

AN6612, AN6612S

Motor Control Circuits

■ Outline

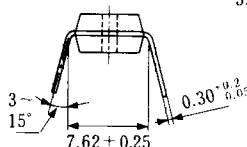
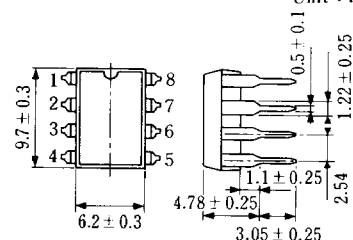
The AN6612 and the AN6612S are electronic governor circuits suitable for the rotating speed control of a low voltage and compact DC motor which is used for a small tape recorder, etc.

■ Features

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

AN6612

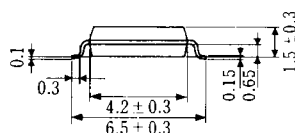
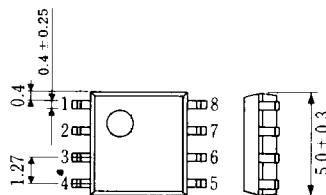
Unit : mm



8 Lead DIL Plastic Package

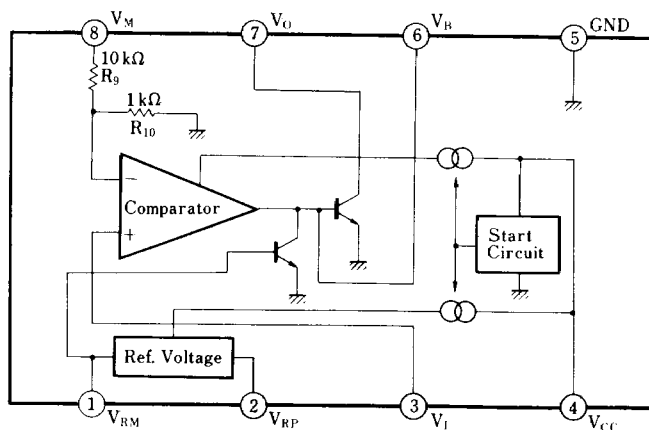
AN6612S

Unit : mm



8-Lead PANAFLAT Package(SO-8D)

■ Block Diagram



■ Pin

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

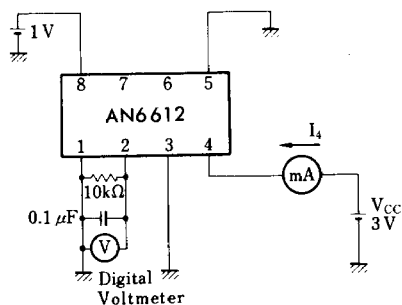
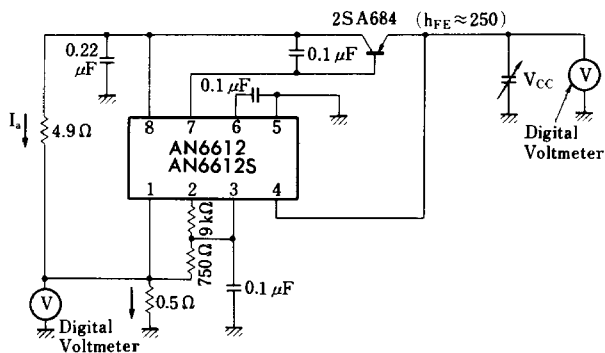
■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	10	V
Supply Current	I _a	5	mA
Power Dissipation	P _D	400	mW
		360	
Operating Ambient Temperature	T _{opr}	-20 ~ +75	°C
Storage Temperature	T _{stg}	-40 ~ +150	°C
		-40 ~ +125	

■ Electrical Characteristics (Ta=25°C)

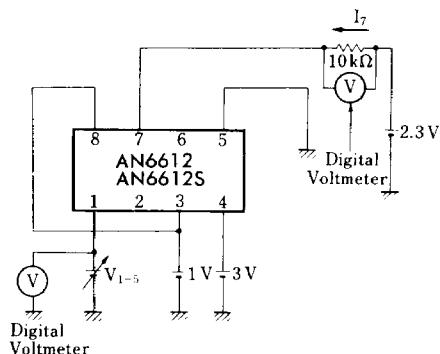
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Supply Current	I _a	1	V _{CC} =3V		1.9	3	mA
Reference Voltage	V ₂₋₁	1	V _{CC} =3V	1.24	1.32	1.40	V
Starting Current	I _a	2	V _{CC} =1.8V, R _a =4.9Ω	250			mA
Voltage Variable Characteristics for Rotating Speed	ΔN _V	4	V _{CC} =1.8V to 4V			10	rpm/V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

In case that only IC temperature is changed.

Test Circuit 1 (I_a, V₂₋₁)Test Circuit 2 (I_a)

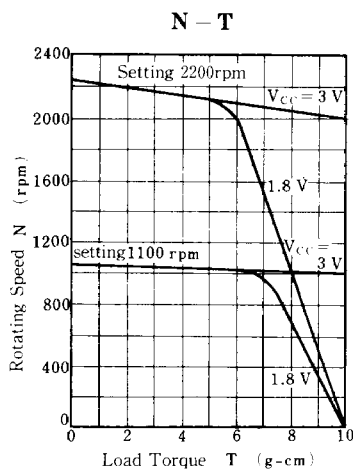
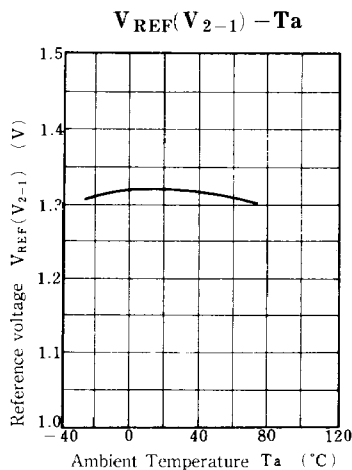
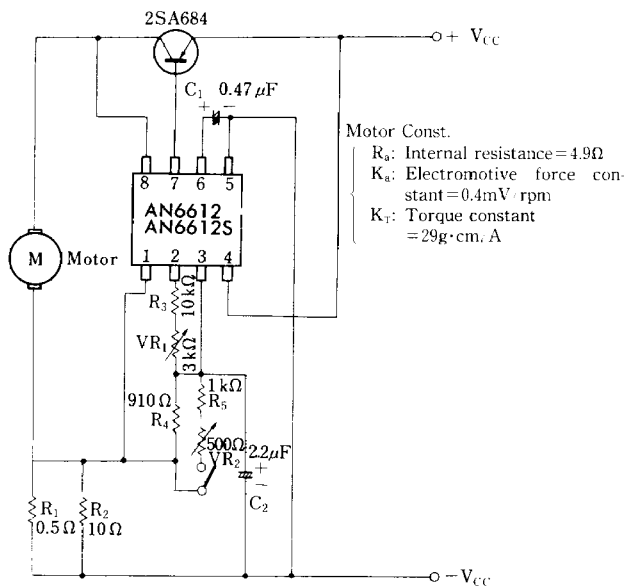
Note) Set the starting current at V_{CC}=1.8V. Measure the terminal voltage with resistance of 0.5Ω to obtain I_a.

Test Circuit 3 ($V_{t(1-5)}$)

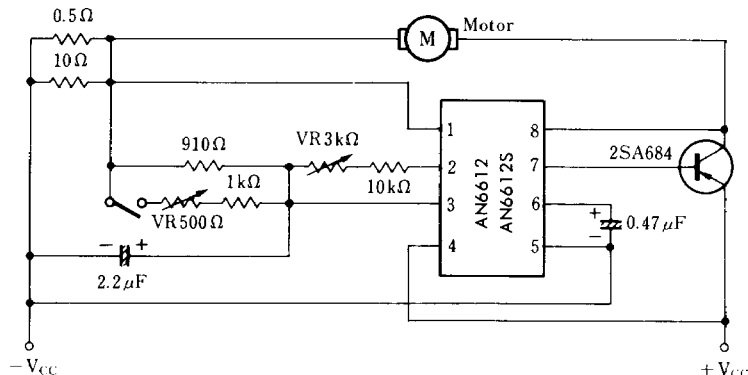


Note: Voltage of the boundary where I_7 is 10 μ A or less after gradually increasing V_{1-5} from 0V.

Test Circuit 4 ($|\Delta N_V|$, $|\Delta N_T|$, ΔN_A)



Application Circuit



Motor Constant
 R_a : Internal resistance=4.9Ω
 K_a : Electromotive force constant=0.4mV/rpm
 K_t : Torque constant=29g·cm/A