AN6609N, AN6609NS

DC Motor Forward/Reverse Dual Speed Electronic Governor

■ Overview

The AN6609N and AN6609NS are the electronic governor ICs which incorporate the forward/reverse rotation and double speed controls of the DC motors used for radio/cassette tape recorder, and the functions such as fast forward, rewind, brake, and pause. They are also available for controlling the video tape deck mechanisms such as the VCRs and DATs.

The AN6609N and AN6609NS are identical with each other except the operating logic by 3-bit input.

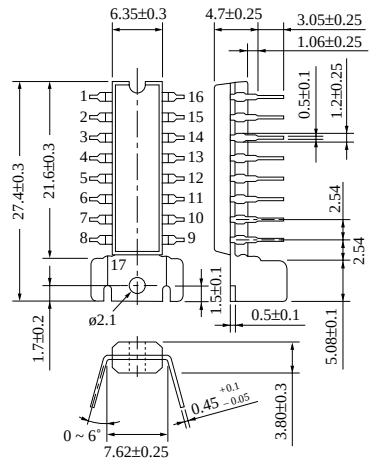
■ Features

- Operating supply voltage range : V_{CC}=8V to 16V
- Stable reference voltage (1.27V) and easy speed adjustment
- Large starting torque and maximum control torque
- Built-in power transistor
- High-density mounting allowed by the SO package
- Forward/reverse constant speed and double speed controls, and fast forward, brake, and pause functions available by 3-bit input

■ Applications

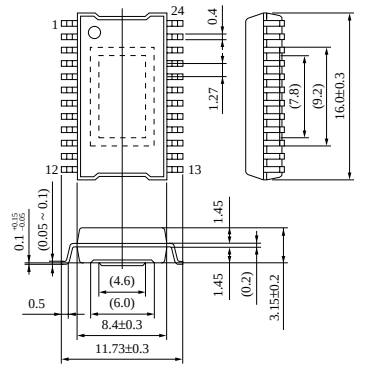
VCRs, cassette decks, radio/cassette tape recorders, car cassette tape players, tape loading DC motor control such as DATs

AN6609N Unit : mm



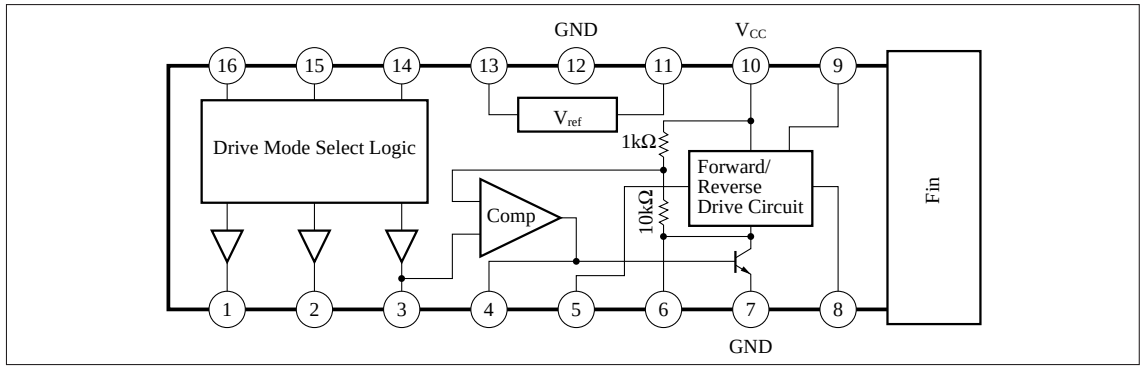
16-pin DIL Plastic Package with Fin (HDIP016-P-0300)

AN6609NS Unit : mm



24-pin HSOP Package (HSOP024-P-0450A)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	18	V
Supply current	I_{CC}	1800 Note 1)	mA
Power dissipation	P_D	2 Note 2)	W
Operating ambient temperature	T_{opr}	–20 to + 70	˚C
Storage temperature	T_{stg}	–50 to + 150	˚C

Note 1) t ≦ 200ms
Note 2) Mounting on PCB (20mm × 20mm of copperfoil is used for heat sink)

■ Recommended Operating Range (Ta=25˚C)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	8V to 16V

■ Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Condition	min	typ	max	Unit
Bias current at no load	I_{bias}	V_{CC}=12V	—	7	15	mA
Reference voltage	V_{ref}	V_{CC}=12V	1.15	1.27	1.4	V
Rated load start voltage	$V_{CC\ (s)}$	Supply voltage with which a motor starts rotating	6.5	—	—	V
Rated r.p.m.	N_L	V_{CC}=12V, N=1600rpm	–8.75	—	8.75	%
R.p.m. characteristics on load change	DN_L	V_{CC}=8V, I_L=55mA to 120mA	–100	—	100	rpm
R.p.m. characteristics on voltage change	DN_U	V_{CC}=8V to 16V, N=1600rpm	–22	0	22	rpm
Double speed forward/reverse r.p.m. difference	DN_{Logi}	V_{CC}=12V, N=3200rpm	–3	0	3	%
Output saturation voltage 1	$V_{sat\ (1)}$	V_{CC}=8V, I_O=1A	—	—	2	V
Output saturation voltage 2	$V_{sat\ (2)}$	V_{CC}=8V, I_O=1A	—	—	1.5	V
R.p.m. characteristics on temperature change	DN_A	V_{CC}=12V, Ta=–10˚C to + 60˚C	—	100	—	ppm/˚C
R.p.m. drift characteristics by time	DN_T	V_{CC}=12V, t=15s to 10ms	—	0.4	—	%

■ Application Circuit