

Switching regulator for DC / DC converters

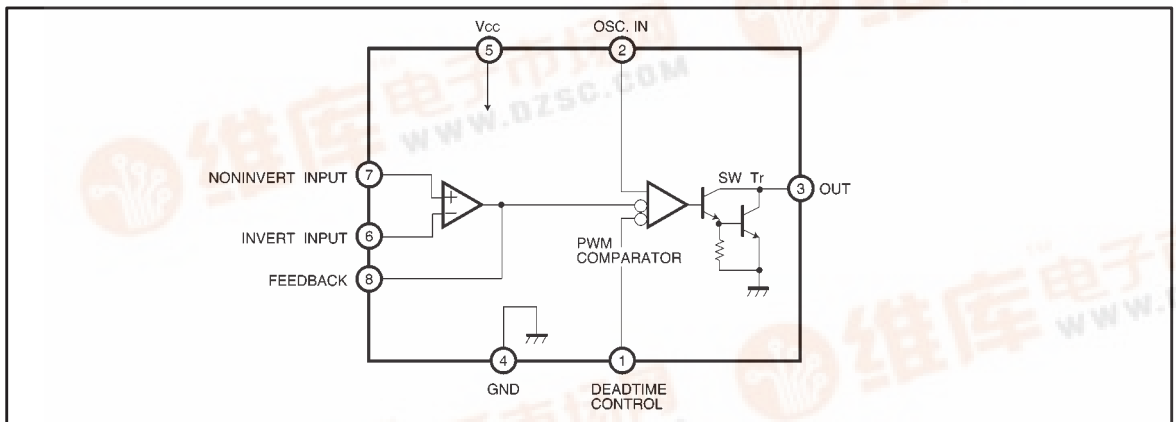
BA9701 / BA9701F

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	Vcc	7.5	V
Output transistor voltage	BVceo	24	V
Power dissipation	Pd	*500 (350)	mW
Operating temperature	Topr	-20~+75	°C
Storage temperature	Tstg	-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, $T_a = 25^\circ\text{C}$ and $V_{CC} = 2.5\text{V}$)

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 leakage current	I_{LEAK}	-	-	20	μA	$V_o=24\text{V}$
Output saturation voltage	V_{sat}	-	1.5	2.5	V	$I_o=50\text{mA}$
〈Total device〉						
Standby current	I_{ocs}	-	0.8	1.5	mA	

Recommended range of input voltage: $V_{CC} = 2.5\text{-}7.5\text{ V}$

●Timing chart

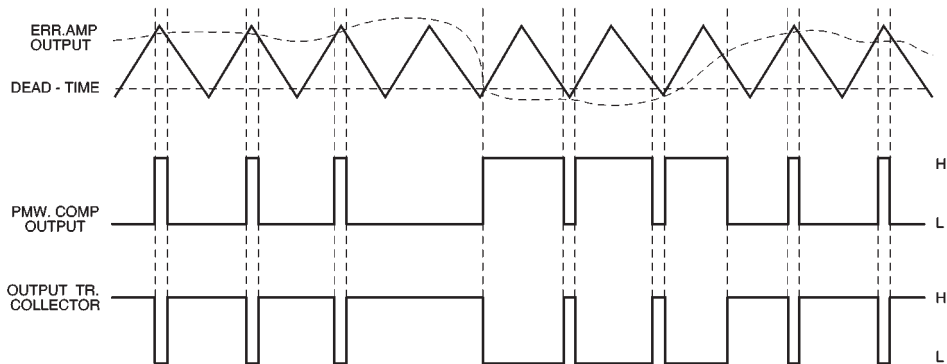


Fig.1

● Application example

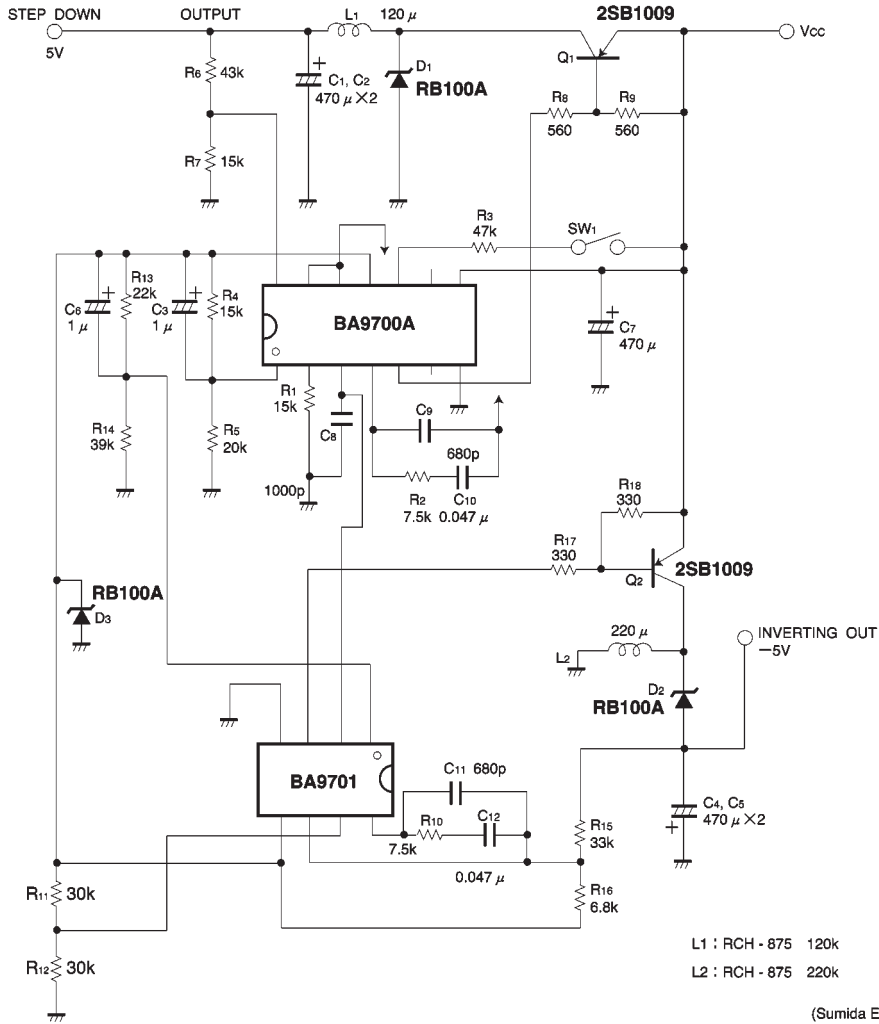


Fig.2

● Basic application board patterns and component arrangement

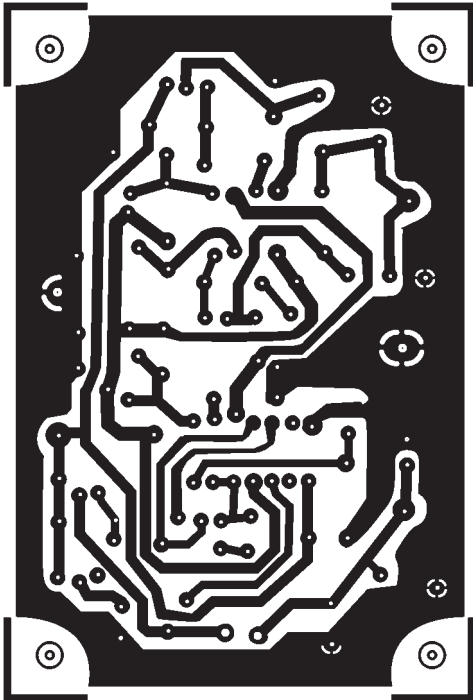


Fig.3 Basic application of PCB pattern (BA9701)

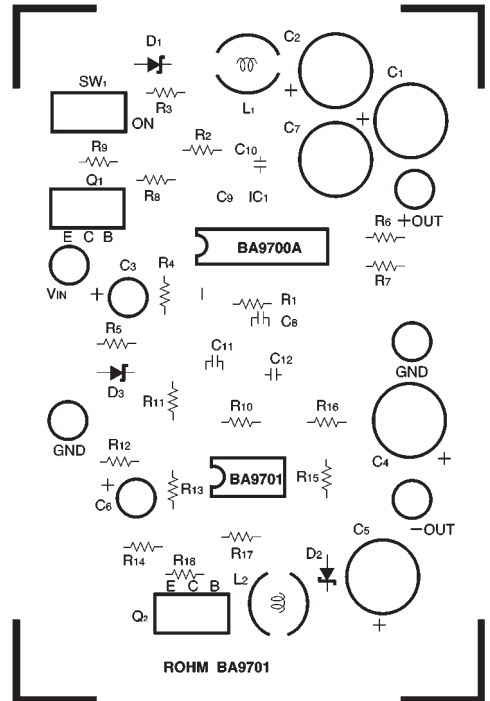


Fig.4 Basic application of PCB parts arrangement (BA9701)

● External dimensions (Units: mm)

