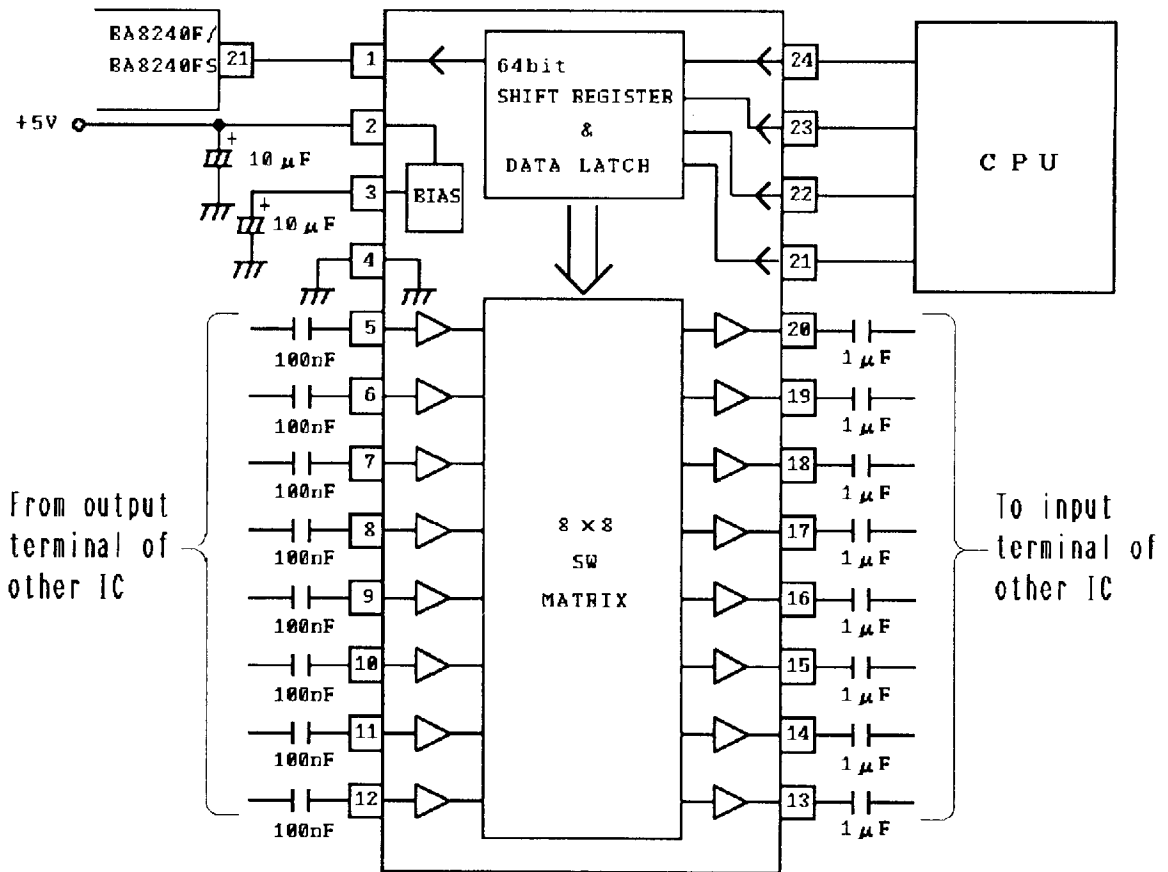
Fig.1 Timing waveform

Chart 1. Logic of switch setting

Data D <sub>n</sub> (Note1)	Status of switch S <sub>n</sub> (Note1)
H	ON
L	OFF

(Note 1) n=1~64

●Application circuit





●Precaution

1) At rising of power supply

At rising of power supply, status of shift register is unstable.

After rising power supply, please set RST pin at "H" level then switch all switches OFF, or set LATCH pin at "H" level after setting shift register 64 bit by giving 64 bit shift clock.

2) Setting serial data

- Switch can't be set correctly if shift clock is not up to 64 bit or over 65 bit.
- Do not input shift clock if LATCH pin is at "H" level. If inputted, contents of data latch will be changed.