AN6612, AN6612S

Motor Control Circuits

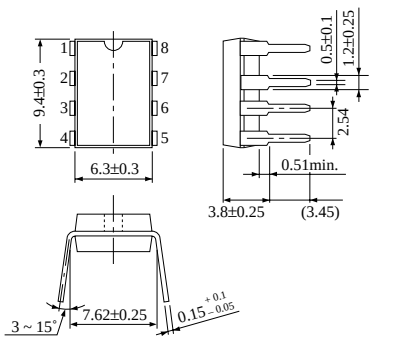
■ Overview

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

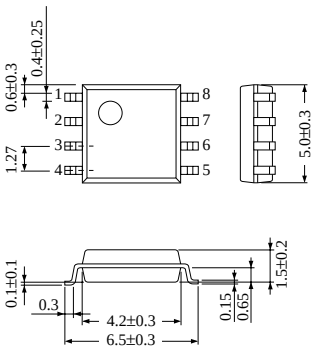
- Wide range of operating voltage : $V_{CC\ (opr)}$ =1.8V ~ 8V
- 2 package types
- Fewer external parts
- Speed control in steps with linear fine control
- Output current limiting circuit is built-in

AN6612 Unit : mm



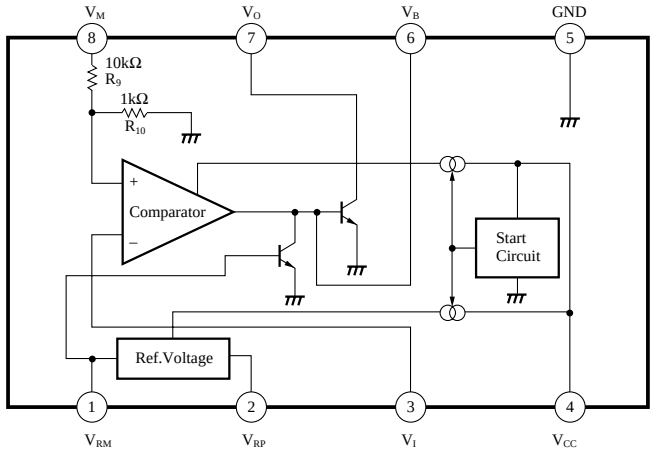
8-Lead DIP Package (DIP008-P-0300B)

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)

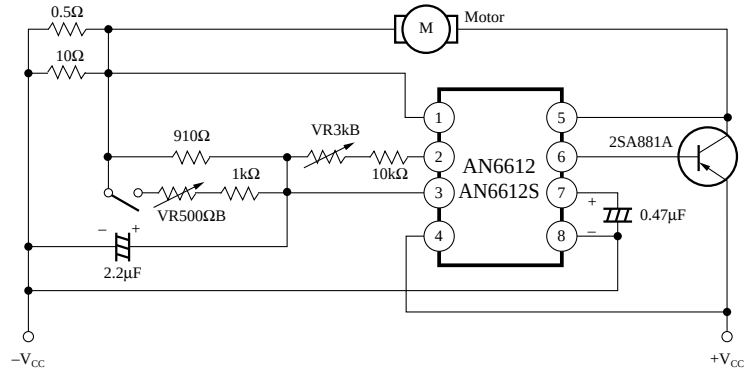
Parameter		Symbol	Rating	Unit
Supply Voltage		V_{CC}	10	V
Supply Current		I_4	5	mA
Power Dissipation	AN6612	P_D	400	mW
	AN6612S		200	
Operating Ambient Temperature		T_{opr}	–20 ~ + 75	˚C
Storage Temperature	AN6612	T_{stg}	–40 ~ +150	˚C
	AN6612S		–40 ~ +125	

■ 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, Ra = 4.9Ω	250	—	—	mA
Voltage Variable Characteristics for Rotating Speed	$\|\Delta N_V\|$	V_{CC} = 1.8V ~ 4V, I_L = 72mA (1.7g · cm)	—	—	10	rpm/V
Time Drift Characteristics for Rotating Speed	$\|\Delta N_T\|$	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
- R_a : Internal resistor = 4.9Ω
- K_a : Electromotive force constant = 0.4mV/rpm
- K_T : Torque constant = 29g · cm/A

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