

AN6651

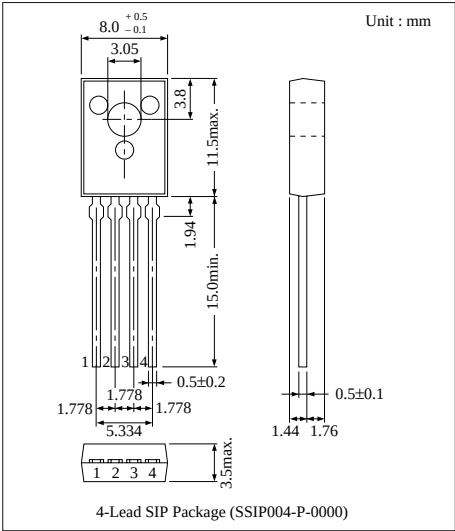
Motor Control Circuit

■ Overview

The AN6651 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

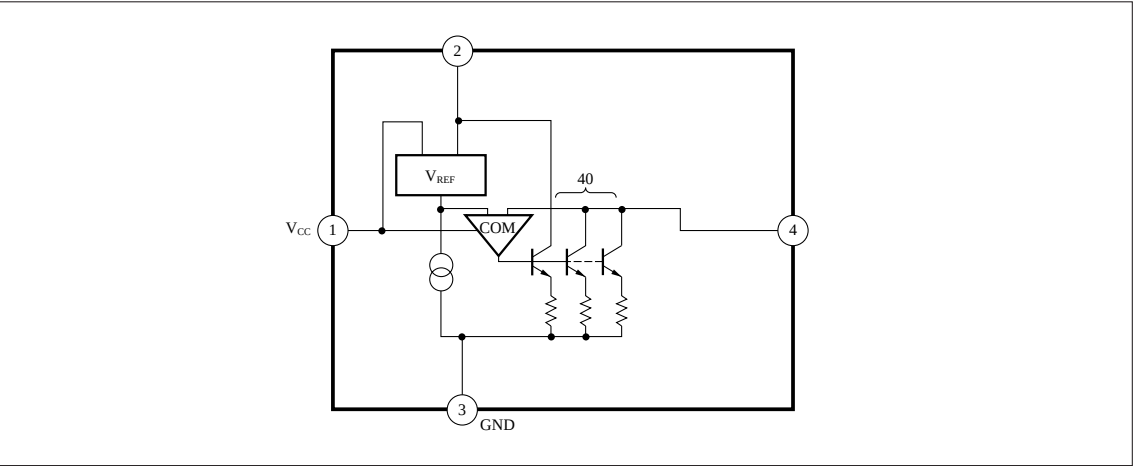
- Small four-lead plastic package for compact motor.
Fewer external parts
- Stable low reference voltage (1.0V typ.), wide motor speed setting
- Highly stable operation over a wide range of supply voltage and torque supply voltage, $V_{CC} = 3.5V \sim 14.4V$
- Reverse voltage protection circuit is built-in



■ 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}	14.4	V
Supply Current	I _{CC} *2	2000	mA
Power Dissipation	P _D *1	1300	mW
Operating Ambient Temperature	T _{opr}	−20 ~ + 75	°C
Storage Temperature	T _{stg}	− 40 ~ +150	°C

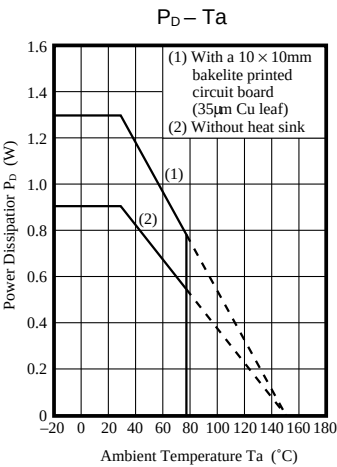
*1 Ta = 25°C, With a 10 × 10mm bakelite printed circuit board (35μm Cu leaf)

*2 t ≤ 5s

■ Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Reference Voltage	V _{REF}	V _{CC} = 6V, Ra = 1kΩ	0.85	1.0	1.15	V
Bias Current	I _{Bias}	V _{CC} = 6V	—	0.8	1.8	mA
Current Proportional Constant	K	V _{CC} = 6V, DI ₄ = 40mA	35	40	45	
Saturation Voltage	V _{sat}	V _{CC} = 4.2V, Ra = 5.0Ω	—	1.15	2	V
Voltage Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}}/V_{CC}$	V _{CC} = 3.5V ~ 14V, Ra = 1kΩ	—	− 0.1	—	%/V
Voltage Characteristics (2)	$\frac{\Delta K}{K}/V_{CC}$	V _{CC} = 3.5V ~ 14V, DI ₄ = 40mA	—	0.2	—	%/V
Current Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}}/I_4$	I ₄ = 50mA ~ 200mA	—	− 0.02	—	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K}/I_4$	I ₄ = 50mA ~ 200mA	—	− 0.01	—	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}}/Ta$	Ta = −20°C ~ 75°C, V _{CC} = 6V, Ra = 1kΩ	—	0.01	—	%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K}/Ta$	Ta = −20°C ~ 75°C, DI ₄ = 40mA	—	0.01	—	%/°C

■ Characteristics Curve



■ Application Circuit

