



AN6651

LINEAR INTEGRATED CIRCUIT

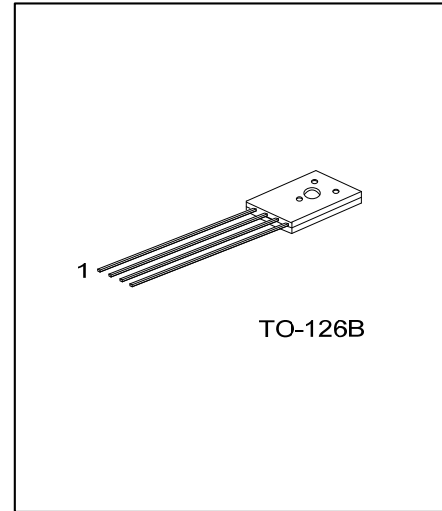
MOTOR SPEED CONTROL CIRCUIT

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

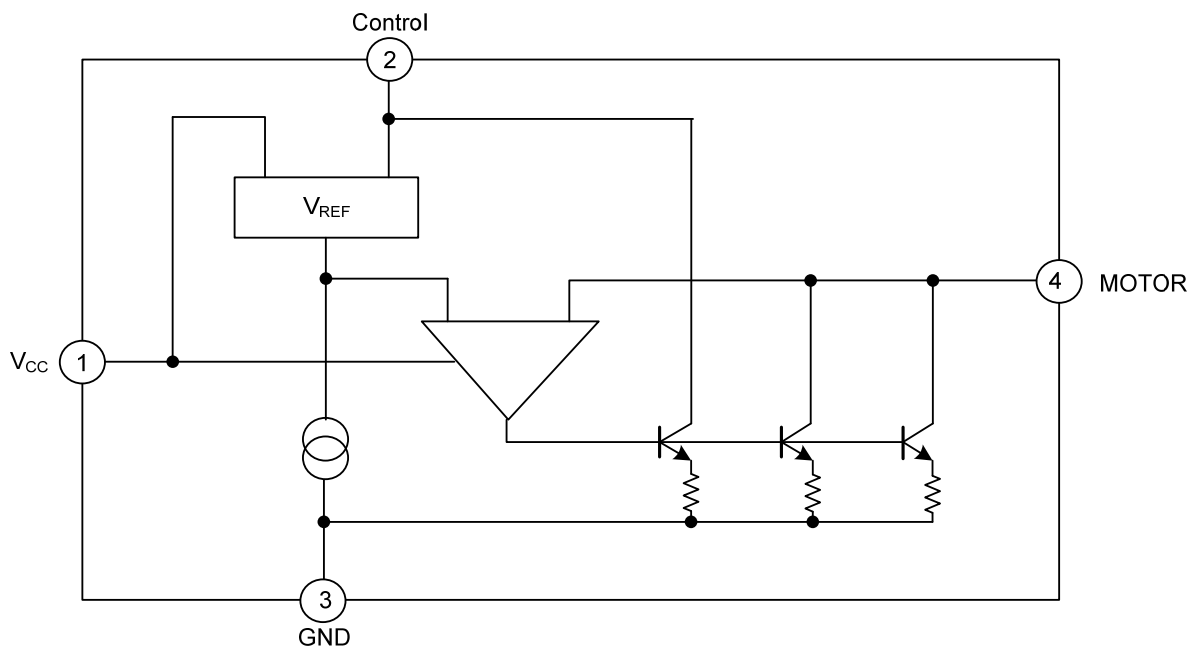
Ordering Number		Package	Packing
Normal	Lead Free Plating		
AN6651-T6B-K	AN6651L-T6B-K	TO-126B	Bulk

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

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 ($T_A=25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V_{CC}	14.4	V
Supply Current	I_{CC}	2000	mA
Power Dissipation ($T_A=25^\circ\text{C}$)	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	I_3	-2000(min)	
	I_4	1750	
Operating Temperature	T_{OPR}	-20 ~ +75	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +150	

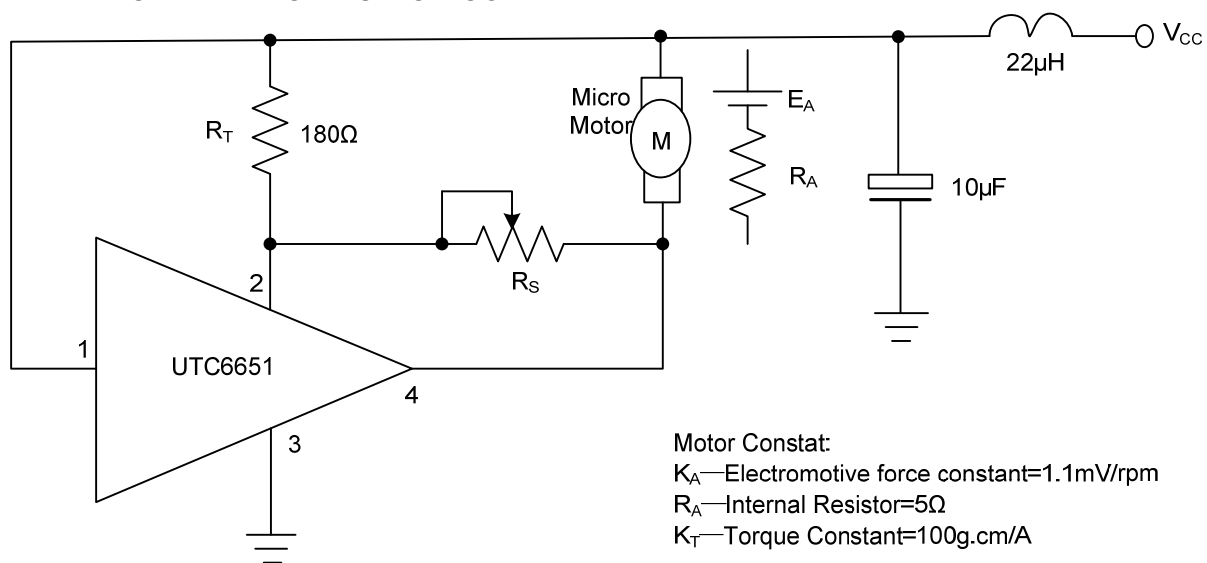
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

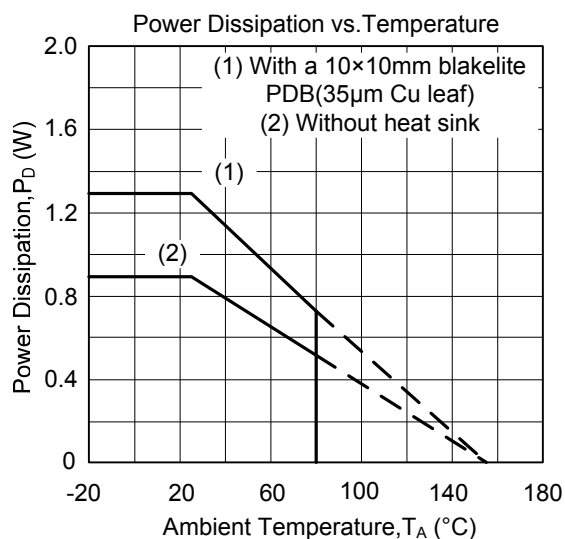
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Reference Voltage	V_{REF}	$V_{CC}=6V, R_A=1k\Omega$	0.85	1.00	1.15	V
Base Current	I_{BIAS}	$V_{CC}=6V$		0.8	1.8	mA
Current Proportional Constant	K	$V_{CC}=6V, \Delta I_4=40mA$	35	40	45	
Saturation Voltage	V_{SAT}	$V_{CC}=4.2V, R_A=5.0k\Omega$		1.15	2.0	V
Voltage Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta V_{CC}}$	$V_{CC}=3.5V \sim 14V, R_A=1k\Omega$		-0.1		μA
Voltage Characteristics 2	$\frac{\Delta K / K}{\Delta V_{CC}}$	$V_{CC}=3.5V \sim 14V, \Delta I_4=40mA$		0.2		%
Current Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta I_4}$	$I_4=50mA \sim 200mA$		-0.02		
Current Characteristics 2	$\frac{\Delta K / K}{\Delta I_4}$			-0.01		KHz
Temperature Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta T_A}$	$T_A=-20 \sim +75^\circ\text{C}, V_{CC}=6V, R_A=1k\Omega$		0.01		$\% / ^\circ\text{C}$
Temperature Characteristics 2	$\frac{\Delta K / K}{\Delta T_A}$	$T_A=-20 \sim +75^\circ\text{C}, \Delta I_4=40mA$		0.01		

■ TYPICAL APPLICATION CIRCUIT



TYPICAL CHARACTERISTICS



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