

AN6652

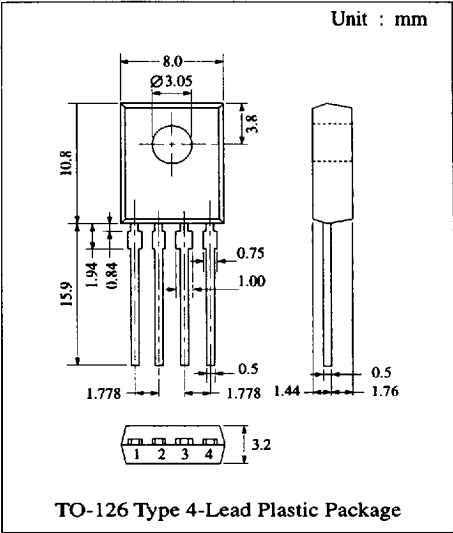
Motor Control Circuit

Description

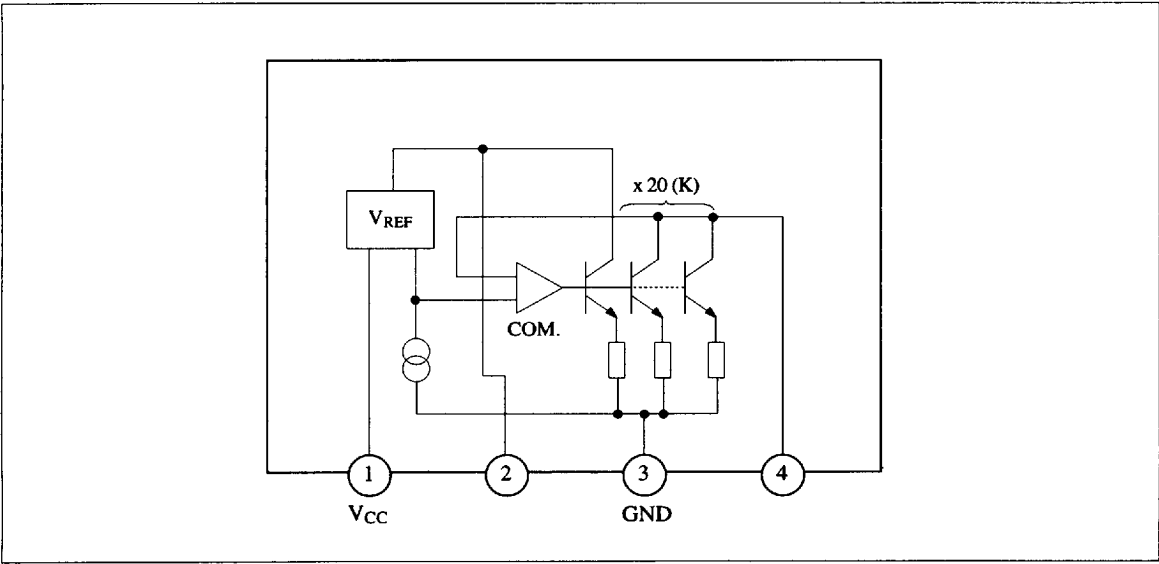
The AN6652 is a monolithic integrated circuit designed for the rotating speed control of a compact DC motor which is used for a tape recorder, record player, etc.

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



Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	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 10mm x 10mm bakelite printed circuit board (35μm Cu leaf) *2) t ≤ 5s
Operating Supply Voltage Range: V_{CC} = 6.0V ~ 20.0V

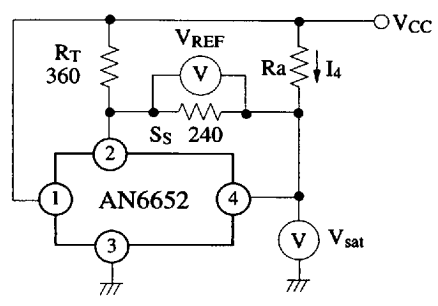
■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Reference Voltage	V _{REF}	1	V _{CC} = 12V, R _a = 1kΩ	1.15	1.25	1.40	V
Bias Current	I _{Bias}	3	V _{CC} = 12V		0.1	1	mA
Current Proportional Constant	K	2	V _{CC} = 12V, ΔI ₄ = 20mA	18	20	22	
Saturation Voltage	V _{sat}	1	V _{CC} = 8V, R _a = 18Ω		1	2	V
Voltage Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / V_{CC}$	1	V _{CC} = 9 ~ 16V, R _a = 1kΩ	-0.6	-0.02	0.6	%/V
Voltage Characteristics (2)	$\frac{\Delta K}{K} / V_{CC}$	2	V _{CC} = 9 ~ 16V, ΔI ₄ = 20mA	-0.7	0.2	0.7	%/V
Current Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / I_4$	1	I ₄ = 10mA ~ 50mA	-0.1	-0.03	0.1	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K} / I_4$	2	I ₄ = 50mA ~ 100mA	-0.15	-0.01	0.15	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / T_a$	1	T _a = -20°C ~ +75°C, V _{CC} = 12V, R _a = 1kΩ		0.01		%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K} / T_a$	2	T _a = -20°C ~ +75°C, ΔI ₄ = 20mA		0.01		%/°C

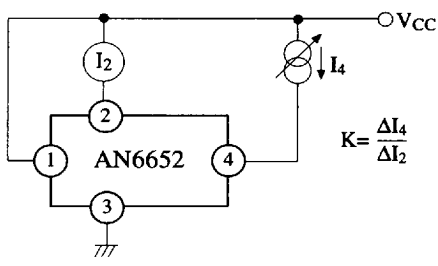
■ Pin

Pin No	Name
1	V _{CC}
2	Control Pin
3	GND
4	Motor Pin

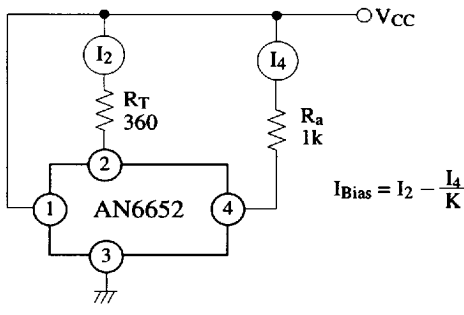
Test Circuit 1 ($V_{REF}, V_{sat}, \frac{\Delta V_{REF}}{V_{REF}}/V_{CC}, \frac{\Delta V_{REF}}{V_{REF}}/I_4, \frac{\Delta V_{REF}}{V_{REF}}/T_a$)



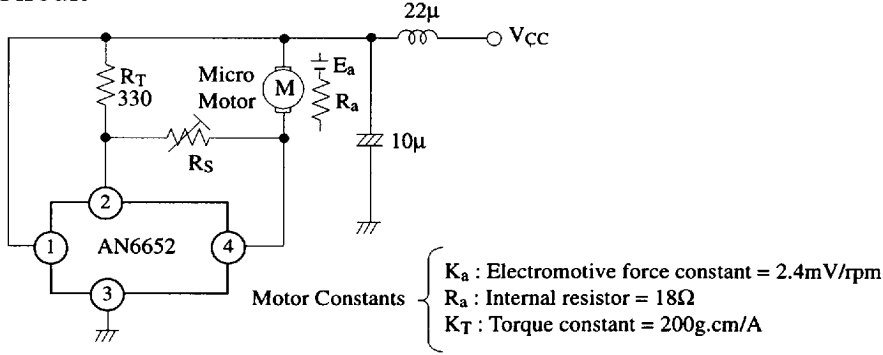
Test Circuit 2 ($K, \frac{\Delta K}{K}/V_{CC}, \frac{\Delta K}{K}/I_4, \frac{\Delta K}{K}/T_a$)



Test Circuit 3 (I_{Bias})



■ Application Circuit



6932852 0013680 254

Panasonic

■ Characteristics Curve

