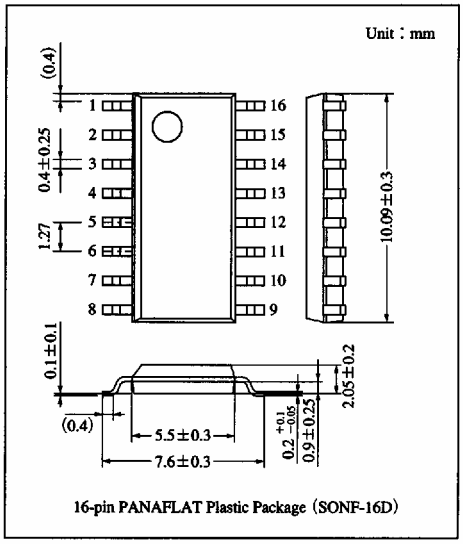
# AN6607NS

## DC Motor Forward/Reverse Dual Speed Electronic Governor

### ■ Overview

The AN6607NS is an electronic governor which incorporates 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.



16-pin PANAFLAT Plastic Package (SONF-16D)

### ■ 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
- Good secular drift because of external 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

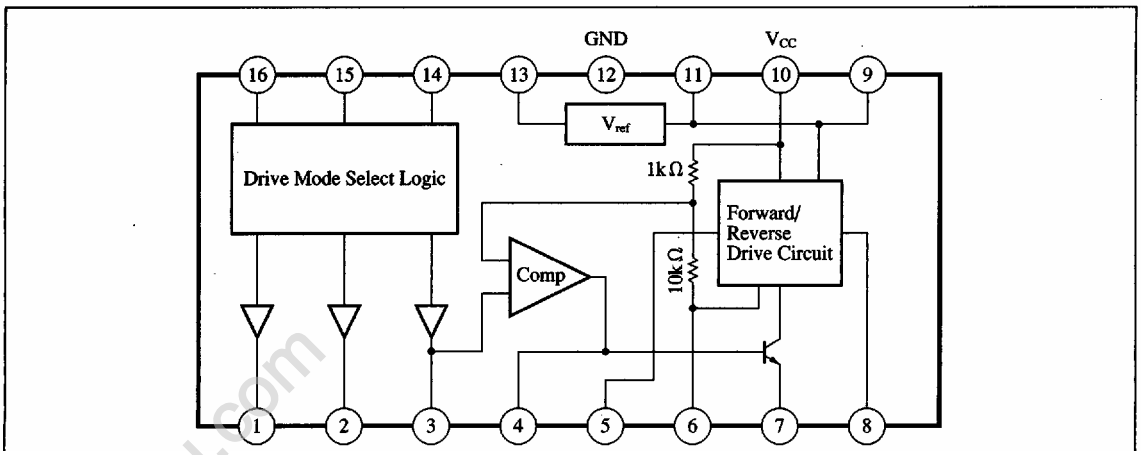
### ■ Applications

Cassette decks, radio/cassette tape recorders, car cassette tape players, DC motor control such as DAT, tape loading motor control

### ■ Pin Name

| Pin No. | Pin name | Pin No. | Pin name |
|---|---|---|---|
| 1 | Double speed setting | 9 | Load characteristic setting |
| 2 | FF setting | 10 | $V_{CC}$ |
| 3 | Speed adjustment | 11 | To pin ⑨ |
| 4 | Phase correction | 12 | GND |
| 5 | Motor drive ⊕ | 13 | Reference voltage ⊖ |
| 6 | Collector connection | 14 | Logic input |
| 7 | Base connection | 15 | Logic input |
| 8 | Motor drive ⊖ | 16 | Logic input |

### ■ Block Diagram



## ■ Absolute Maximum Ratings (Ta=25℃)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Supply voltage | $V_{CC}$ | 18 | V |
| Supply current | $I_C$ | 20 | mA |
| Power dissipation | $P_D$ | 450 | mW |
| Operating ambient temperature | $T_{opr}$ | −20 to +70 | ℃ |
| Storage temperature | $T_{stg}$ | −55 to +125 | ℃ |

## ■ Recommended Operating Range (Ta=25℃)

| Parameter | Symbol | Range |
|---|---|---|
| Operating supply voltage | $V_{CC}$ | 8V to 16V |

## ■ Electrical Characteristics (Ta=25℃)

| 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 | mA |
| Rated load start voltage | $V_{CC(S)}$ | Supply voltage at which rotation starts | 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 | $\Delta N_L$ | $V_{CC}$=8V, $I_L$=55mA to 120mA | −20 | — | 20 | rpm |
| R.p.m. characteristics on voltage change | $\Delta N_V$ | $V_{CC}$=8V to 16V, N=1600rpm | −22 | 0 | 22 | rpm |
| FF/REW r.p.m. difference | $\Delta N_{Logi}$ | $V_{CC}$=12V, N=5300rpm | −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 | $\Delta N_A$ | $V_{CC}$=12V, Ta=−10℃ to +60℃ | — | 100 | — | ppm/℃ |

ICs for Motor

## ■ Application Circuit