



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>

NTE1809 Integrated Circuit VCR Capstan, DD, Motor Driver

Description:

The NTE1809 is an integrated circuit in a 24-Lead DIP type package designed for a VCR capstan direct-drive motor drive.

Features:

- Three-phase full-wave operation
- Built-in output transistors
- Built-in torque ripple canceller circuit
- Max. output current (I_{Omax}): 1.5A
- Max. operation voltage of motor (V_{Mmax}): 24V
- Supply voltage: 5V

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

Supply Voltage, V_{CC} 6V
 Motor Supply Voltage, $V_{M(24)}$ 24V
 Motor Drive Current, I_1, I_3, I_{23} $\pm 1.5\text{A}$
 Output Terminal Voltage, V_1, V_3, V_{23} 24V
 Power Dissipation, P_D 2000mW
 Operating Ambient Temperature Range, T_{opr} -20° to $+70^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_{CC}	$V_{CC} = 5\text{V}$	-	-	15	mA
Torque Reference Voltage	ECR	$V_{CC} = 5\text{V}$	2.3	-	3	V
Torque Command Voltage	EC	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	1	-	4	V
Torque Command Voltage Offset	EC_{offset}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	-150	-	+150	mV
Torque Command Voltage Dead Zone	EC_{dead}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	60	-	150	mV
Output Idle Voltage	EC_{idle}	$V_{CC} = 5\text{V}$				
Input/Output Gain	G_{io}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	0.51	-	0.65	times
Forward Command Voltage	E_{D-F}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	-	-	0.9	V
STOP Command Voltage	E_{D-S}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	1.3	-	3	V
Reverse Command Voltage	E_{D-R}	$V_{CC} = 5\text{V}, \text{ECR} = 25\text{V}$	3.5	-	-	V
Hall Element Supply Voltage	V_{H+}	$V_{CC} = 5\text{V}, I_H = 20\text{mA}$	2.6	-	3.2	V

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Hall Element Input Allowable	$V_{H(IN)}$	$V_{CC} = 5V, I_H = 20mA$	1.2	-	2.35	V
Hall Element Offset Referred to Input	$V_{H(offset)}$	$V_{CC} = 5V, I_H = 20mA$	-5	-	5	mV
Upper Saturation Voltage	$V_{P(sat)}$	$I_A = 1A$	-1.2	-	-	V
Lower Saturation Voltage	$V_{N(sat)}$	$I_A = 1A$	-	-	1.8	V
Torque Limit-Current Sense Offset	TL-CS (offset)	$V_{TL} = 700mV$	15	-	40	mV
Ripple Cancel Output	V_{RCC}	$V_{CC} = 5V$	50	-	-	mV
Ripple Cancel ON Voltage	V_{RCC-ON}	$V_{CC} = 5V$	-	-	0.9	V
Direction Detection Output Voltage	V_{ER}	$V_{CC} = 5V$	-	-	0.5	V

Note 1. Range of the operating supply voltage: $V_{CC(opr)} = 4.5V$ to $5.5V$

Pin Connection Diagram
(Front View)

