

## DC Rotational Velocity Controller for Electrical Tools

### GENERAL DESCRIPTION

The GS069 DC rotational velocity controller is an application-specific CMOS IC for electrical tools. It features wide power supply voltage range, low power dissipation and high interference immunity. It controls the rotational speed of electrical tools by changing the output of the VMOS transistor through an external resistor network. It is widely applied to different electrical tool switches for its wide output range, small frequency variation, variable duty cycle and high output current.

### FEATURES

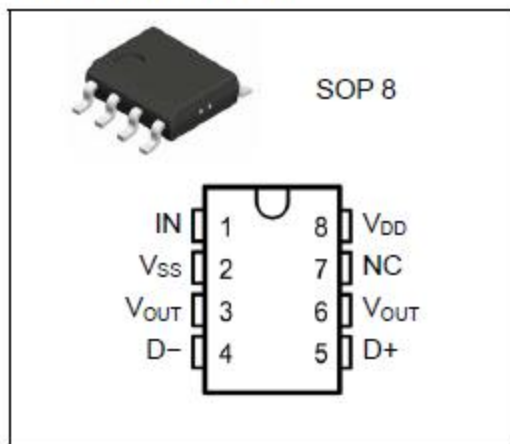
- Wide power supply voltage range.
- Low power dissipation.
- High interference immunity.
- Wide output range.
- Small frequency variation.
- Variable duty cycle.

- high output current.

### APPLICATIONS

- Electrical tool switches.

### PIN CONFIGURATION

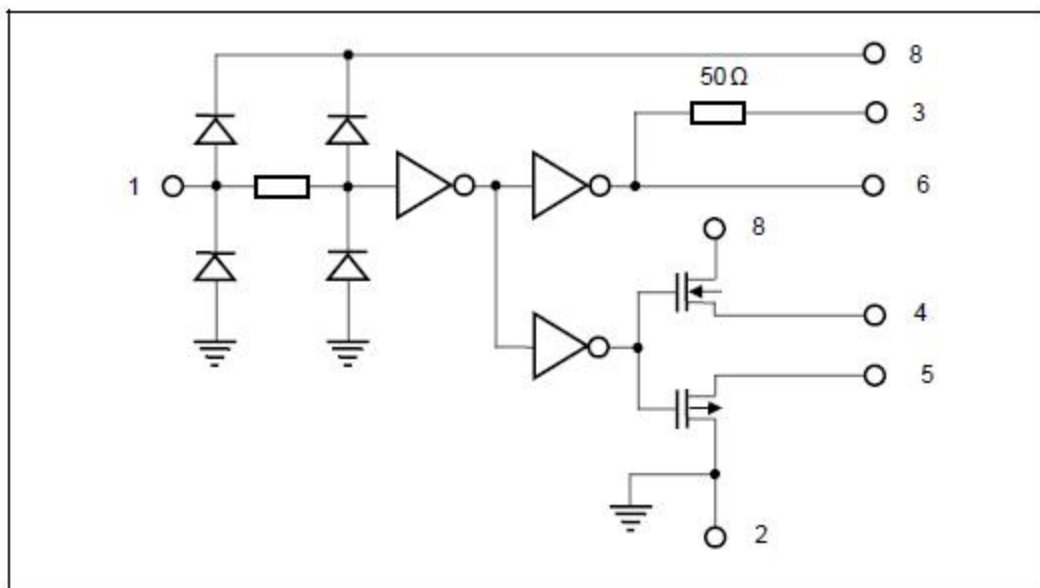


### PIN DESCRIPTION

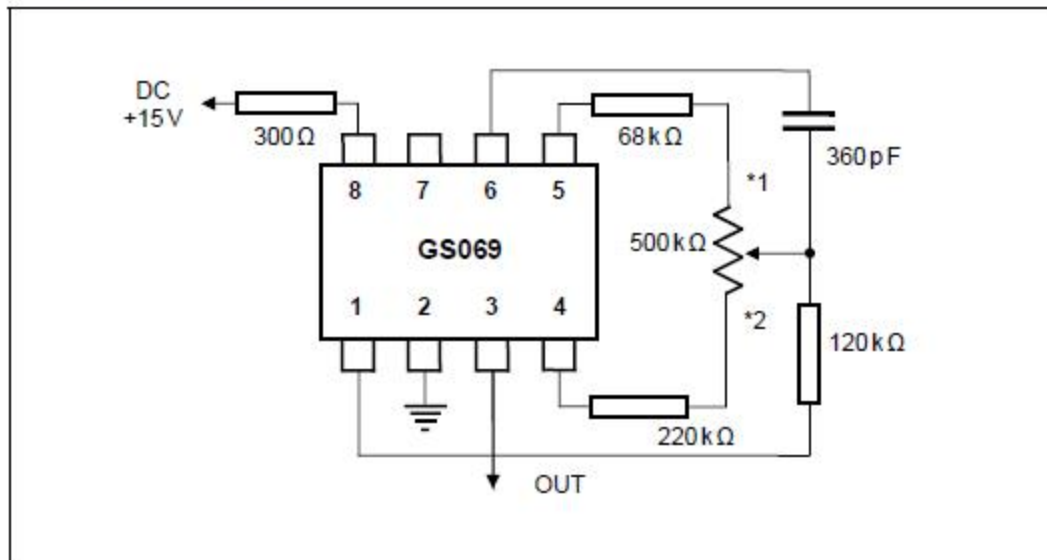
Pin No.	Symbol	Function
1	IN	Input
2	V <sub>SS</sub>	Ground
3	V <sub>OUT</sub>	Output
4	D-	Negative Output
5	D+	Positive Output
6	V <sub>OUT</sub>	Output
7	NC	NC
8	V <sub>DD</sub>	Power Supply

**ELECTRICAL CHARACTERISTICS** (Unless otherwise noted,  $V_{DD} = 15V$ ,  $T_{AMB} = 25^{\circ}C$ )

Parameter	Symbol	Unit	Test Condition	Values
Supply Voltage	$V_{DD}$	V		4 ~ 15
Output Frequency	$F_{OUT}$	kHz		3.5 ~ 4.5
Output Current	$I_{OUT}$	mA	High voltage output	3.5 ~ 4.5
Duty Cycle	$P$	%	Low end	7 ~ 13
	$P$	%	High end	60 ~ 80

**INTERNAL STRUCTURE**


TYPICAL APPLICATION CIRCUIT

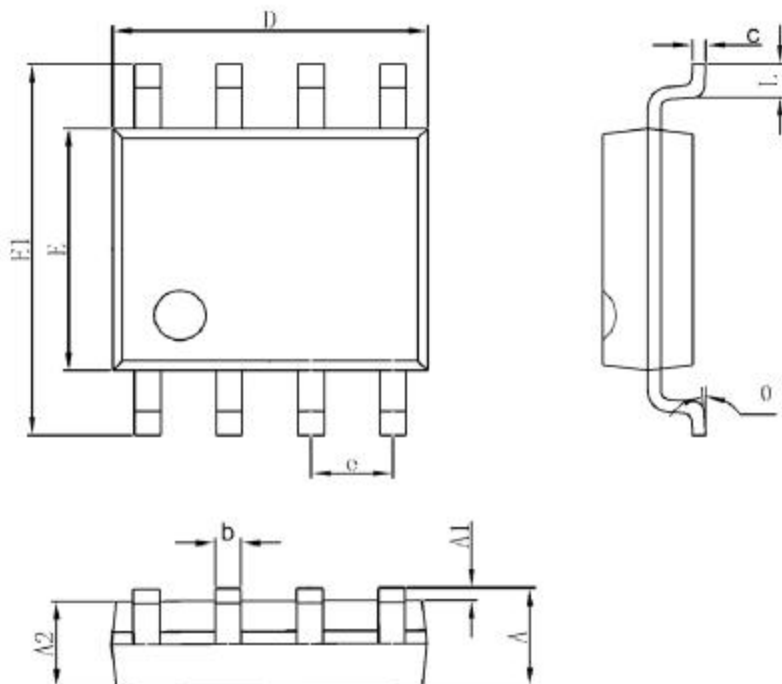


NOTES:

1. If the external voltage is higher than 15V, a voltage regulator diode is necessary for regulating the voltage to the power supply voltage range.
2. Pin 3 and Pin 6 are connected internally. Both pins can be used as outputs.
3. The variable resistor (500 kΩ) is a slide resistor.
4. An external load resistor of 3 to 4.5 kΩ should be connected.

**PACKAGE OUTLINE DRAWING AND DIMENSION**

SOP-8



Symbol	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
$\theta$	0°	8°	0°	8°
$\theta$	0°	8°	0°	8°