

High reliability

## 2-phase half-wave motor pre-driver BA6409F

### ● Description

The BA6409F is a two-phase half-wave motor pre-driver for fan motors. The built-in protection diode eliminates an external diode and the concern of connecting in reverse when fan motors equipped. The device also has a lock-up detector and automatic restart function. There is a lock-up detector output pin on the IC.

### ● Features

- 1) Built-in discrete diode for reverse connection protection. (Maximum reverse connection protection voltage: 80V)
- 2) Lock-up detector function & lock-up detector output pin.
- 3) Compact SOP8-pin package. Fewer external components make mounting spaces smaller.
- 4) Automatic restart when lock-up is removed.
- 5) Hall element input hysteresis circuit is built-in.

### ● Applications

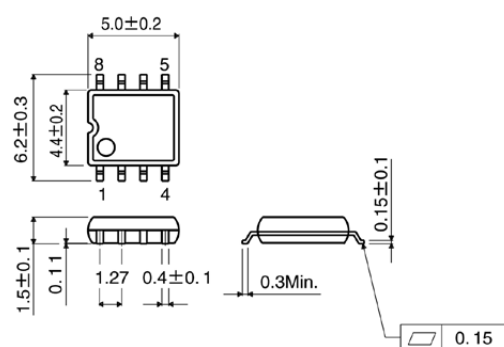
Two-phase half-wave motor pre-driver for fan motor

### ● Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V <sub>CC</sub>	30	V
Power dissipation	P <sub>d</sub>	550 *	mW
Operating temperature	T <sub>opr</sub>	-30 ~ +75	°C
Storage temperature	T <sub>stg</sub>	-55 ~ +125	°C
Output current	I <sub>OMAX</sub>	70	mA
Junction temperature	T <sub>jmax</sub>	125	°C

\*Derating : 5.5mW/°C for operation above Ta=25°C  
(Mounted on a 70.0mm 70.0mm 1.6mm glass epoxy PCB.)

### ● Dimension (Units : mm)



SOP8

● Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V <sub>CC</sub>	5.2	—	28	V
Input voltage *	VBH	1.0	—	V <sub>CC</sub> -1.7	V

\*Input voltage includes signal amplitude.

● Electrical Characteristics (Unless otherwise noted, Ta=25°C, V<sub>CC</sub>=12V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I <sub>CC</sub>	—	3.2	5.0	mA	Output off
Hall amplifier input hysteresis (+)	V <sub>hya+</sub>	+3	—	+15	mV	VB=6V (Voltage on Pin2 with respect to Pin4)
Hall amplifier input hysteresis (-)	V <sub>hya-</sub>	-3	—	-15	mV	VB=6V (Voltage on Pin2 with respect to Pin4)
Pin3 "L" output voltage	V3L	—	—	0.5	V	I3L=5.0mA
Pin3 current capacity	I3	8.0	—	—	mA	V3L=2.0V
Pin6 charge current	I6C	2.0	3.45	5.25	μA	V6PIN=1.5V
Pin6 discharge current	I6d	0.35	0.80	1.45	μA	V6PIN=1.5V
Pin6 charge/discharge current ratio	rcd	3	4.5	8	—	I6c/I6d
Pin6 clamp voltage	V6cL	2.2	2.6	3.0	V	
Pin6 comparater voltage	V6cp	0.4	0.6	0.8	V	
Pin7 "H" output voltage	V7H	8.8	9.8	—	V	I <sub>o</sub> =10mA
Pin8 "H" output voltage	V8H	8.8	9.8	—	V	I <sub>o</sub> =10mA

The products described herein are not designed to be X ray proof.

● Application circuit

