



AN6652

LINEAR INTEGRATED CIRCUIT

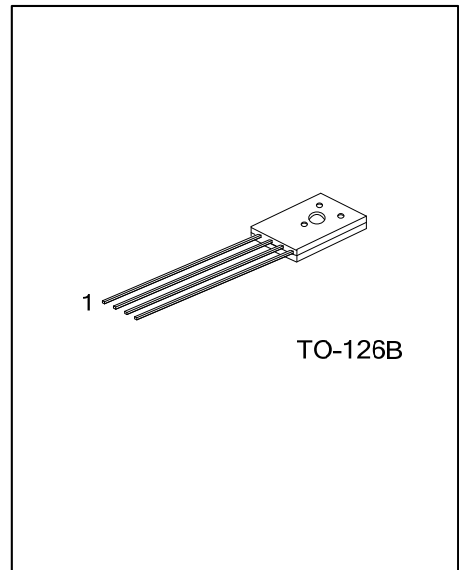
MOTOR CONTROL CIRCUIT

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.

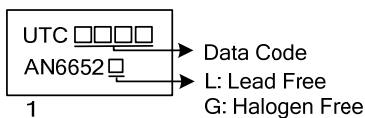


ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
AN6652L-T6B-K	AN6652G-T6B-K	TO-126B	Bulk
AN6652L-T6B-K	AN6652G-T6B-K	TO-126B	Bulk

<p>AN6652L-T6B-K</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) K: Bulk (2) T6B: TO-126B (3) L: Lead Free, G: Halogen Free and Lead Free</p>
-----------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------

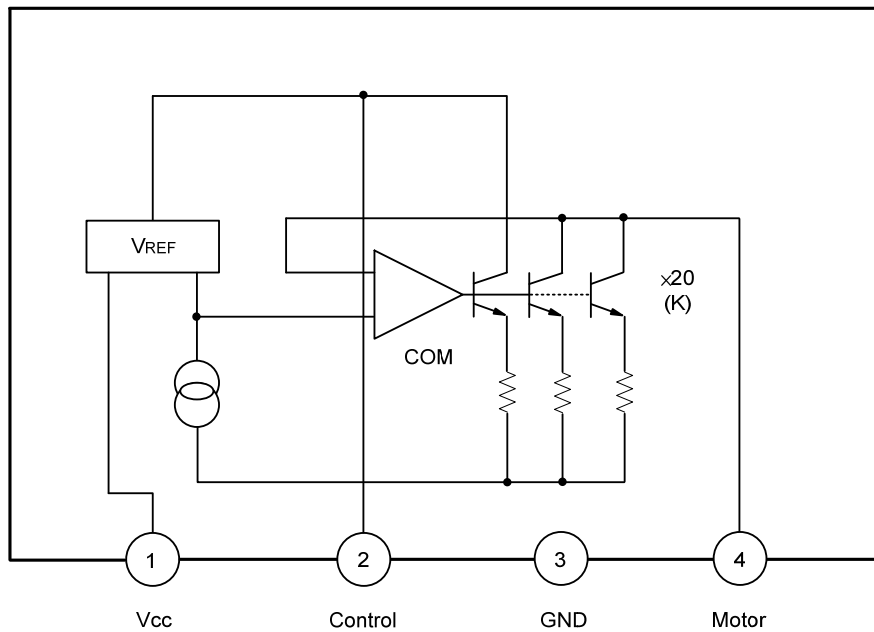
MARKING



■ PIN DESCRIPTIONS

PIN NO.	PIN NAME	PIN FUNCTION
1	V _{CC}	Supply Voltage
2	CONTROL	Control signal input
3	GND	GND
4	MOTOR	Connected to the motor.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

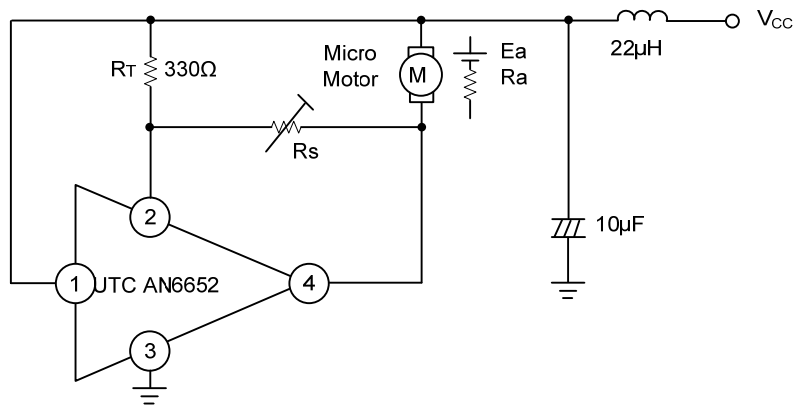
PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V_{CC}	22	V
Supply Current	I_{CC}	1.5	A
Power Dissipation	P_D	1.3	W
Operating Temperature	T_{OPR}	-20 ~ +75	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +150	$^\circ\text{C}$

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Reference Voltage	V_{REF}	$V_{CC}=12\text{V}$, $R_a=1\text{k}\Omega$	1.15	1.25	1.40	V
Base Current	I_{BIAS}	$V_{CC}=12\text{V}$		0.1	1	mA
Current Proportional Constant	K	$V_{CC}=12\text{V}$, $I_{I4}=20\text{mA}$	16	20	22	
Saturation Voltage	V_{SAT}	$V_{CC}=8.0\text{V}$, $R_a=18\Omega$		1	2	V
Voltage Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta V_{CC}}$	$V_{CC}=9\text{V}\sim 16\text{V}$, $R_a=1\text{k}\Omega$	-0.6	-0.02	0.6	%V
Voltage Characteristics 2	$\frac{\Delta K / K}{\Delta V_{CC}}$	$V_{CC}=9\text{V}\sim 16\text{V}$, $I_{I4}=20\text{mA}$	-0.7	0.2	0.7	
Current Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta I_4}$	$I_4=10\text{mA} \sim 50\text{mA}$	-0.1	-0.03	0.1	%mA
Current Characteristics 2	$\frac{\Delta K / K}{\Delta I_4}$	$I_4=50\text{mA}\sim 100\text{mA}$	-0.15	-0.01	0.15	
Temperature Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta T_A}$	$T_A=-20^\circ\text{C} \sim +75^\circ\text{C}$, $V_{CC}=12\text{V}$, $R_a=1\text{k}\Omega$		0.01		%/ $^\circ\text{C}$
Temperature Characteristics 2	$\frac{\Delta K / K}{\Delta T_A}$	$T_A=-20^\circ\text{C} \sim +75^\circ\text{C}$, $I_{I4}=20\text{mA}$		0.01		

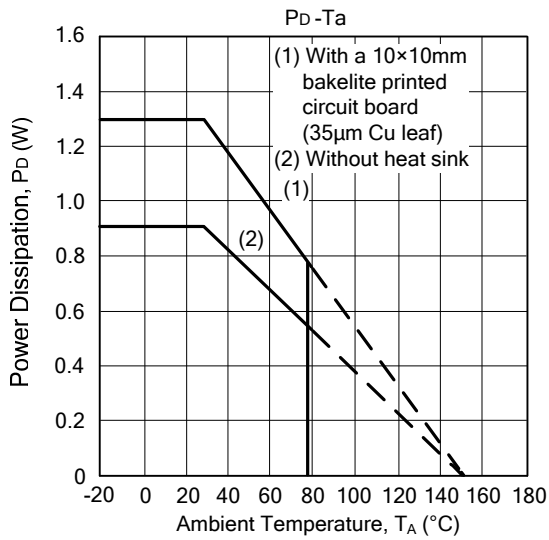
■ TYPICAL APPLICATION CIRCUIT



Motor Constants

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

■ TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.