

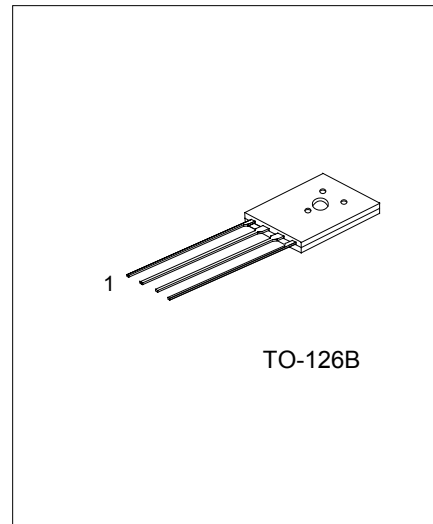
MOTOR CONTROL CIRCUIT

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.

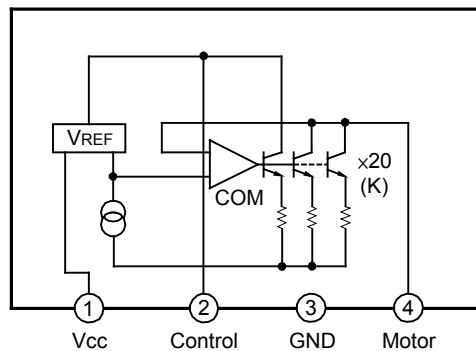
FEATURES

- *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 ($T_a=25^\circ\text{C}$)

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}	$-20\sim+75$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40\sim+150$	$^\circ\text{C}$

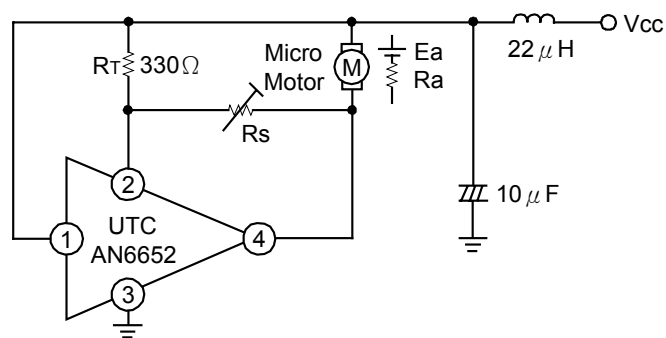
*1. $T_a = 25^\circ\text{C}$, With a $10\times 10\text{mm}$ bakelite printed circuit board ($35\mu\text{m}$ Cu leaf)

*2. $t \leq 5\text{s}$

ELECTRICAL CHARACTERISTICS (Ta=25°C)

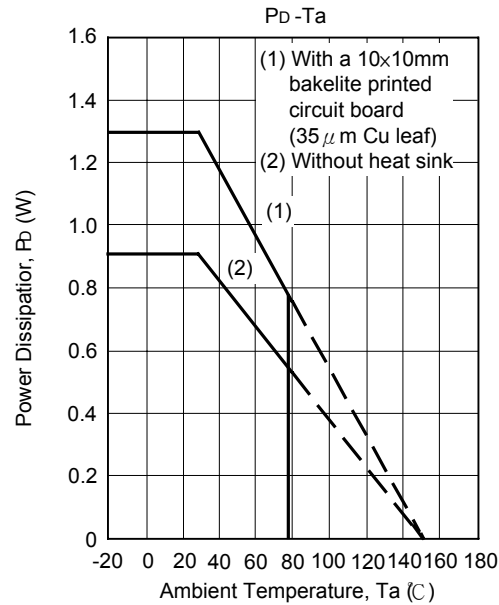
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	$V_{CC}=12V, R_a=1k\Omega$	1.15	1.25	1.40	V
Bias Current	I_{Bias}	$V_{CC}=12V$		0.1	1	mA
Current Proportional Constant	K	$V_{CC}=12V, I_{L4}=20mA$	18	20	22	
Saturation Voltage	V_{sat}	$V_{CC}=8.0V, R_a=18\Omega$		1	2	V
Voltage 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)	$\frac{\Delta K}{K} / V_{CC}$	$V_{CC}=9V\sim 16V, I_{L4}=20mA$	-0.7	0.2	0.7	%/V
Current Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / I_{L4}$	$I_{L4}=10\text{ mA} \sim 50mA$	-0.1	-0.03	0.1	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K} / I_{L4}$	$I_{L4}=50mA\sim 100mA$	-0.15	-0.01	0.15	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{REF}}{V_{REF}} / T_a$	$T_a=-20^\circ C \sim +75^\circ C$, $V_{CC}=12V, R_a=1k\Omega$		0.01		%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K} / T_a$	$T_a=-20^\circ C \sim +75^\circ C$, $I_{L4}=20mA$		0.01		%/°C

APPLICATION CIRCUIT



Motor Constants { K_a : Generation constant=2.4mV/rpm
 R_a : Internal resistor = 18Ω
 K_T : Torque constant=200g·cm/A

CHARACTERISTICS CURVE



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