# MITSUMI

Operational amplifier with a built-in spiral inductor

MM1969

## Outline

MM1969 contains a low noise operational amplifier with a spiral inductor.

This inductor detects a magnetic field generated when AC current flows through the power line. MM1969 amplifies the detected electromotive force with the built-in low noise operational amplifier (the gain can be set by changing external resistance), and transmits analog signals to an external ADC and microcontroller.

### Applications

- Power monitor
- · Current detection of inverter, servo motor, and others
- Current detection in protection circuits and control circuits of various devices

#### Features

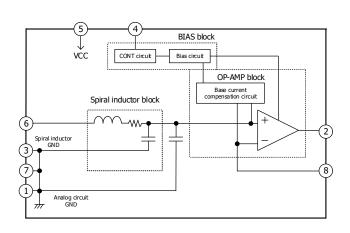
- VCC operating voltage : 3.0 to 5.5 V
- Output current : 1 mA
- Operating temperature range : -40 to  $+85^{\circ}$ C
- With standby mode control function

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sion to Create Value through Difference

- Current consumption at standby : 2  $\mu$ A (VCC = 3.3 V)
- LPF of 17.5 kHz built in the spiral inductor suppresses high-frequency noise.

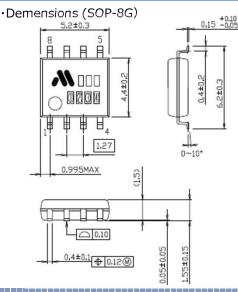
# **Block Diagram**



# Specification

Parameter	Specifications	Unit
Operating Temperature	$-40 \sim 85$	°
Operating Voltage	$3.0\sim 5.5$	V
Supply Current	0.8	mA
Stand-by Current	2.0	µA max
Spiral-inductor Resistance	32	kΩ
Spiral-inductor Input Capacitance	420	рF
Cutoff Frequency	17.5	kHz
Common-mode Voltage Range	$0.2 \sim Vcc-1.7$	V
Output Voltage "H"	Vcc-0.3	V
Output Voltage "L"	0.1	V
Output Source Cureent	1	mA min
Output Sink Current	1	mA min

### Package



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