



## AN6651

## LINEAR INTEGRATED CIRCUIT

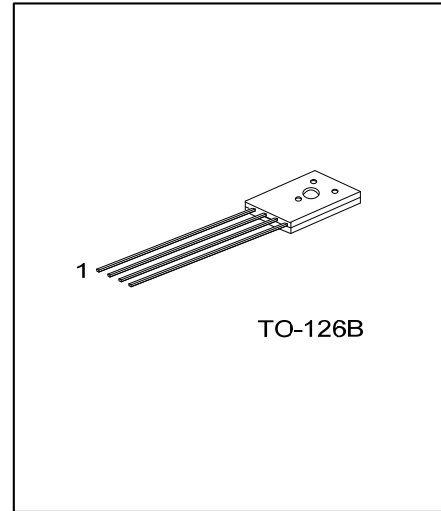
### MOTOR SPEED CONTROL CIRCUIT

#### 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



#### ORDERING INFORMATION

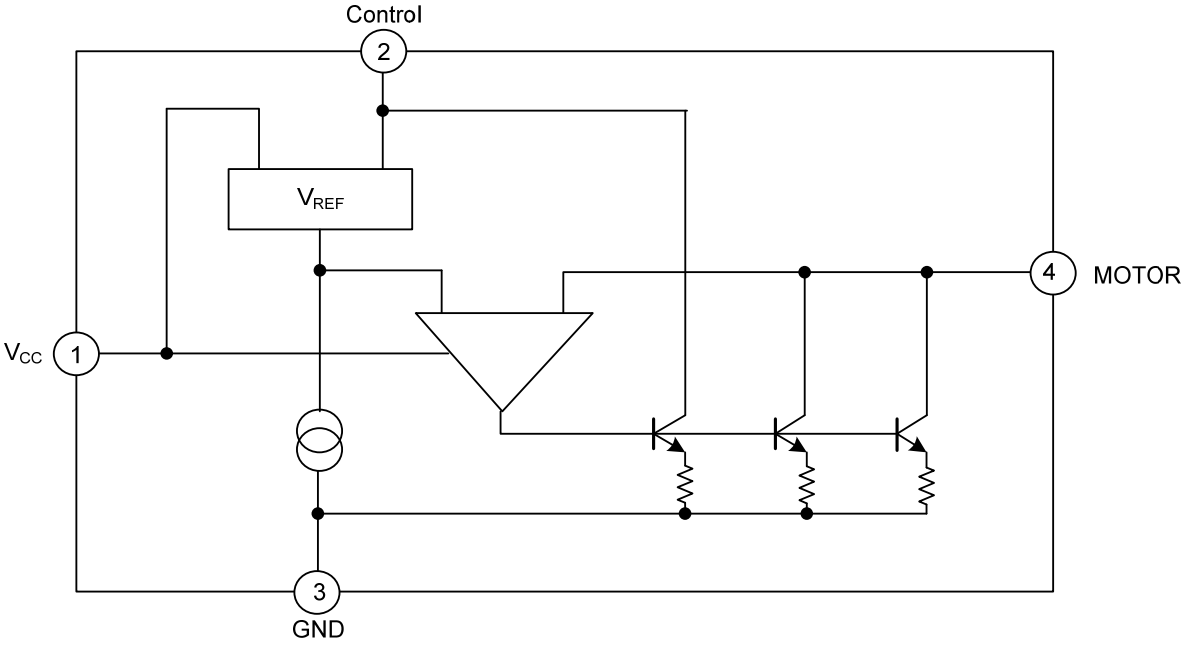
Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
AN6651-T6B-K	AN6651L-T6B-K	AN6651G-T6B-K	TO-126B	Bulk

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

■ BLOCK DIAGRAM



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

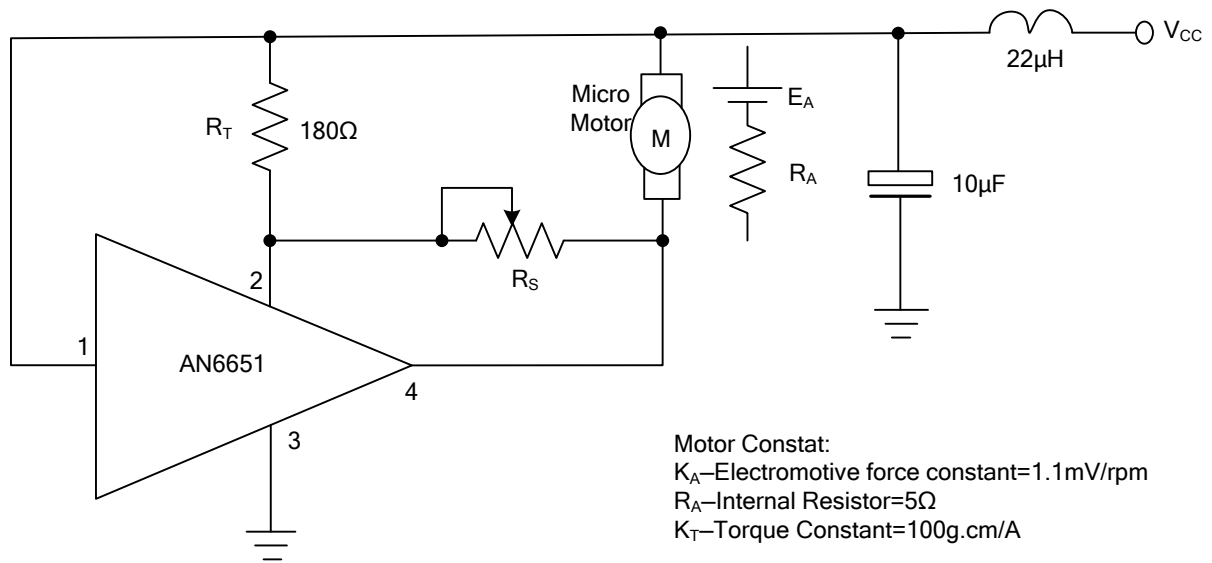
PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	$V_{CC}$	14.4	V
Supply Current	$I_{CC}$	2000	mA
Power Dissipation ( $T_A=25^\circ\text{C}$ )	$P_D$	1300	mW
Terminal Voltage	$V_{n-3}$ ( $n=1,2,4$ )	-0.5 ~ +14.4	V
Terminal Current	$I_1$	150	mA
	$I_2$	100	
Terminal Current	$I_3$	-2000(min)	
	$I_4$	1750	
Operating Temperature	$T_{OPR}$	-20 ~ +75	°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.

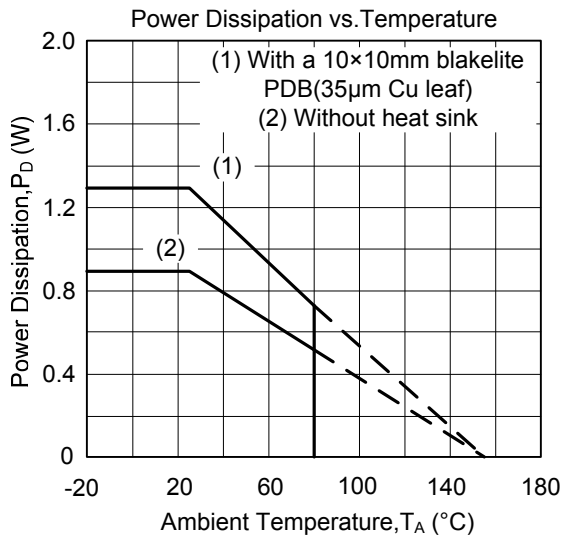
■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

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		$\mu\text{A}$
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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