

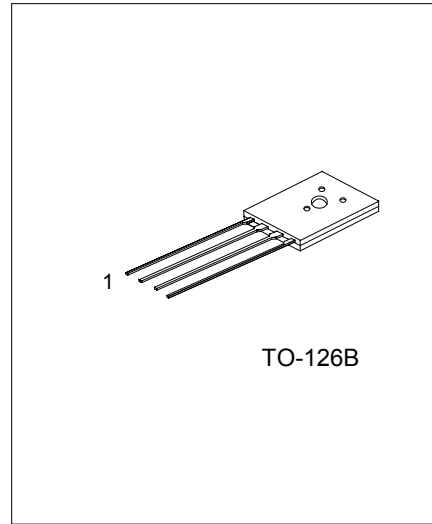
MOTOR CONTROL CIRCUIT

DESCRIPTION

The UTC 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.

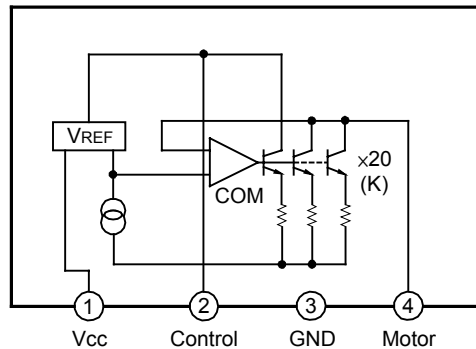
FEATURES

- *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.



1: Vcc 2: Control 3: GND 4: Motor

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|-------------------------------|----------|------|
| Supply Voltage | V _{cc} | 22 | V |
| Supply Current | I _{cc} ^{*2} | 1.5 | A |
| Power Dissipation | P _D ^{*1} | 1.3 | W |
| Operating Temperature | T _{opr} | -20~+75 | °C |
| Storage Temperature | T _{stg} | -40~+150 | °C |

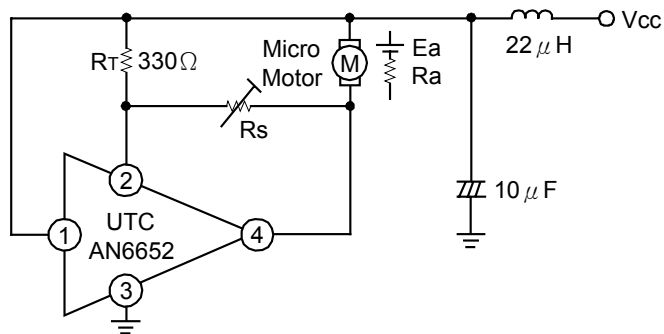
*1. Ta = 25°C, With a 10×10mm bakelite printed circuit board (35μm Cu leaf)

*2. t ≤ 5s

ELECTRICAL CHARACTERISTICS (Ta=25°C)

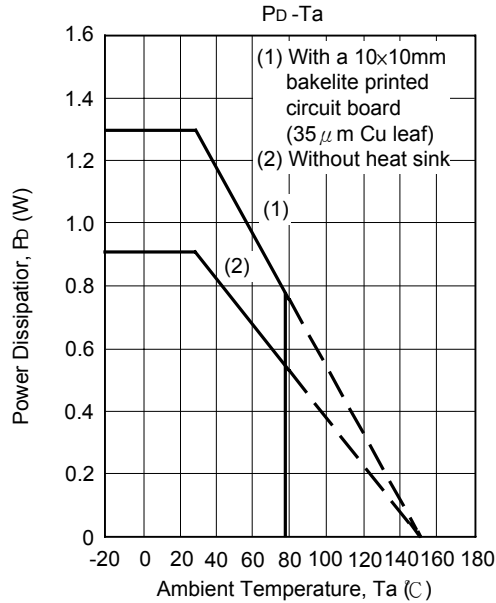
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------------------|---|-------------------------------------|-------|-------|------|------|
| Reference Voltage | VREF | Vcc=12V, Ra=1k Ω | 1.15 | 1.25 | 1.40 | V |
| Bias Current | IBias | Vcc=12V | | 0.1 | 1 | mA |
| Current Proportional Constant | K | Vcc=12V, DI4=20mA | 18 | 20 | 22 | |
| Saturation Voltage | Vsat | Vcc=8.0V, Ra=18 Ω | | 1 | 2 | V |
| Voltage Characteristics (1) | $\frac{\Delta V_{REF}}{V_{REF}} / V_{CC}$ | Vcc=9V~16V, Ra=1k Ω | -0.6 | -0.02 | 0.6 | %/V |
| Voltage Characteristics (2) | $\frac{\Delta K}{K} / V_{CC}$ | Vcc=9V~16V, DI4=20mA | -0.7 | 0.2 | 0.7 | %/V |
| Current Characteristics (1) | $\frac{\Delta V_{REF}}{V_{REF}} / I_4$ | I4=10 mA ~50mA | -0.1 | -0.03 | 0.1 | %/mA |
| Current Characteristics (2) | $\frac{\Delta K}{K} / I_4$ | I4=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, Vcc=12V, Ra=1k Ω | | 0.01 | | %/°C |
| Temperature Characteristics (2) | $\frac{\Delta K}{K} / T_a$ | Ta=-20°C~+75°C, DI4=20mA | | 0.01 | | %/°C |

APPLICATION CIRCUIT



Motor Constants {
 Ka: Generation constant=2.4mV/rpm
 Ra: Internal resistor = 18 Ω
 Kt: Torque constant=200g · cm/A

CHARACTERISTICS CURVE



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