



AN6651

LINEAR INTEGRATED CIRCUIT

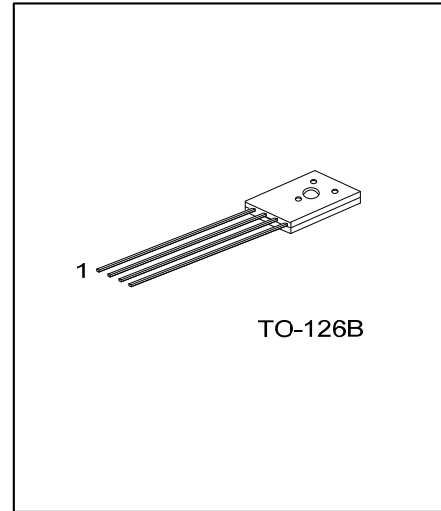
MOTOR SPEED CONTROL CIRCUIT

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>
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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.

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

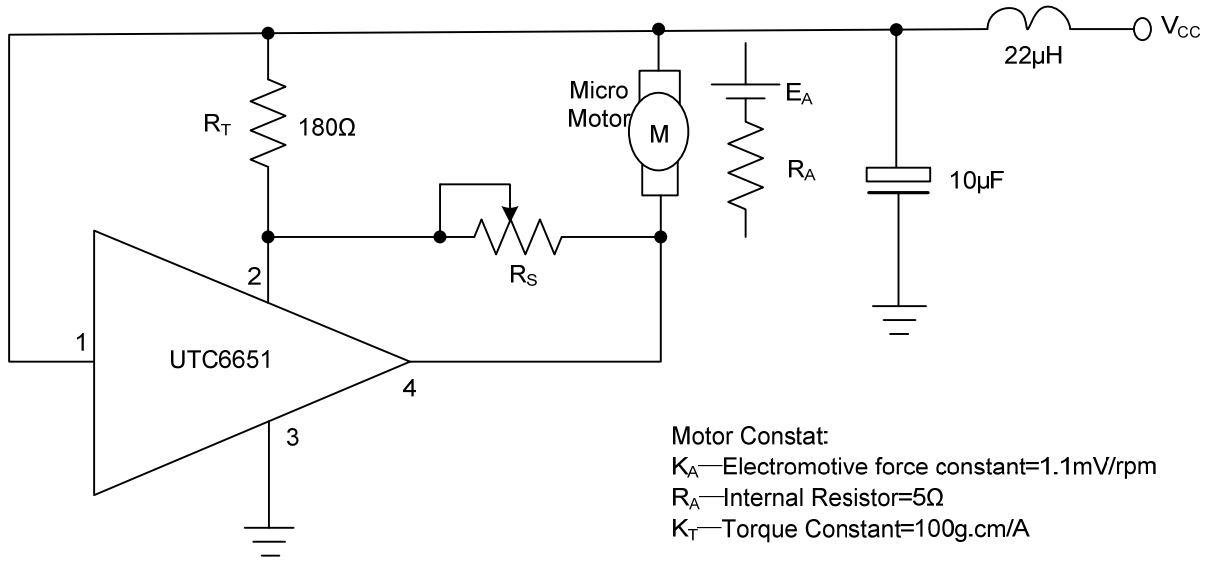
PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V _{CC}	14.4	V
Supply Current	t ≤ 5 sec I _{CC}	2000	mA
Power Dissipation (T _A =25°C)	P _D	1300	mW
Terminal Voltage	V _{n-3} (n=1,2,4)	-0.5 ~ +14.4	V
Terminal Current	I ₁	150	mA
	I ₂	100	
Terminal Current	t ≤ 5 sec I ₃	-2000(min)	
	I ₄	1750	
Operating Temperature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

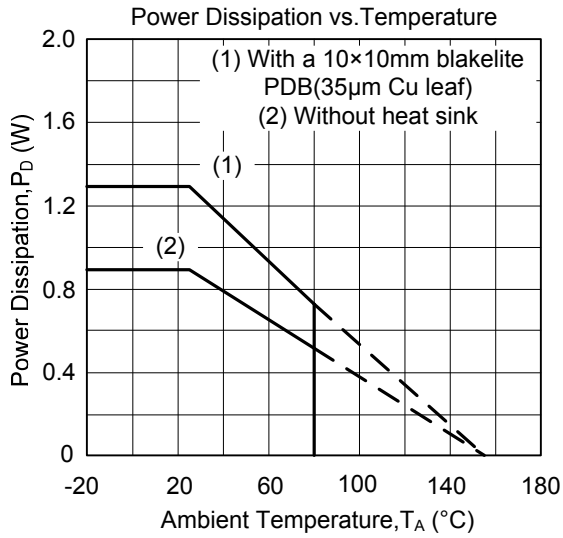
■ ELECTRICAL CHARACTERISTICS (T_A = 25°C, unless otherwise specified)

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



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