

# Switching regulator for DC / DC converters

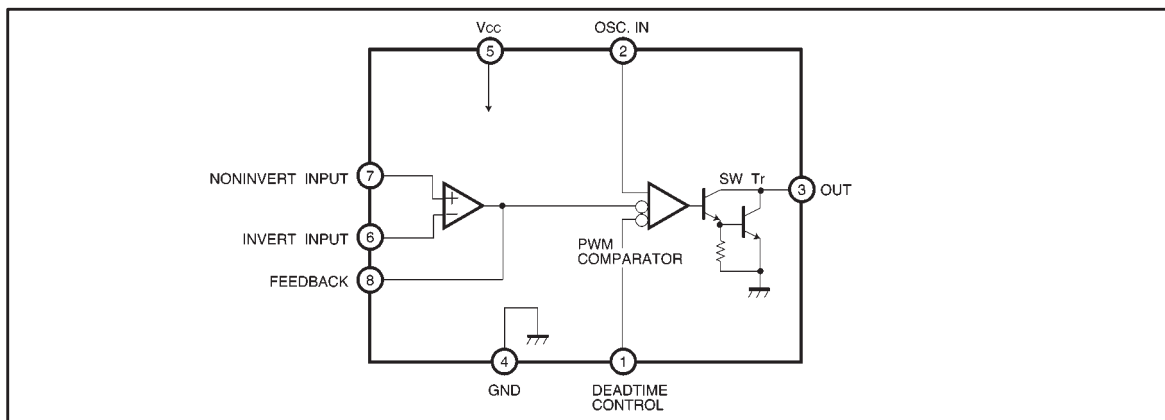
## BA9701 / BA9701F

The BA9701 and BA9701F are DC / DC converter switching regulators that use a pulse width modulation (PWM) system. With an error amplifier, PWM comparator, and output driver, the ICs operate by receiving reference voltage and triangular wave oscillation from the BA9700A-series regulator.

### ●Features

- 1) The slave IC operates by receiving reference voltage and triangular waves from a BA9700-series regulator.
- 2) Contains error amplifier and PWM comparator ; the BA9701 is in an 8-pin dual-inline package, and the BA9701F is in an 8-pin SOP package.
- 3) Suited for multiple output power supply; superb cost performance in combination with BA9700A-series regulators.
- 4) Voltage output can step up, step down, or invert at an arbitrary level.

### ●Block diagram



### ●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>CC</sub>	7.5	V
Output transistor voltage	BV <sub>ceo</sub>	24	V
Power dissipation	P <sub>d</sub>	*500 (350)	mW
Operating temperature	T <sub>opr</sub>	-20~+75	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

\* Reduced by 5.0 mW (3.5 mW for SOP package) for each increase in Ta of 1°C over 25°C.

●Electrical characteristics (unless otherwise noted, Ta = 25°C and Vcc = 2.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
〈Error amplifier section〉						
Input offset voltage	V <sub>IO</sub>	−6	—	6	mV	
Input offset current	I <sub>IO</sub>	−150	—	150	nA	
Maximum input voltage	V <sub>ICR</sub>	1.5	1.8	—	V	
Open loop gain	A <sub>v</sub>	60	80	—	dB	
Common-mode rejection ratio	CMRR	60	80	—	dB	
Input bias current	I <sub>IB</sub>	—	180	600	nA	
〈PWM comparator section〉						
Duty cycle		0	—	100	%	
〈Output section〉						
Output transistor leakage current	I <sub>LEAK</sub>	—	—	20	μA	V <sub>o</sub> =24V
Output saturation voltage	V <sub>sat</sub>	—	1.5	2.5	V	I <sub>o</sub> =50mA
〈Total device〉						
Standby current	I <sub>ccs</sub>	—	0.8	1.5	mA	

Recommended range of input voltage: Vcc = 2.5-7.5 V

●Timing chart

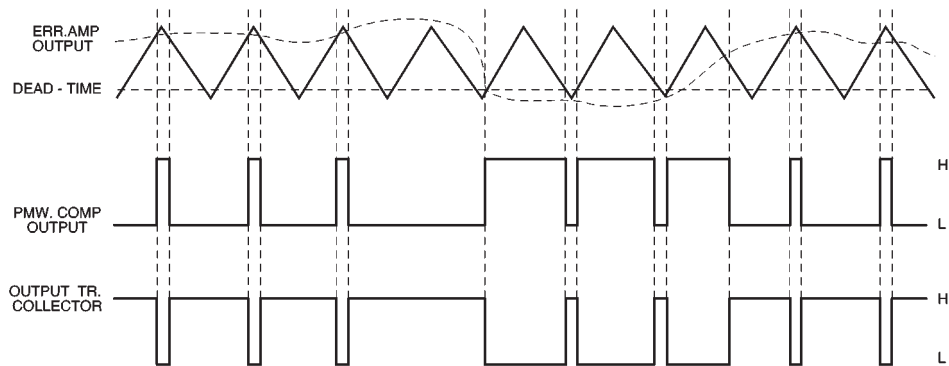


Fig.1

## ●Application example

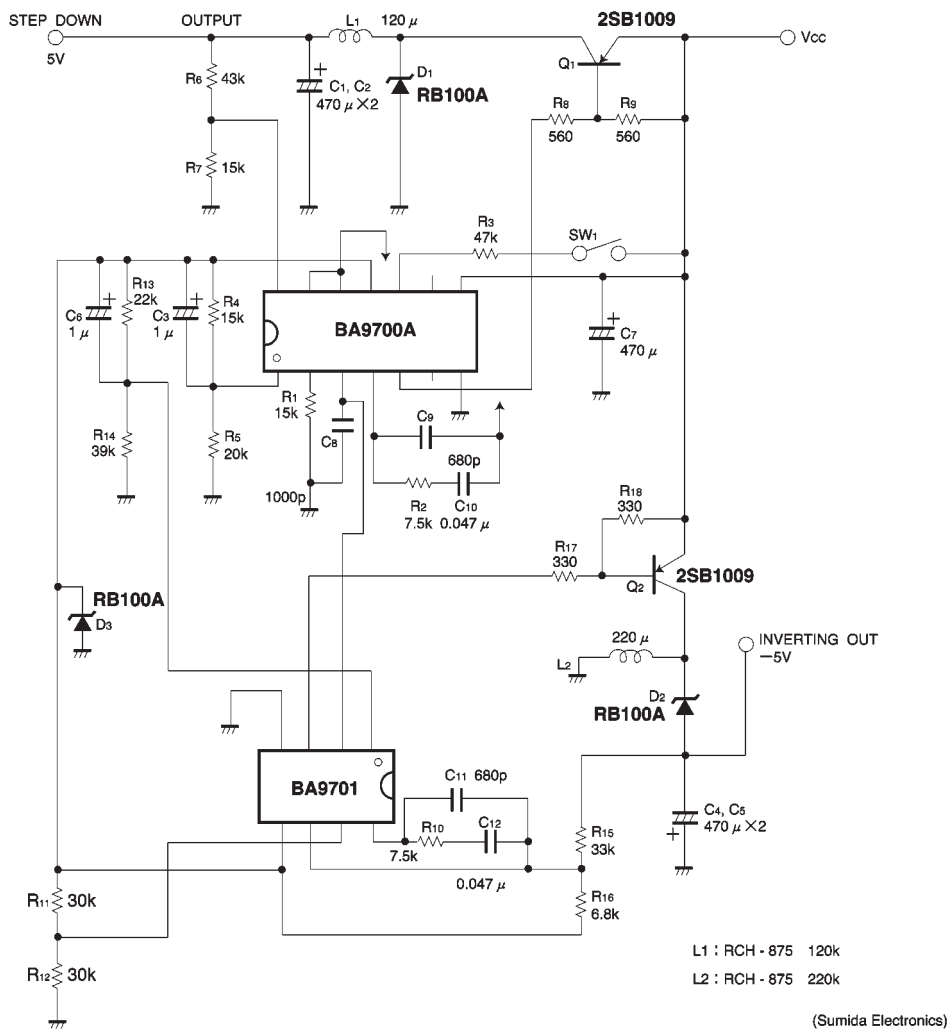


Fig.2

● Basic application board patterns and component arrangement

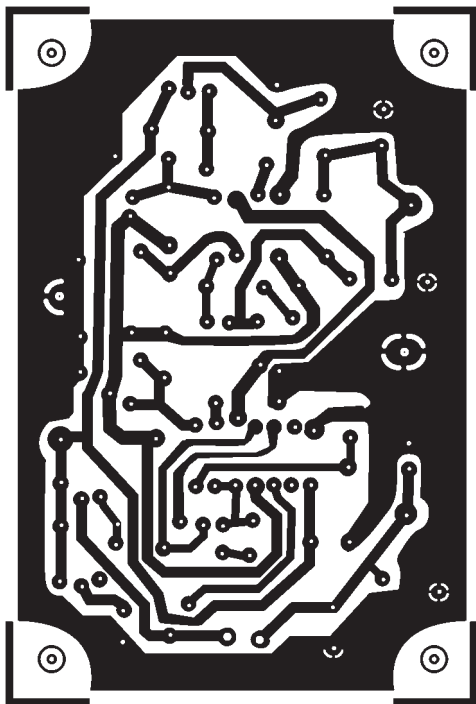


Fig.3 Basic application of PCB pattern  
(BA9701)

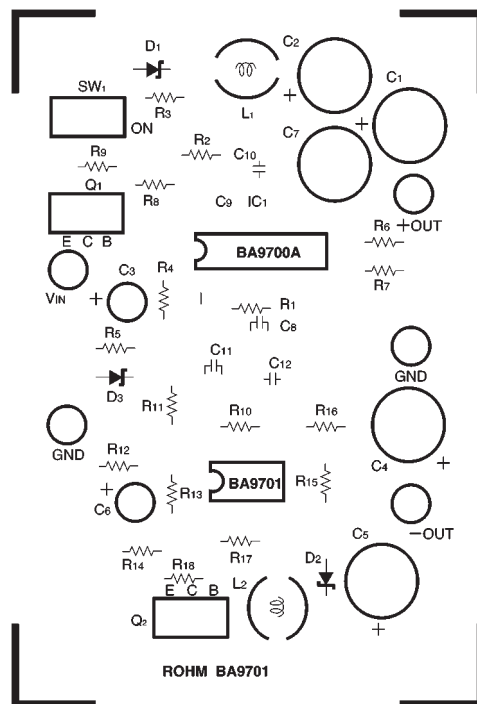
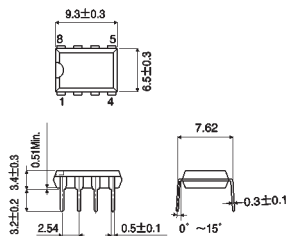


Fig.4 Basic application of PCB parts arrangement  
(BA9701)

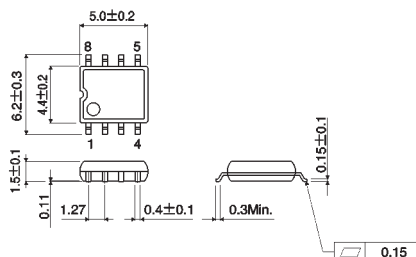
● External dimensions (Units: mm)

BA9701

BA9701F



DIP8



SOP8