

# AN6612, AN6612S

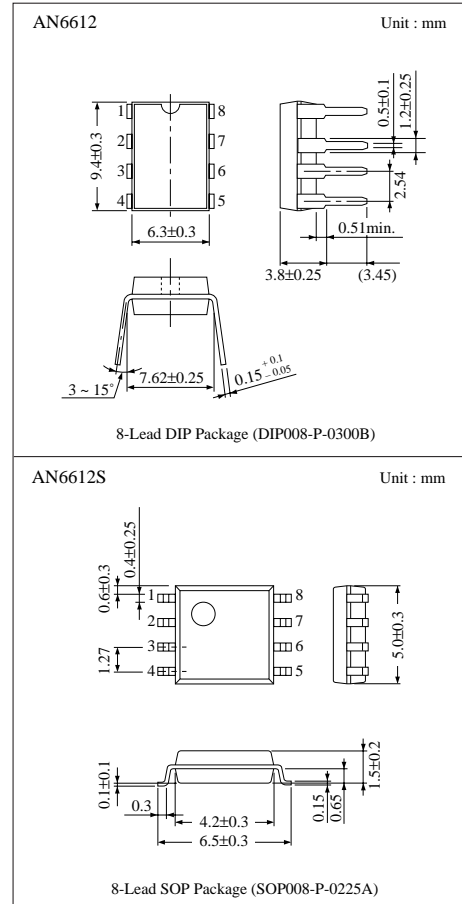
## Motor Control Circuits

### ■ Overview

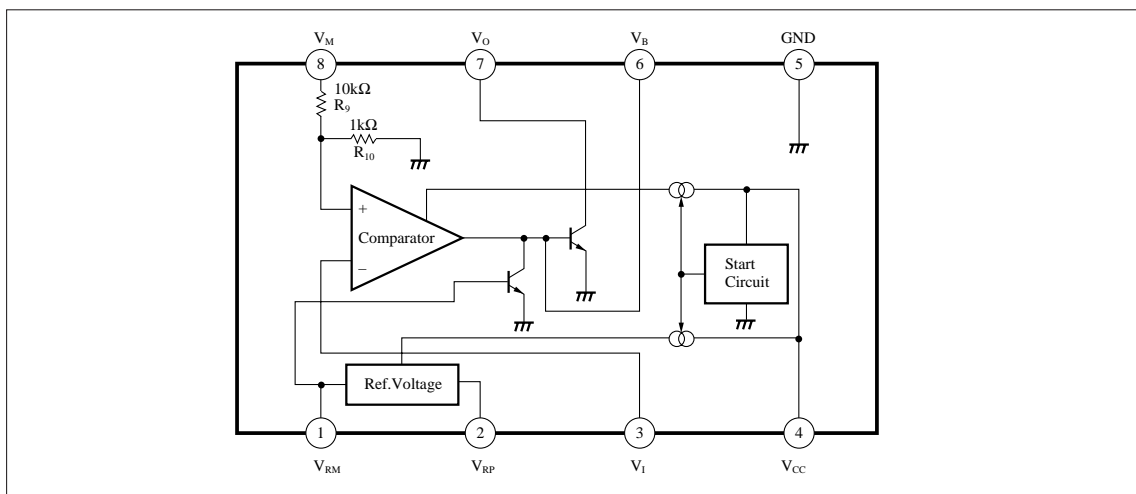
The AN6612 and the AN6612S are the electronic governor circuits suitable for the rotating speed control of a low voltage and compact DC motor which is used for a small tape recorder, etc.

### ■ Features

- Wide range of operating voltage :  $V_{CC (opr)} = 1.8V \sim 8V$
- 2 package types
- Fewer external parts
- Speed control in steps with linear fine control
- Output current limiting circuit is built-in



### ■ Block Diagram



### Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	Current Sensor	5	GND
2	Reference Voltage	6	Base
3	Control	7	Output Base
4	V <sub>CC</sub>	8	Motor pin

### Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

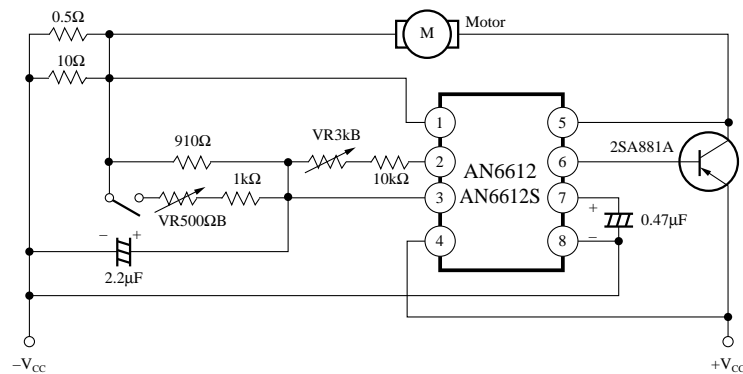
Parameter	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	10	V
Supply Current	I <sub>4</sub>	5	mA
Power Dissipation	AN6612	400	mW
	AN6612S	200	
Operating Ambient Temperature	T <sub>opr</sub>	-20 ~ +75	°C
Storage Temperature	AN6612	-40 ~ +150	°C
	AN6612S	-40 ~ +125	

### Electrical Characteristics (T<sub>a</sub> = 25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Supply Current	I <sub>4</sub>	V <sub>CC</sub> = 3V	—	1.9	3	mA
Reference Voltage	V <sub>2-1</sub>	V <sub>CC</sub> = 3V, R <sub>2-1</sub> = 10kΩ	1.24	1.32	1.40	V
Starting Current	I <sub>a</sub>	V <sub>CC</sub> = 1.8V, R <sub>a</sub> = 4.9Ω	250	—	—	mA
Voltage Variable Characteristics for Rotating Speed	ΔN <sub>v</sub>	V <sub>CC</sub> = 1.8V ~ 4V, I <sub>L</sub> = 72mA (1.7g · cm)	—	—	10	rpm/V
Time Drift Characteristics for Rotating Speed	ΔN <sub>T</sub>	V <sub>CC</sub> = 3V, I <sub>L</sub> = 72mA, t = 15s ~ 10min.	—	0.1	—	%
Temperature Variation Characteristics for Rotating Speed	ΔN <sub>A</sub> *	V <sub>CC</sub> = 3V, I <sub>L</sub> = 72mA, T <sub>a</sub> = -20°C ~ +60°C	—	-0.035	—	%/°C
Output Current Limit Voltage	V <sub>1(1-5)</sub>	V <sub>CC</sub> = 3V	0.6	0.7	0.8	V

\* In case that only IC temperature is changed.

### Application Circuit



Motor Constants

$$\left\{ \begin{array}{l} R_a : \text{Internal resistor} = 4.9\Omega \\ K_a : \text{Electromotive force constant} = 0.4\text{mV/rpm} \\ K_T : \text{Torque constant} = 29\text{g} \cdot \text{cm/A} \end{array} \right.$$