

AN6612, AN6612S

Motor Control Circuits

Overview

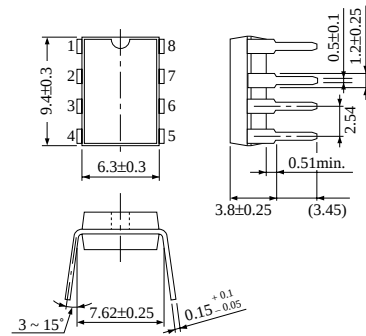
The AN6612 and the AN6612S are the electronic governor circuits suitable for the rotating speed control of a low voltage and compact DC motor which is used for a small tape recorder, etc.

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

AN6612

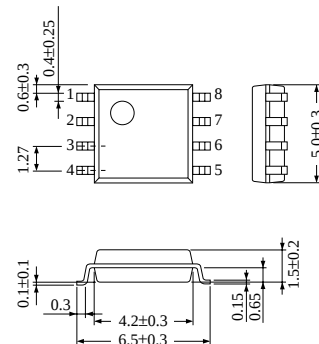
Unit : mm



8-Lead DIP Package (DIP008-P-0300B)

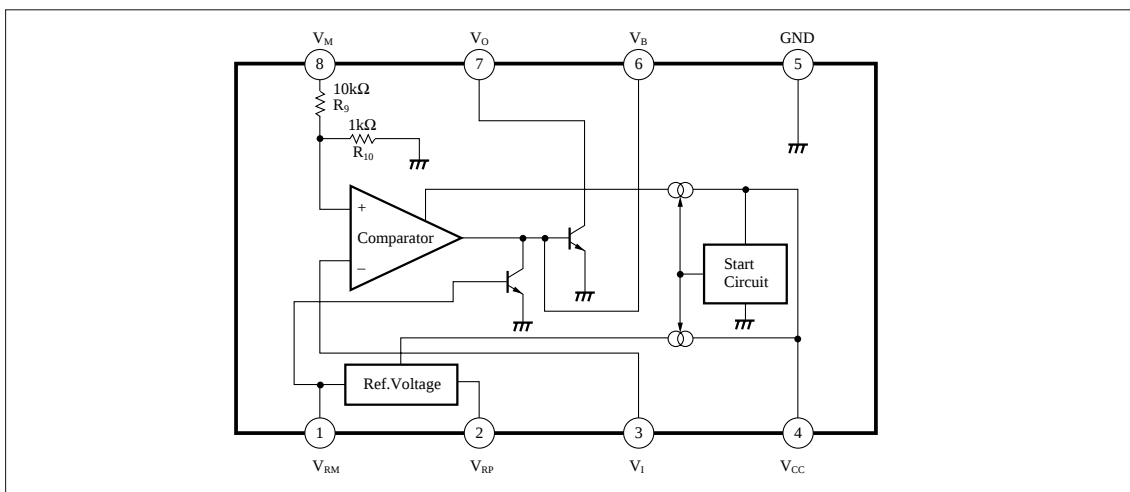
AN6612S

Unit : mm



8-Lead SOP Package (SOP008-P-0225A)

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 _{CC}	8	Motor pin

Absolute Maximum Ratings (Ta= 25°C)

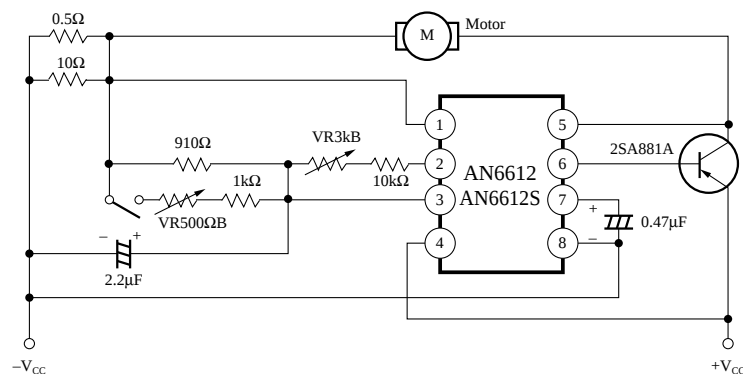
Parameter		Symbol	Rating	Unit
Supply Voltage		V _{CC}	10	V
Supply Current		I ₄	5	mA
Power Dissipation	AN6612	P _D	400	mW
	AN6612S		200	
Operating Ambient Temperature		T _{opr}	-20 ~ + 75	°C
Storage Temperature	AN6612	T _{stg}	-40 ~ +150	°C
	AN6612S		-40 ~ +125	

Electrical Characteristics (Ta = 25°C)

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

* In case that only IC temperature is changed.

Application Circuit



Motor Constants

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