

NTE1844 Integrated Circuit Motor Speed Regulator

Description:

The NTE1844 is a monolithic integrated circuit intended for speed regulation of DC motors in record players, tape, and cassette recorders, conveniently packaged in a 4-Lead SIP type plastic package.

Features:

- High Output/Low Quiescent Currents
- Low Reference Voltage
- Excellent Stability versus Temperature, Parameters
- Excellent Characteristics even at Low Supply Voltages

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$)

Supply Voltage, V_{CC} 18V
 Circuit Current ($t \leq 5\text{sec}$), I_O 2A
 Package Dissipation, P_D 1.2W
 Operating Temperature Range, T_{opr} -20° to $+75^\circ\text{C}$
 Storage Temperature Range, T_{stg} -40° to $+150^\circ\text{C}$

Recommended Operating Condition:

Supply Voltage Range, V_{CC} 3.5V to 16V

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 12\text{V}$, Pulse Test $PW \leq 10\text{ms}$, Duty Cycle $\leq 2\%$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Voltage	V_{ref}	$I_4 = 10\text{mA}$	1.10	1.27	1.40	V
Quiescent Current	I_d	$R_M = 180\Omega$	0.5	0.8	1.2	mA
Reflection Coefficient	k	$R_{M1} = 44\Omega$, $R_{M2} = 33\Omega$	18	20	22	
Saturation Voltage	$V_{4(sat)}$	$V_{CC} = 4.2\text{V}$, $R_M = 4.4\Omega$	—	1.5	2.0	V
	$\frac{\Delta k}{k} / \Delta V_{CC}$	$I_4 = 100\text{mA}$, $V_{CC} = 6.3\text{V}$ to 16V	—	0.4	—	%/V

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 12\text{V}$, Pulse Test $PW \leq 10\text{ms}$, Duty Cycle $\leq 2\%$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation	$\frac{\Delta V_{\text{ref}}}{V_{\text{ref}}} / \Delta V_{CC}$	$I_4 = 100\text{mA}$, $V_{CC} = 6.3\text{V}$ to 16V	–	0.06	–	%/V
	$\frac{\Delta k}{k} / \Delta I_M$	$I_4 = 30\text{mA}$ to 200mA	–	–0.02	–	%/mA
Load Regulation	$\frac{\Delta V_{\text{ref}}}{V_{\text{ref}}} / \Delta I_M$	$I_4 = 30\text{mA}$ to 200mA	–	–0.02	–	%/mA
	$\frac{\Delta k}{k} / \Delta T_A$	$I_4 = 100\text{mA}$, $T_A = -20^\circ$ to $+75^\circ\text{C}$	–	0.01	–	%/°C
Temperature Coefficient	$\frac{\Delta V_{\text{ref}}}{V_{\text{ref}}} / \Delta T_A$	$I_4 = 100\text{mA}$, $T_A = -20^\circ$ to $+75^\circ\text{C}$	–	0.01	–	%/°C

Note 1. R_M = internal motor resistance

k = I_4/I_2 where:

I_2 and I_4 are currents flowing from V_{CC} thru external resistors or internal motor resistance to Pin2 (I_2) and Pin4 (I_4).

Pin Connection Diagram
(Front View)

