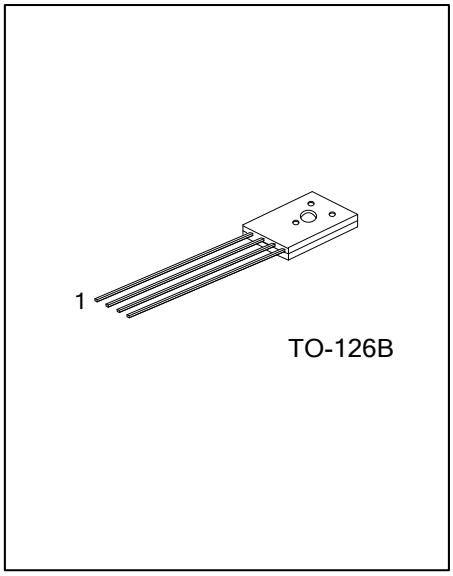
AN6652A **Advance** ***LINEAR INTEGRATED CIRCUIT***

MOTOR CONTROL CIRCUIT



■ DESCRIPTION

The UTC **AN6652A** 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~20V
*Reverse voltage protection circuit is built-in.

■ ORDERING INFORMATION

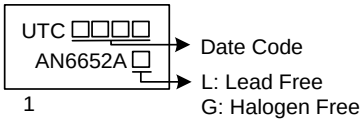
Ordering Number		Package	Packing
Lead Free	Halogen Free		
AN6652AL-T6B-K	AN6652AG-T6B-K	TO-126B	Bulk

AN6652AG-T6B-K

(1) Packing Type
(2) Package Type
(3) Green Package

(1) K: Bulk
(2) T6B: TO-126B
(3) G: Halogen Free and Lead Free, L: Lead Free

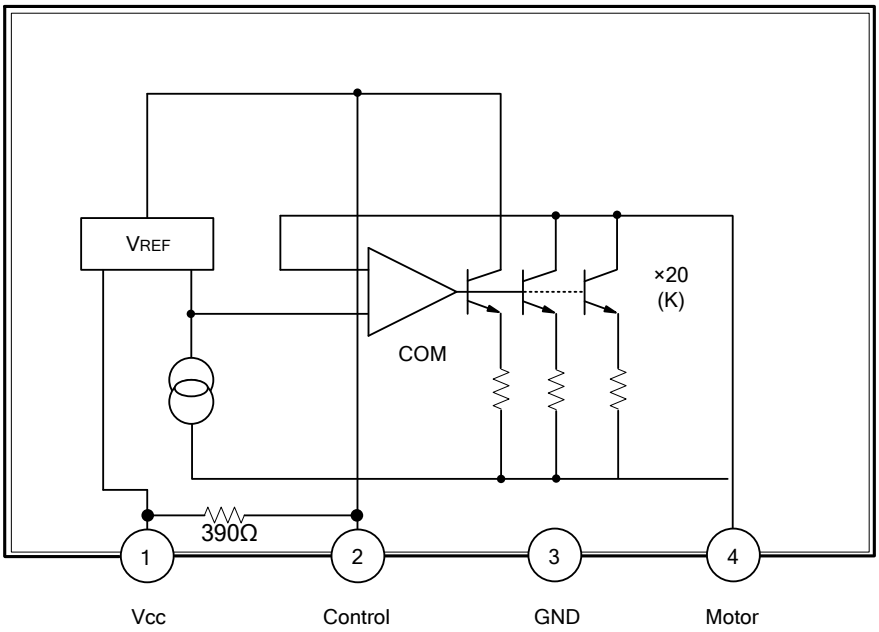
■ MARKING



■ 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°C, unless otherwise specified)

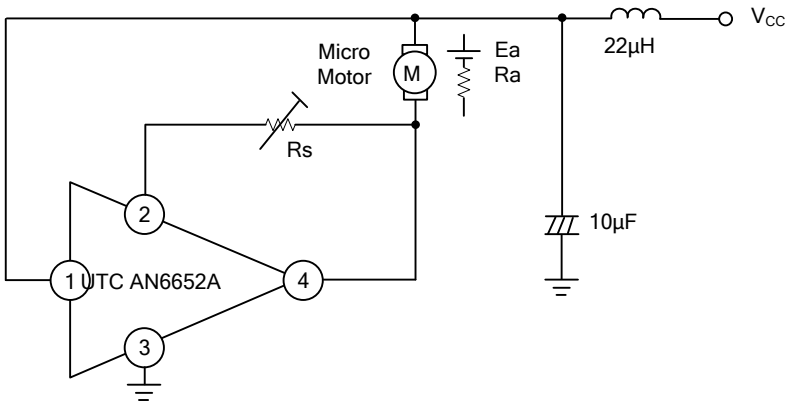
PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V_{CC}	22	V
Supply Current	I_{CC}	1.5	A
Power Dissipation	P_D	1.3	W
Operating Temperature	T_{OPR}	-20 ~ +75	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

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°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Reference Voltage	V_{REF}	V_{CC}=12V, Ra=1kΩ	1.15	1.25	1.40	V
Base Current	I_{BIAS}	V_{CC} =12V		0.1	1	mA
Current Proportional Constant	K	V_{CC} =12V, DI_4=20mA	16	20	22	
Saturation Voltage	V_{SAT}	V_{CC} =8.0V, Ra=18Ω		1	2	V
Voltage Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta V_{CC}}$	V_{CC} =9V~16V, Ra=1kΩ	-0.6	-0.02	0.6	%/V
Voltage Characteristics 2	$\frac{\Delta K / K}{\Delta V_{CC}}$	V_{CC} =9V~16V, DI_4=20mA	-0.7	0.2	0.7	%/V
Current Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta I_4}$	I_4=10 mA ~50mA	-0.1	-0.03	0.1	%/mA
Current Characteristics 2	$\frac{\Delta K / K}{\Delta I_4}$	I_4=50mA~100mA	-0.15	-0.01	0.15	%/mA
Temperature Characteristics 1	$\frac{\Delta V_{REF} / V_{REF}}{\Delta T_A}$	T_A=-20°C ~+75°C, V_{CC}=12V, Ra=1kΩ		0.01		%/°C
Temperature Characteristics 2	$\frac{\Delta K / K}{\Delta T_A}$	T_A=-20°C ~+75°C, DI_4=20mA		0.01		%/°C

■ TYPICAL APPLICATION CIRCUIT



Motor Constants
Ka:Generation constant=2.4mV/rpm
Ra:Internal resistor = 18Ω
K_T:Torque constant=200g cm/A

■ TYPICAL CHARACTERISTICS