

# AN6652

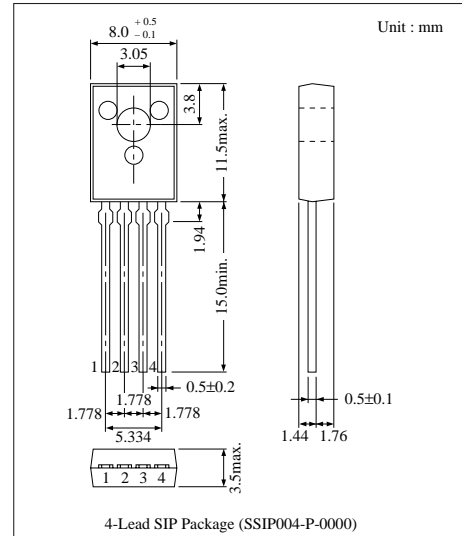
## Motor Control Circuit

### ■ 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

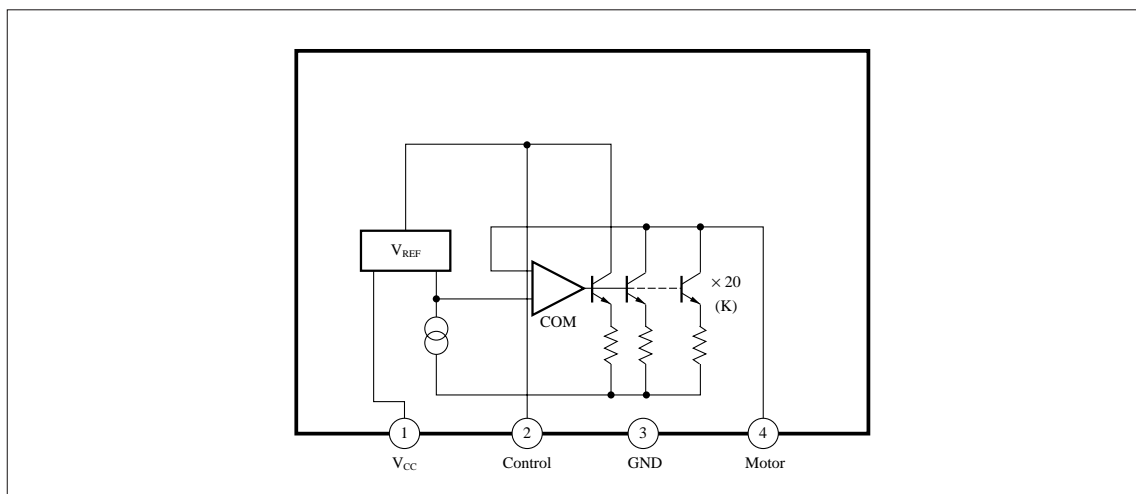
- Small four-lead plastic package for compact motor.  
Fewer external parts
- Stable low reference voltage (1.25V typ.), wide motor speed setting
- Highly stable operation over a wide range of supply voltage and torque supply voltage,  $V_{CC} = 6V \sim 20V$
- Reverse voltage protection circuit is built-in



### ■ 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 <sub>CC</sub>	22	V
Supply Current	I <sub>CC</sub> *2	1500	mA
Power Dissipation	P <sub>D</sub> *1	1300	mW
Operating Ambient Temperature	T <sub>opr</sub>	-20 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	- 40 ~ +150	°C

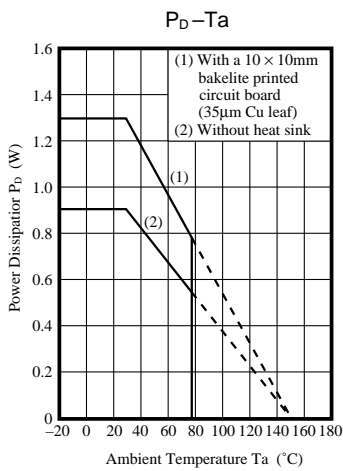
\*1 Ta = 25°C, With a 10 × 10mm bakelite printed circuit board (35µm Cu leaf)

\*2 t ≤ 5s

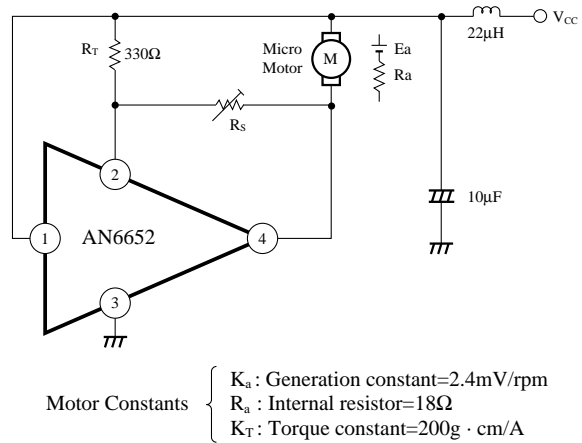
■ Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Reference Voltage	V <sub>REF</sub>	V <sub>CC</sub> = 12V, Ra = 1kΩ	1.15	1.25	1.40	V
Bias Current	I <sub>Bias</sub>	V <sub>CC</sub> = 12V	—	0.1	1	mA
Current Proportional Constant	K	V <sub>CC</sub> = 12V, DI <sub>4</sub> = 20mA	18	20	22	
Saturation Voltage	V <sub>sat</sub>	V <sub>CC</sub> = 8.0V, Ra = 18Ω	—	1	2	V
Voltage Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / V_{CC}$	V <sub>CC</sub> = 9V ~ 16V, Ra = 1kΩ	-0.6	-0.02	0.6	%/V
Voltage Characteristics (2)	$\frac{\Delta K}{K} / V_{CC}$	V <sub>CC</sub> = 9V ~ 16V, DI <sub>4</sub> = 20mA	-0.7	0.2	0.7	%/V
Current Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / I_4$	I <sub>4</sub> = 10mA ~ 50mA	-0.1	-0.03	0.1	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K} / I_4$	I <sub>4</sub> = 50mA ~ 100mA	-0.15	-0.01	0.15	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / T_a$	Ta = -20°C + 75°C, V <sub>CC</sub> = 12V, Ra = 1kΩ	—	0.01	—	%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K} / T_a$	Ta = -20°C + 75°C, DI <sub>4</sub> = 20mA	—	0.01	—	%/°C

■ Characteristics Curve



■ Application Circuit





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