

AN6607NS

DC Motor Forward/Reverse Dual Speed Electronic Governor

Overview

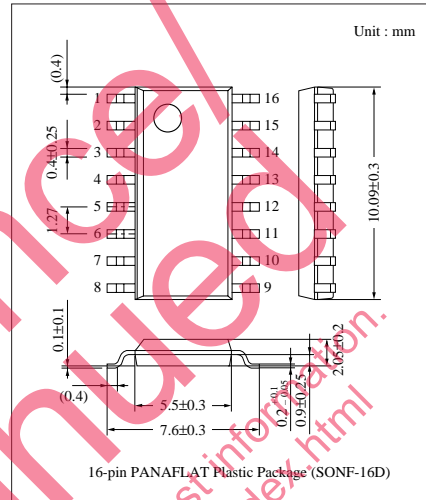
The AN6607NS is an electronic governor which incorporates the forward/reverse rotation and double speed controls of the DC motors used for radio/cassette tape recorder, and the functions such as fast forward, rewind, brake, and pause.

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

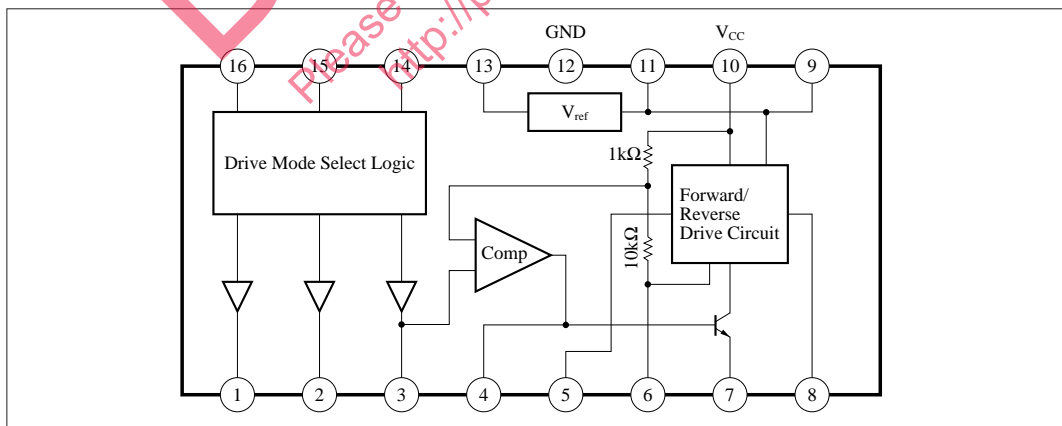
Cassette decks, radio/cassette tape recorders, car cassette tape players, DC motor control such as DAT, tape loading motor control



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 \oplus	13	Reference voltage \ominus
6	Collector connection	14	Logic input
7	Base connection	15	Logic input
8	Motor drive \ominus	16	Logic input

Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

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	°C
Storage temperature	T _{stg}	-55 to +125	°C

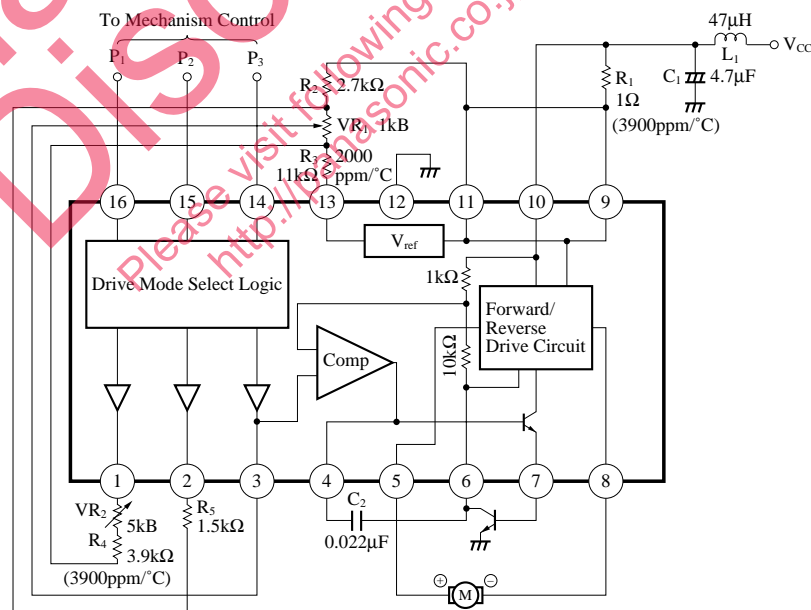
■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating supply voltage	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	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	DN _L	V _{CC} =8V, I _L =55mA to 120mA	-20	—	20	rpm
R.p.m. characteristics on voltage change	DN _V	V _{CC} =8V to 16V, N=1600rpm	-22	0	22	rpm
FF/REW r.p.m. difference	DN _{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	DN _A	V _{CC} =12V, Ta=-10°C to +60°C	—	100	—	ppm/°C

■ Application Circuit



Request for your special attention and precautions in using the technical information and semiconductors described in this book

- (1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.
- (2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products, and no license is granted under any intellectual property right or other right owned by our company or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.
- (3) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (4) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment.
 - Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.
- (7) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.