



AN6651

LINEAR INTEGRATED CIRCUIT

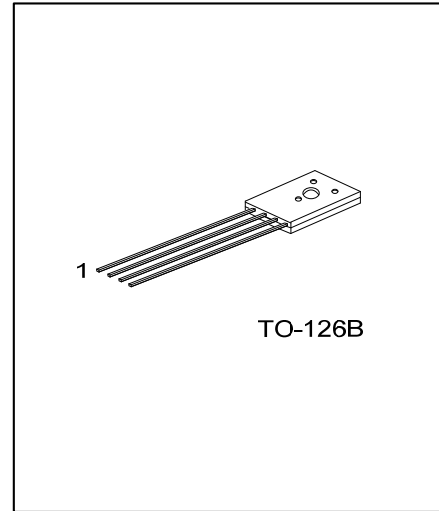
MOTOR SPEED CONTROL CIRCUIT

DESCRIPTION

The UTC **AN6651** is a monolithic integrated circuit designed for the rotating control of a compact DC motor which is used for a tape recorder, recorder player etc.

FEATURES

- *Wide operating supply voltage: $V_{CC}=3.5V \sim 14.4V$
- *Small four-lead plastic packer for compact motor.
- *Few external components
- *Stable low reference voltage (1.0V, typical)
- *Wide motor speed setting
- *Reverse voltage protection circuit built-in



*Pb-free plating product number: AN6651L

ORDERING INFORMATION

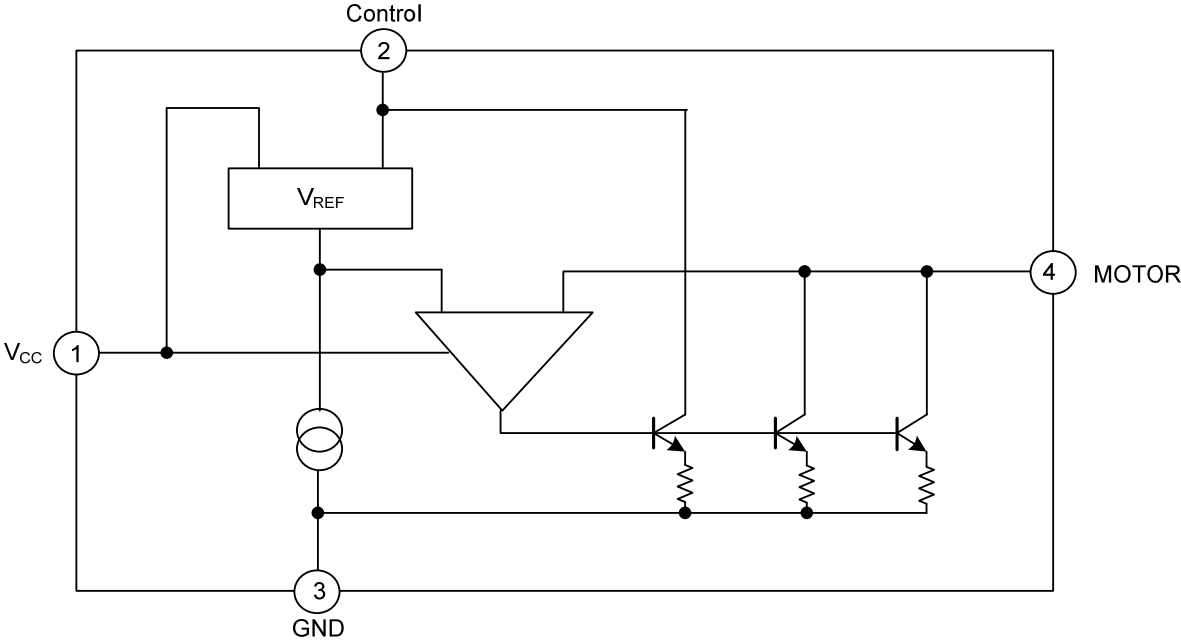
Ordering Number		Package	Packing
Normal	Lead Free Plating		
AN6651-T6B-K	AN6651L-T6B-K	TO-126B	Bulk

<p>AN6651L-T6B-K</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) K: Bulk (2) T6B: TO-126B (3) L: Lead Free Plating, Blank: Pb/Sn</p>
--	--

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°C)

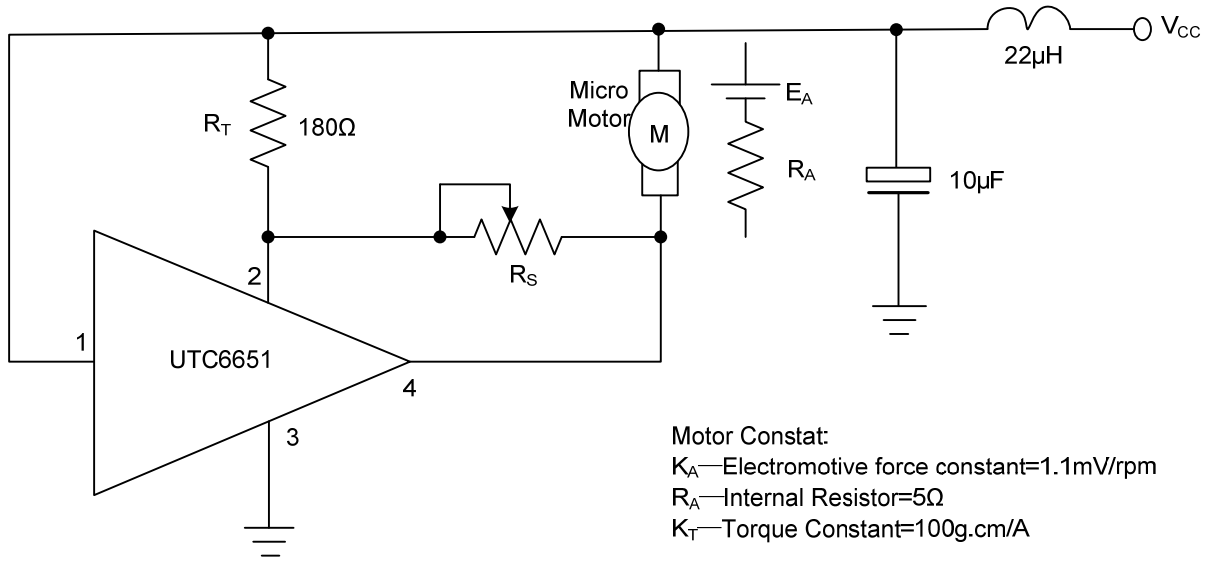
PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V _{CC}	14.4	V
Supply Current	t ≤ 5 sec I _{CC}	2000	mA
Power Dissipation (T _A =25°C)	P _D	1300	mW
Terminal Voltage	V _{n-3} (n=1,2,4)	-0.5 ~ +14.4	V
Terminal Current	I ₁	150	mA
	I ₂	100	
Terminal Current	t ≤ 5 sec I ₃	-2000(min)	
	I ₄	1750	
Operating Temperature	T _{OPR}	-20 ~ +75	°C
Storage Temperature	T _{STG}	-40 ~ +150	

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.

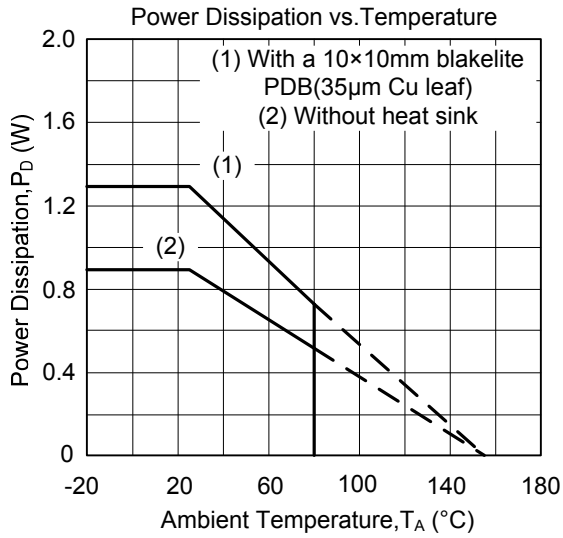
■ ELECTRICAL CHARACTERISTICS (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Reference Voltage	V _{REF}	V _{CC} =6V, R _A =1kΩ	0.85	1.00	1.15	V
Base Current	I _{BIAS}	V _{CC} =6V		0.8	1.8	mA
Current Proportional Constant	K	V _{CC} =6V, ΔI ₄ =40mA	35	40	45	
Saturation Voltage	V _{SAT}	V _{CC} =4.2V, R _A =5.0kΩ		1.15	2.0	V
Voltage Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta V_{CC}}$	V _{CC} =3.5V~14V, R _A =1kΩ		-0.1		μA
Voltage Characteristics 2	$\frac{\Delta K / K}{\Delta V_{CC}}$	V _{CC} =3.5V~14V, ΔI ₄ =40mA		0.2		%
Current Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta I_4}$	I ₄ =50mA~200mA		-0.02		
Current Characteristics 2	$\frac{\Delta K / K}{\Delta I_4}$				-0.01	KHz
Temperature Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta T_A}$	T _A =-20~+75°C, V _{CC} =6V, R _A =1kΩ		0.01		%/°C
Temperature Characteristics 2	$\frac{\Delta K / K}{\Delta T_A}$	T _A =-20~+75°C, ΔI ₄ =40mA		0.01		

■ TYPICAL APPLICATION CIRCUIT



■ 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.