NTE1736
Integrated Circuit
Module, 4–Phase Stepping Motor Driver

Features:
- Chopper Operation Capable of Providing Good Rising Characteristic of Motor Current and Low Heat Dissipation due to Constant Current.
- PAUSE Pin can be used to control Pause Action
- Unipolar Drive make it Possible to Drive Hybrid, PM, or VR Type Stepping Motor

Applications:
- Paper Feed Motor Driver and Carriage Motor Driver for Various Types of Printers such as Serial Printer, Line Printer, Etc.
- Pen Driver for X–Y Plotter
- Industrial Robot

Absolute Maximum Ratings: $(T_A = +25°C$ unless otherwise specified)

Maximum Supply Voltage (Quiescent). V_{CC}max 30V
Phase Drive Voltage, V_{CE} 60V
Phase Current (Each Phase), I_O 2.5A
Phase Input Voltage $(R_G = 1kΩ, 1 sec), V_{IN}$ 30V
Power Dissipation, P_D
        No Fin (IMST Substrate) 6.9W
        Each Transistor in Each Phase $(T_C = 25°C)$ 8.5W
Junction Temperature, T_J . . . . +150°C
Storage Temperature Range. T_{stg} . . . . –40° to +125°C

Operating Characteristics: $(V_{CC} = 24V, T_A = +25°C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Saturation Voltage I	$V_{st}(1)$	Across Pin1 & Pin2, Across Pin1 & Pin17, $R_L = 13Ω$, $R_E = 0Ω$, $R_O = 4.7kΩ$, $V_{IN} = 5V$, $R_g = 3.3kΩ$	–	1.2	16	V
Output Saturation Voltage II	$V_{st}(2)$	Across Pin4, Pin6, & Pin8, Across Pin14, Pin16, & Pin12, $R_L = 13Ω$, $R_E = 0Ω$, $R_O = 4.7kΩ$, $V_{IN} = 5V$, $R_g = 3.3kΩ$	2.15	2.6	–	V
Output Current	I_{OH}	Each Phase, $I_{IN} = 1mA$, $R_g = 3.3kΩ$, $R_L = 13Ω$	1.4	1.5	–	A
Stop Voltage	V_{stop}	$I_O = 0.5A$	1	–	5	V
Diode Forward Voltage I	$V_{df}(1)$	$I_F = 0.3A$	–	1.5	1.8	V
Diode Forward Voltage II	$V_{df}(2)$	$I_F = 0.5A$	–	1.2	1.8	V
Stop Current	I_{CCO}	$R_L = 13Ω$, $R_O = 4.7kΩ$, $R_E = 0Ω$	–	8	13	mA
Voltage I on Pin9 or Pin11	V_H	Quiescent, $R_O = 4.7kΩ$, $R_E = 0Ω$	0.35	0.50	0.70	V
Voltage II on Pin9 or Pin11	V_L	Quiescent, $R_O = 4.7kΩ$, $R_E = 0Ω$	–	0.08	0.30	V

Note 1. For power supply, use a constant voltage power supply.

Note 2. When 100Hz square wave is applied to each phase input at the time of V_{st} measurement, no high frequency parastic oscillation shall occur in output wave.

Pin Connection Diagram
(Front View)

Pin	Signal
18	Pause
17	Motor Winding
16	$\overline{B}$ Input
15	Motor Winding
14	B Input
13	Motor Winding
12	R_{E2}
11	V_{ref}
10	GND
9	V_{ref}
8	R_{E1}
7	$\overline{A}$ Input
6	Motor Winding
5	A Input
4	Motor Winding
3	Zener Diode
2	Motor Winding
1	V_{CC}

2.636 (66.97)

2.361 (59.97)

.354 (9.0)

1.003 (25.5)

.220 (5.58)

.629 (16.0)

.141 (3.6)

.059 (1.5)

.530 (13.5)

1

18

.100 (2.54)

.047 (1.2)

.019 (0.5)

0.15 (.396)