

AN6652

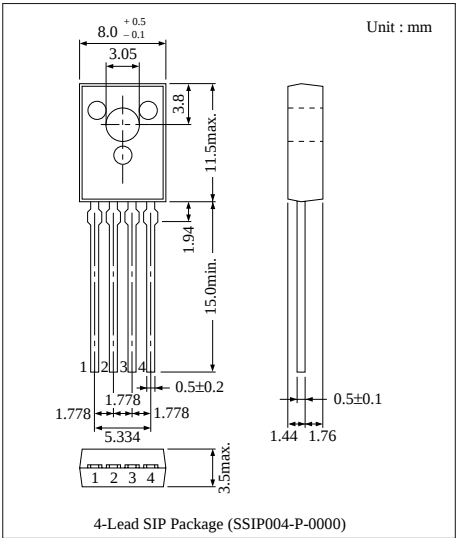
Motor Control Circuit

■ Overview

The AN6652 is an IC designed for the rotating speed control of a compact DC motor which is used for a tape recorder, record player, etc.

■ Features

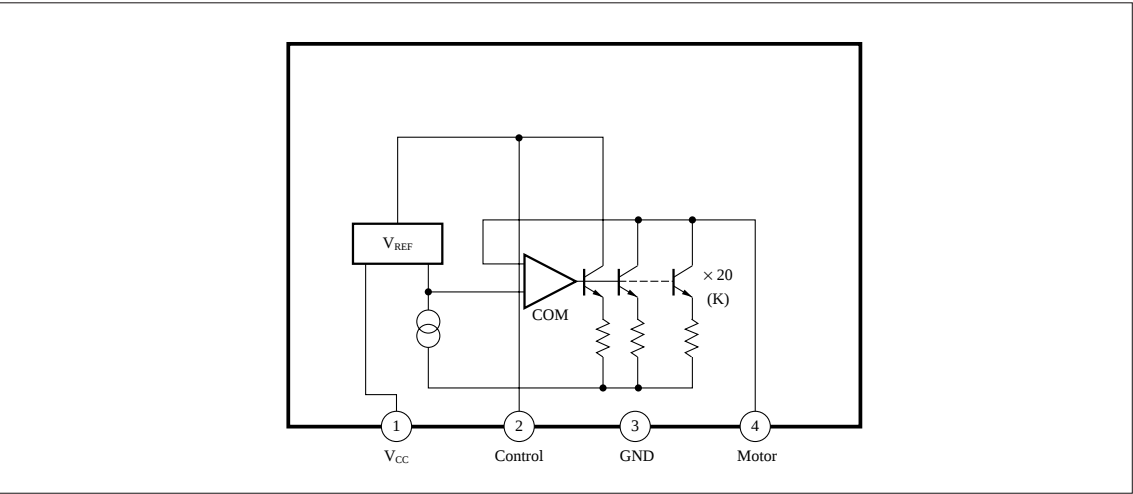
- Small four-lead plastic package for compact motor.
Fewer external parts
- Stable low reference voltage (1.25V typ.), wide motor speed setting
- Highly stable operation over a wide range of supply voltage and torque supply voltage, $V_{CC} = 6V \sim 20V$
- Reverse voltage protection circuit is built-in



■ Pin Descriptions

Pin No.	Pin Name
1	V_{CC}
2	Control Pin
3	GND
4	Motor Pin

■ Block Diagram



■ Absolute Maximum Ratings (Ta= 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	22	V
Supply Current	I_{CC} *2	1500	mA
Power Dissipation	P_D *1	1300	mW
Operating Ambient Temperature	T_{opr}	-20 ~ + 75	°C
Storage Temperature	T_{stg}	- 40 ~ +150	°C

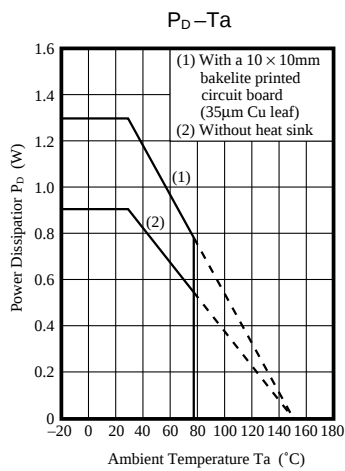
*1 Ta = 25°C, With a 10 × 10mm bakelite printed circuit board (35μm Cu leaf)

*2 t ≤ 5s

■ Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Reference Voltage	V_{REF}	$V_{CC} = 12V$, $R_a = 1k\Omega$	1.15	1.25	1.40	V
Bias Current	I_{Bias}	$V_{CC} = 12V$	—	0.1	1	mA
Current Proportional Constant	K	$V_{CC} = 12V$, $DI_4 = 20mA$	18	20	22	
Saturation Voltage	V_{sat}	$V_{CC} = 8.0V$, $R_a = 18\Omega$	—	1	2	V
Voltage Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / V_{CC}$	$V_{CC} = 9V \sim 16V$, $R_a = 1k\Omega$	- 0.6	- 0.02	0.6	%/V
Voltage Characteristics (2)	$\frac{\Delta K}{K} / V_{CC}$	$V_{CC} = 9V \sim 16V$, $DI_4 = 20mA$	- 0.7	0.2	0.7	%/V
Current Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / I_4$	$I_4 = 10mA \sim 50mA$	- 0.1	- 0.03	0.1	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K} / I_4$	$I_4 = 50mA \sim 100mA$	- 0.15	- 0.01	0.15	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / T_a$	$T_a = -20^\circ C + 75^\circ C$, $V_{CC} = 12V$, $R_a = 1k\Omega$	—	0.01	—	%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K} / T_a$	$T_a = -20^\circ C + 75^\circ C$, $DI_4 = 20mA$	—	0.01	—	%/°C

■ Characteristics Curve



■ Application Circuit

