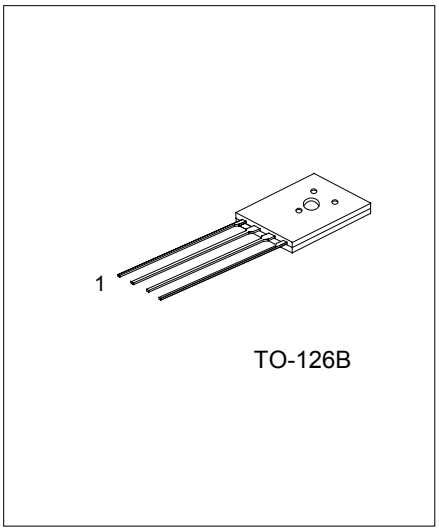
MOTOR CONTROL CIRCUIT

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.

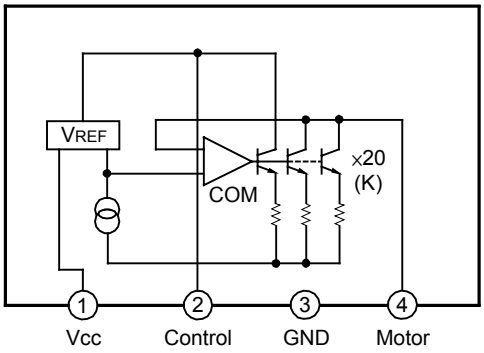
FEATURES

*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, Vcc=6V~20V
*Reverse voltage protection circuit is built-in.



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

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

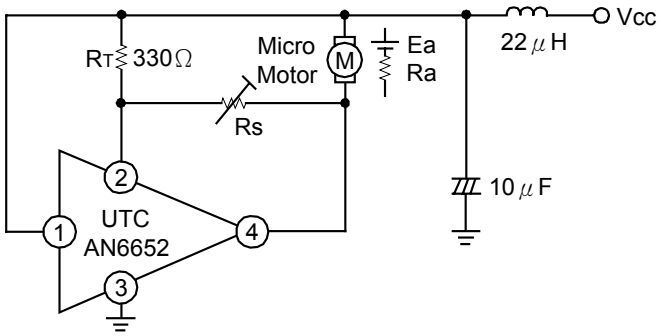
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	Vcc	22	V
Supply Current	Icc *2	1.5	A
Power Dissipation	P_D *1	1.3	W
Operating Temperature	Topr	-20～+75	°C
Storage Temperature	Tstg	-40～+150	°C

*1. Ta = 25°C, With a 10×10mm bakelite printed circuit board (35μm Cu leaf)
*2. t≤5s

ELECTRICAL CHARACTERISTICS (Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	Vcc=12V,Ra=1kΩ	1.15	1.25	1.40	V
Bias Current	I_{Bias}	Vcc=12V		0.1	1	mA
Current Proportional Constant	K	Vcc=12V, DI_4=20mA	18	20	22	
Saturation Voltage	V_{sat}	Vcc=8.0V, Ra=18Ω		1	2	V
Voltage Characteristics (1)	$\frac{\triangle V_{REF}}{V_{REF}} / Vcc$	Vcc=9V~16V, Ra=1kΩ	-0.6	-0.02	0.6	%/V
Voltage Characteristics (2)	$\frac{\triangle K}{K} / Vcc$	Vcc=9V~16V, DI_4=20mA	-0.7	0.2	0.7	%/V
Current Characteristics (1)	$\frac{\triangle V_{REF}}{V_{REF}} / I_4$	I_4=10 mA ~50mA	-0.1	-0.03	0.1	%/mA
Current Characteristics (2)	$\frac{\triangle K}{K} / I_4$	I_4=50mA~100mA	-0.15	-0.01	0.15	%/mA
Temperature Characteristics (1)	$\frac{\triangle V_{REF}}{V_{REF}} / Ta$	Ta=-20℃~+75℃, Vcc=12V,Ra=1kΩ		0.01		%/℃
Temperature Characteristics (2)	$\frac{\triangle K}{K} / Ta$	Ta=-20℃~+75℃, DI_4=20mA		0.01		%/℃

APPLICATION CIRCUIT



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

CHARACTERISTICS CURVE