



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
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## NTE7043 & NTE7043P Integrated Circuit Motor Driver <sup>w/4</sup> Modes

**Features:**

- 4 Modes Available: CW, CCW, STOP, and BRAKE
- Output Current Up to 1A (Average) and 2A (Peak)
- Wide Range of Operating Voltage:
  - $V_{CC\ opr} = 4.5V\ to\ 18V$
  - $V_S = 0\ to\ 18V$
  - $V_{ref} = 0\ to\ 18V$
- Built-In Thermal Shutdown, Overcurrent Protector, and Punch-Through Current Restriction Circuit
- Stand-By Mode Available: STOP Mode
- Hysteresis for All Inputs
- Two Package Styles Available:
  - NTE7043: 9-Lead SIP
  - NTE7043P: 10-Lead SIP <sup>w/</sup>Heat Sink Tab

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

Supply Voltage, $V_{CC}$ .....	25V
Motor Drive Voltage, $V_S$ .....	25V
Reference Voltage, $V_{ref}$ .....	25V
Output Current, $I_O$	
NTE7043	
Average .....	400mA
Peak .....	1.2A
NTE7043P	
Average .....	1A
Peak .....	2A
Power Dissipation, $P_D$	
NTE7043 ( $T_A = +25^\circ C$ ) .....	750mW
NTE7043P ( $T_C = +25^\circ C$ ) .....	12.5W
Operating Temperature Range, $T_{opr}$ .....	$-30^\circ$ to $+75^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ C$

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$ ,  $V_S = 18\text{V}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit			
Supply Current	$I_{CC1}$	Output OFF, CW/CCW Mode	–	8.0	13.0	mA			
	$I_{CC2}$	Output OFF, STOP Mode	–	0	0.05	mA			
	$I_{CC3}$	Output OFF, BRAKE Mode	–	6.5	10.0	mA			
Input Operating Voltage		$T_J = +25^\circ\text{C}$	High	$V_{IN-H}$	3.5	–	5.5	V	
			Low	$V_{IN-L}$	0	–	0.8	V	
Input Current	$I_{IN}$	$V_{IN} = 3.5\text{V}$ , Sink Mode	–	3	10	$\mu\text{A}$			
Input Hysteresis Voltage	$V_{HYS}$		–	0.7	–	V			
Saturation Voltage Upper Side	$V_{SAT U-1}$	$V_{ref} = V_S$ , $V_{OUT} - V_S$ , Measure $I_O = 200\text{mA}$ , CW/CCW Mode	–	0.9	1.2	V			
	$V_{SAT L-1}$		–	0.8	1.2	V			
NTE7043 Upper Side	$V_{SAT U-2}$	$V_{ref} = V_S$ , $V_{OUT} - V_S$ , Measure $I_O = 400\text{mA}$ , CW/CCW Mode	–	1.0	1.35	V			
	$V_{SAT L-2}$		–	0.9	1.35	V			
NTE7043P Upper Side	$V_{SAT U-3}$	$V_{ref} = V_S$ , $V_{OUT} - V_S$ , Measure $I_O = 1\text{A}$ , CW/CCW Mode	–	1.3	1.8	V			
	$V_{SAT L-3}$		–	1.2	1.75	V			
Output Voltage NTE7043 (Upper Side)	$V_{SAT U-1}$	$V_{ref} = 10\text{V}$ , $V_{OUT} - \text{GND}$ , Measure $I_O = 200\text{mA}$ , CW/CCW Mode	–	11.2	–	V			
	$V_{SAT U-2}$	$V_{ref} = 10\text{V}$ , $V_{OUT} - \text{GND}$ , Measure $I_O = 400\text{mA}$ , CW/CCW Mode	10.4	10.9	12.2	V			
NTE7043P (Upper Side)	$V_{SAT U-3}$	$V_{ref} = 10\text{V}$ , $V_{OUT} - \text{GND}$ , Measure $I_O = 500\text{mA}$ , CW/CCW Mode	–	11.0	–	V			
	$V_{SAT U-4}$	$V_{ref} = 10\text{V}$ , $V_{OUT} - \text{GND}$ , Measure $I_O = 1\text{A}$ , CW/CCW Mode	10.2	10.7	12.0	V			
Leakage Current Upper Side		$V_S = 25\text{V}$	–	0	50	$\mu\text{A}$			
			Lower Side	$I_{L-L}$	–	0	50	$\mu\text{A}$	
Diode Forward Voltage	Upper Side		NTE7043	$V_{FU-1}$	$I_F = 400\text{mA}$	–	1.5	–	V
			NTE7043P	$V_{FU-2}$	$I_F = 1\text{A}$	–	2.5	–	V
	Lower Side		NTE7043	$V_{FL-1}$	$I_F = 400\text{mA}$	–	0.9	–	V
			NTE7043P	$V_{FL-2}$	$I_F = 1\text{A}$	–	1.2	–	V
Reference Current	$I_{ref}$	$V_{ref} = 10\text{V}$ , Source Mode	–	20	40	$\mu\text{A}$			

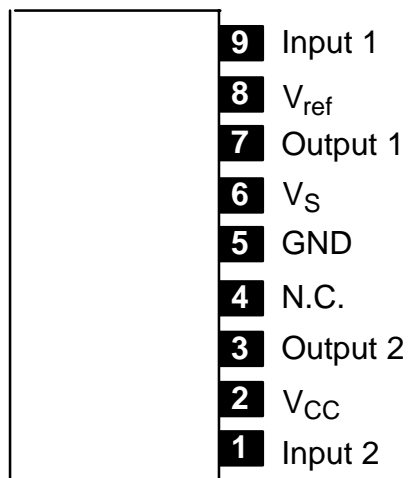
**Function Table:**

Input		Output		Mode
IN 1	IN 2	OUT 1	OUT 2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

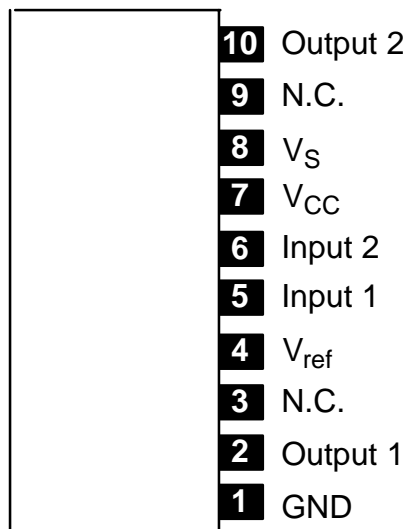
Note 1. Inputs are all high active type.

Note 2. ∞: High impedance

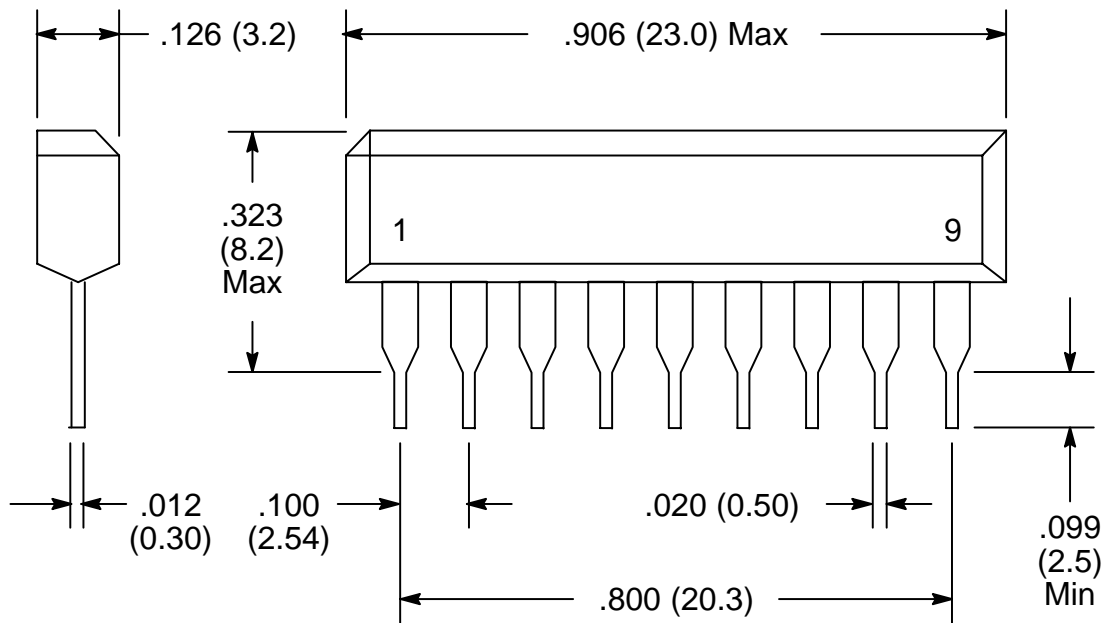
**Pin Connection Diagram  
NTE7043  
(Front View)**



**NTE7043P  
(Front View)**



NTE7043



NTE7043P

