



AN8850

Preliminary

CMOS IC

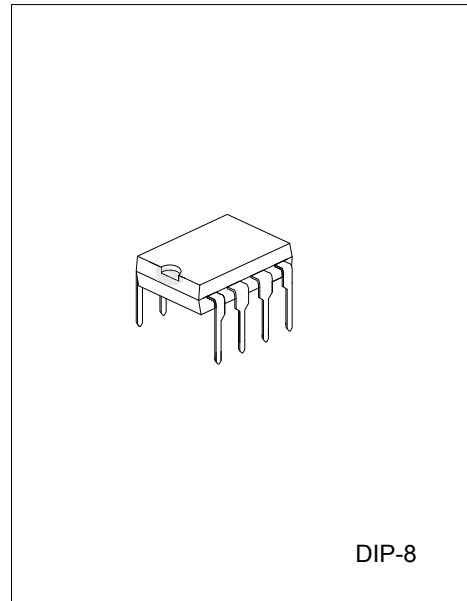
MOTOR CONTROL CIRCUITS

DESCRIPTION

The UTC **AN8850** is a electronic governor suitable for low-voltage and compact DC motors generally used in the tape recorder, etc.

FEATURES

- * Wide range of operating voltage : $V_{CC(opr)} = 1.8V \sim 12V$
- * 2 package types
- * Fewer external parts
- * Speed control in steps with linear fine control



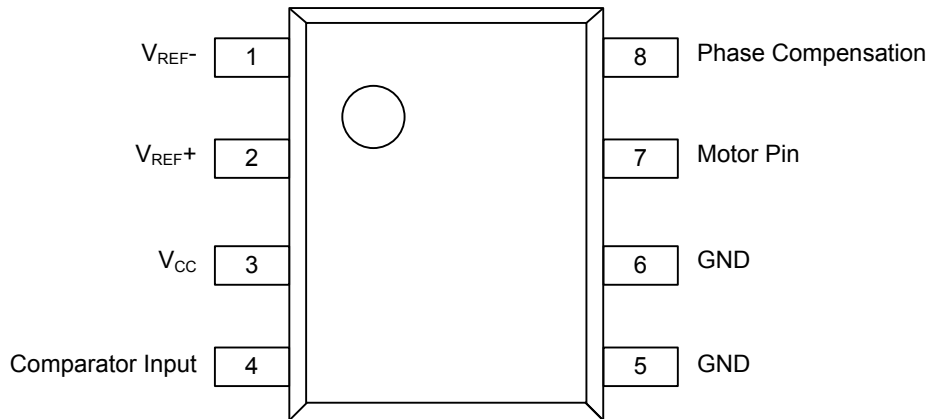
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
AN8850L-D08-T	AN8850G-D08-T	DIP-8	Tube

Note: xx: Output Voltage, refer to Marking Information.

<p>AN8850L-D08-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) D08: DIP-8</p> <p>(3) Halogen Free, L: Lead Free</p>
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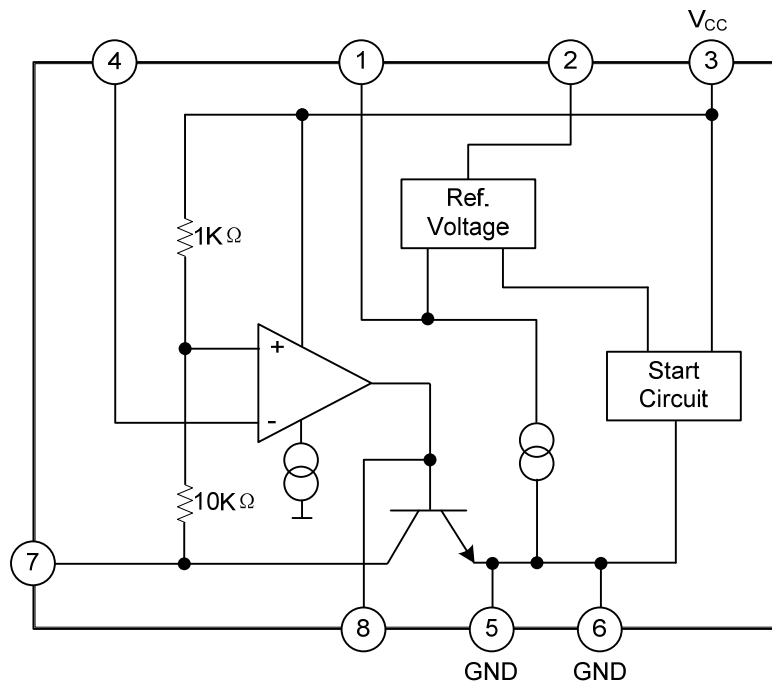
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{REF-}	V _{REF-}
2	V _{REF+}	V _{REF+}
3	V _{CC}	Power Supply
4	Comparator Input	Input of Comparator
5	GND	Ground
6	GND	Ground
7	Motor Pin	Output Pin
8	Phase Compensation	Phase Compensation

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (Ta= 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	12	V
Circuit Voltage	$V_{n-5,6}$ (n = 1, 2, 3, 4)	-0.5~7.5	V
Circuit Voltage	$V_{n-5,6}$	-0.5~1	V
Supply Current	I_{CC} (Note 1)	2	A
Circuit Current	I_{OUT}	2	A
Power Dissipation	P_D	750	mW
Operating Ambient Temperature	T_{OPR}	-20~+75	°C
Storage Temperature	T_{STG}	-40~+150	°C

Notes: 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.

1. $t \leq 5\mu s$

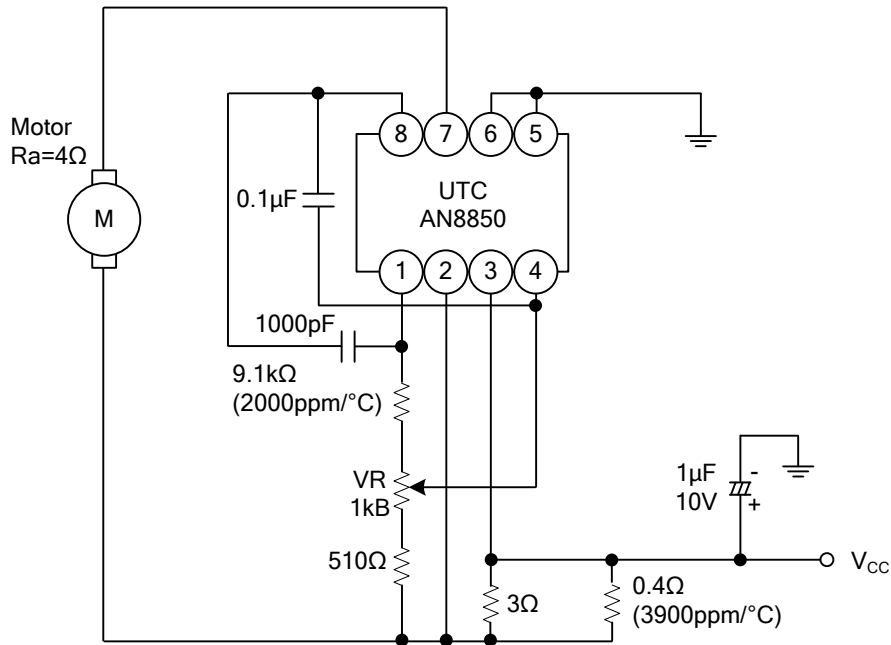
■ ELECTRICAL CHARACTERISTICS (Ta= 25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	I_{CC}	$V_{CC}=3V$		2	3	mA
Reference Voltage	V_{ref}	$V_{CC}=3V, V_{2-1}>10k\Omega$	1.20	1.28	1.35	V
Starting Voltage	$V_{CC(s)}$	Supply voltage in which 30mA current flows to Ra		1.0	1.2	V
Saturation Voltage	V_{SAT}	$V_{CC}=1.8V, R_a=4.7\Omega$		0.2	0.5	V
Voltage Characteristics 1	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{CC}$	$V_{CC}= 1.8V \sim 12V$	-1.25	0.1	1.25	%V
Voltage Characteristics 2	$\frac{\Delta V_a}{V_a} / \Delta V_{CC}$	$V_{CC}= 1.8V \sim 12V$	-1.2	0.1	1.2	%V
Current Characteristics	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta I_{OUT}$	$I_{OUT} = 1 \sim 20mA$	-0.2	0.01	0.2	%mA
Current Characteristics	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta Ta$	$Ta=-20 \sim +60^\circ C, V_{CC}=3.0V$		0.01		%°C

Note: Operating Supply Voltage Range : $V_{CC (opr)} = 1.8V \sim 12V$

■ TYPICAL APPLICATION CIRCUIT

Speed Control Circuit with 3V Core Motor



- Motor Constants
- R_a : Internal resistor = 4Ω
 - K_a : Electromotive force constant = 0.4mV/rpm
 - K_T : Torque constant = $30\text{g} \cdot \text{cm/A}$

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