

## NTE7042 Integrated Circuit Bi-Directional Motor Driver

### **Description:**

The NTE7042 is a Bi-Directional Motor Drive in a 9-Lead SIP type package and generates an output current of 700mA (Max) with 4 output modes of forward rotation, reverse rotation, stop (idling), and brake according to input logic (2 inputs). The GNDs of the logic unit and power unit are isolated. Therefore, the circuit of a reversible, variable-speed motor can be easily composed by adding an electronic governor at the output.

### **Features:**

- Built-in Surge Absorbing Diode
- Low Standby Current
- Wide Operating Voltage Range: 4.5V to 15V
- TTL Compatible
- Built-in Thermal Shutdown Circuit

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

|                                              |                                     |
|----------------------------------------------|-------------------------------------|
| Supply Voltage, $V_{CC}$ .....               | 18V                                 |
| Output Current, $I_O$ .....                  | 700mA                               |
| Power Dissipation, $P_D$ .....               | 800mW                               |
| Derate Above $25^\circ\text{C}$ .....        | 8mW/ $^\circ\text{C}$               |
| Operating Temperature Range, $T_{opr}$ ..... | $-20^\circ$ to $+60^\circ\text{C}$  |
| Storage Temperature Range, $T_{stg}$ .....   | $-55^\circ$ to $+125^\circ\text{C}$ |

### **Electrical Characteristics:** ( $V_{CC} = 9\text{V}$ , $T_A = +25^\circ\text{C}$ unless otherwise specified)

| Parameter                 | Symbol        | Test Conditions                                             | Min | Typ | Max | Unit          |
|---------------------------|---------------|-------------------------------------------------------------|-----|-----|-----|---------------|
| Supply Voltage            | $V_{CC1}$     | $V_{CC}$ (Pin6) ~ GND (Pin2, Pin5)                          | 4.5 | –   | 15  | V             |
|                           | $V_{CC2}$     | $V_{CC}$ (Pin6) ~ $C_{OM}$ (Pin8)                           | 4.0 | –   | 15  | V             |
| Supply Current            | $I_{CC1}$     | Pin1 “H”, Pin3 “L” or Pin1 “L”, Pin3 “H”,<br>$R_L = \infty$ | 18  | 34  | 50  | mA            |
|                           | $I_{CC2}$     | Pin1 “H”, Pin3 “L”, $R_L = \infty$                          | 34  | 52  | 70  | mA            |
| Standby Current           | $I_{standby}$ | Pin1 “L”, Pin3 “L”                                          | –   | –   | 1.5 | mA            |
| High Level Input Voltage  | $V_{IH}$      |                                                             | 2.0 | –   | –   | V             |
| Low Level Input Voltage   | $V_{IL}$      |                                                             | –   | –   | 0.8 | V             |
| High Level Input Current  | $I_{IH}$      | $V_{IN} = 2\text{V}$                                        | –   | 93  | 135 | $\mu\text{A}$ |
| Collector-Emitter Voltage | $V_{CE}$      | $I_O = 200\text{mA}$                                        | –   | 1.2 | 1.6 | V             |

**Truth Table:**

|                  | Input (Pin3) | Input (Pin1) | Output (Pin7) | Output (Pin9) |
|------------------|--------------|--------------|---------------|---------------|
| IC not Operating | L            | L            | Open          | Open          |
| Motor Forward    | H            | L            | H             | L             |
| Motor Reverse    | L            | H            | L             | H             |
| Brake            | H            | H            | L             | L             |

Note 1. Input Voltage Level "H":  $\pm 2.0V$   
 Input Voltage Level "L":  $\pm 0.8V$

**Pin Connection Diagram**  
(Front View)

