

Switching regulator for DC-DC converters

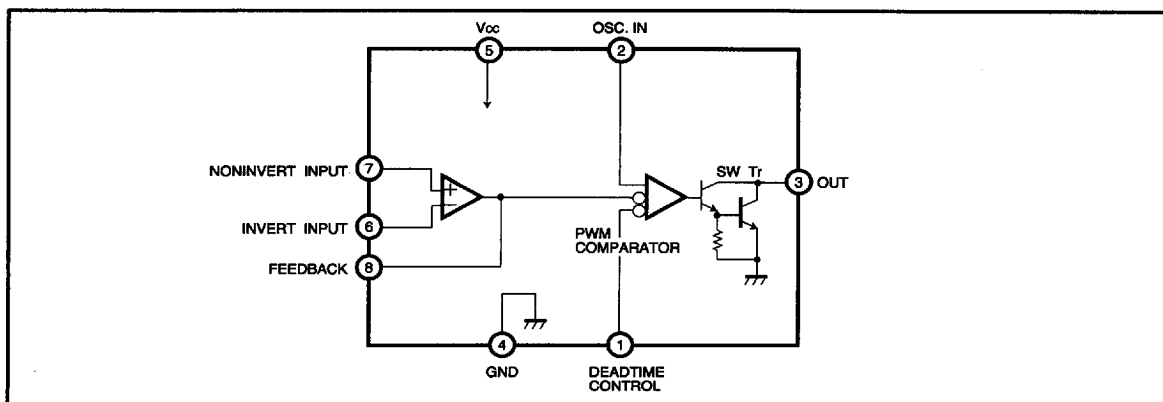
BA9701/BA9701F

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 a BA9700-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 _{cc}	7.5	V
Output transistor voltage	BV _{ceo}	24	V
Power dissipation	P _d	* 500 (350)	mW
Operating temperature	T _{opr}	-20~75	°C
Storage temperature	T _{stg}	-55~150	°C

* Reduce power by 5.0 mW (3.5 mW for SOP package) for each degree above 25°C.

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●Electrical characteristics (Unless otherwise noted, Ta=25℃ and Vcc=2.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Error amplifier section						
Input offset voltage	V _{IO}	—6	—	6	mV	
Input offset current	I _{IO}	—150	—	150	nA	
Maximum input voltage	V _{ICR}	1.5	1.8	—	V	
Open loop gain	A _v	60	80	—	dB	
Common mode rejection ratio	CMRR	60	80	—	dB	
Input bias current	I _{IB}	—	180	600	nA	
PWM comparator section						
Duty cycle		0	—	100	%	
Output section						
Output transistor leak current	I _{LEAK}	—	—	20	μA	V _O =24V
Output saturation voltage	V _{sat}	—	1.5	2.5	V	I _O =50mA
Total device						
Standby current	I _{CCS}	—	0.8	1.5	mA	

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

●Timing chart

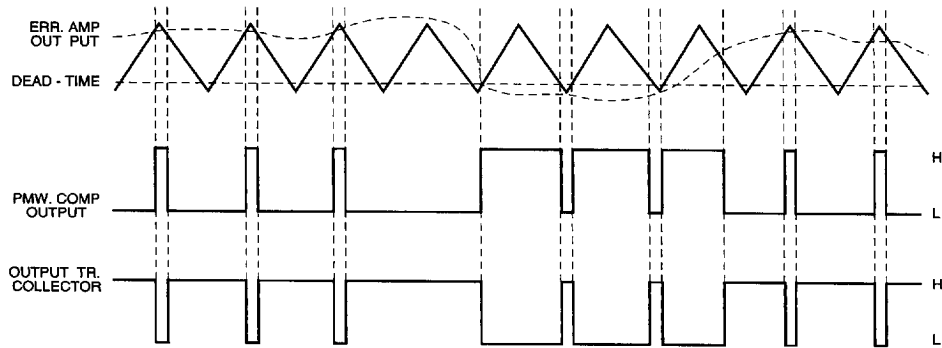


Fig.1

● Example of application

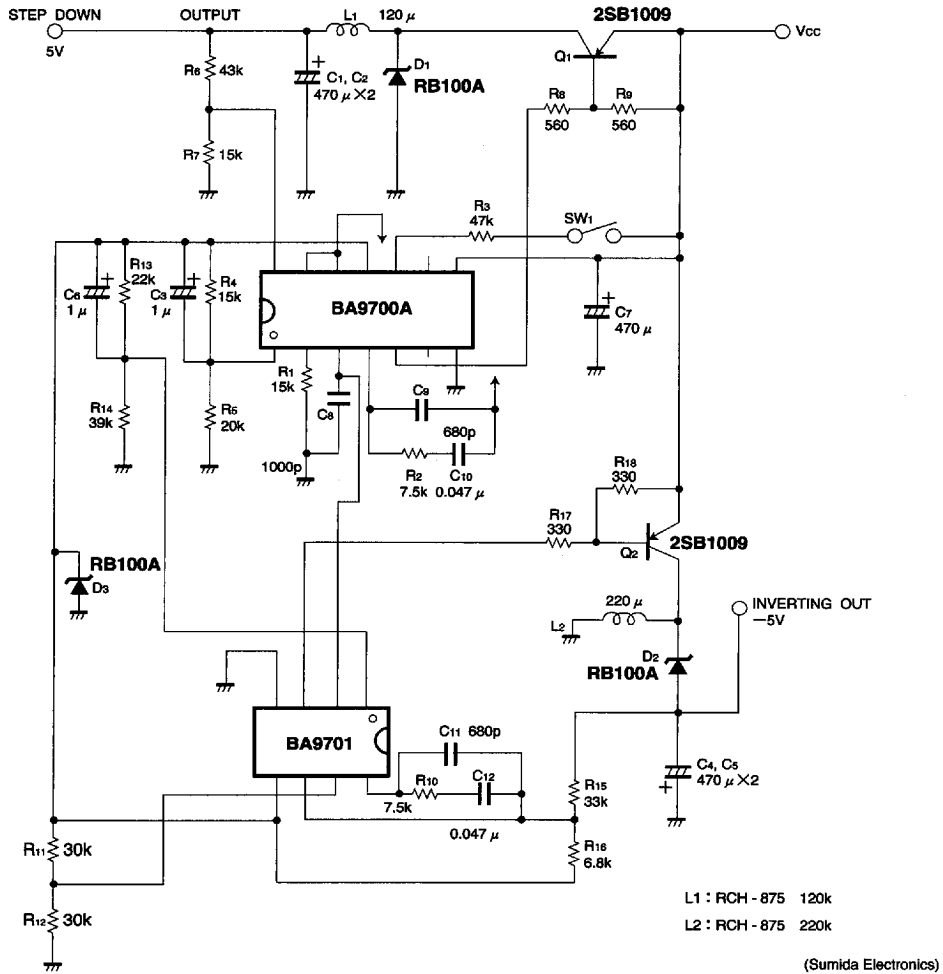


Fig.2

● Basic application of printed circuit board and component arrangement

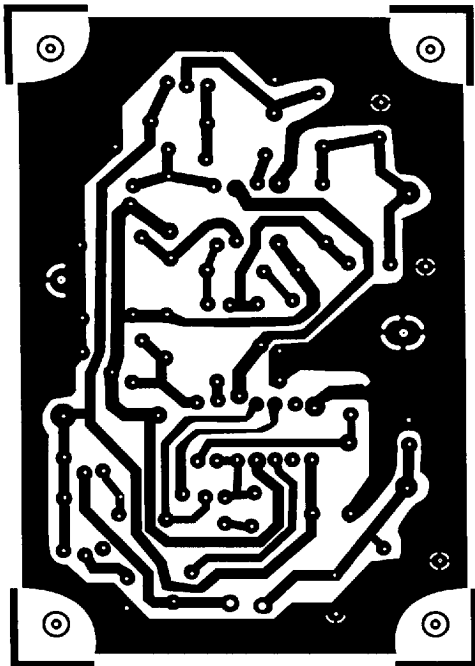


Fig.3 Basic application of PCB pattern
(BA9701)

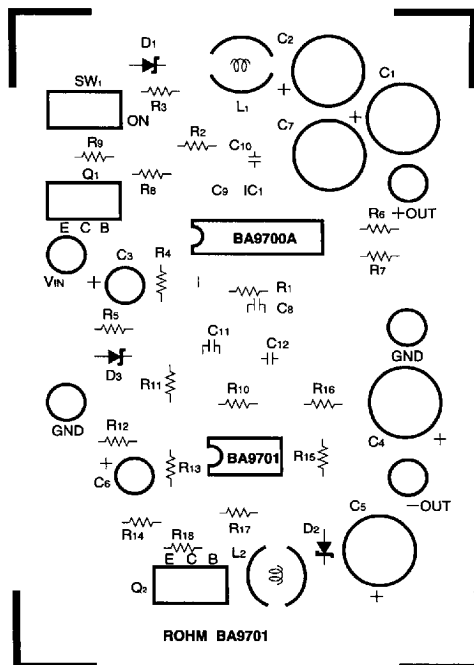
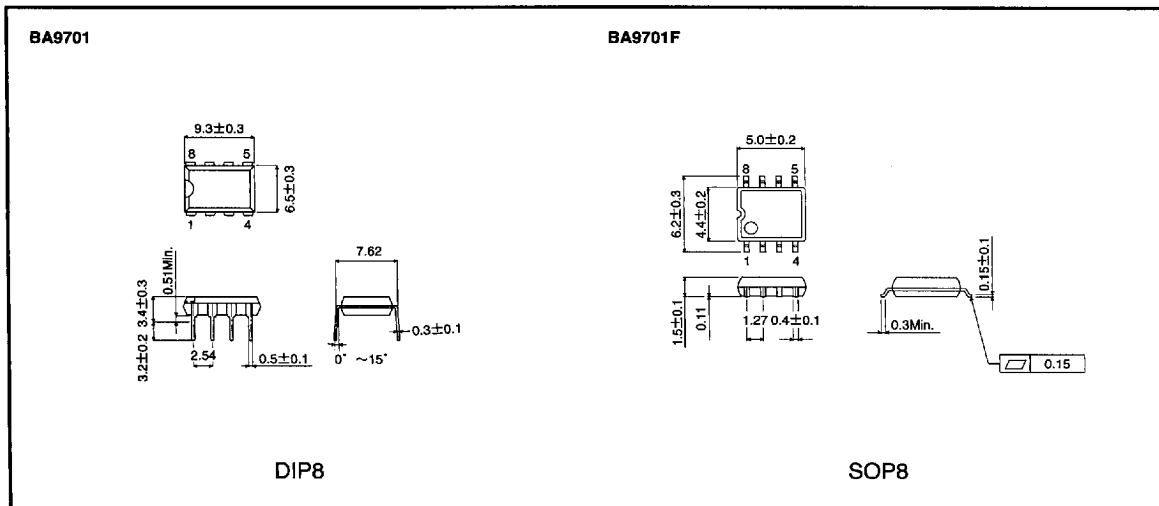


Fig.4 Basic application of PCB parts arrangement
(BA9701)

● External dimensions (Units: mm)



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