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NTE1892 & NTE1892A
Integrated Circuit
Dual Bi–Directional Motor Driver
with Brake Function and Thermal Shutdown

Description:

The NTE1892 and NTE1892A are bi–directional motor drivers in a 12–Lead SIP type package and consists of two full bridge drivers designed for use in a two DC motor control circuit.

Features:

- Two Separate Full Bridge Drivers (Only one circuit can be switched by the Select (S_E) Input).
- Wide Operating Voltage Range: V_{CC} = 4V to 16V
- TTL, PMOS, CMOS Outputs, Capable of Direct Drive
- Low Output Saturation Voltage
- Built–in Clamp Diode
- High Output Drive Current: $I_O$max = ±2A
- Braking Mode Input
- Internal Thermal Shutdown Protection

Applications:

- Audio Tape Deck Player
- Radio/Cassette Player
- Video Cassette Recorder
- Home Equipment Use

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

Supply Voltage 1, $V_{CC(1)}$ . . . . . –0.5V to +18V
Supply Voltage 2 (**NTE1892 Only**, Note 1), $V_{CC(2)}$ . . . . . –0.5V to +18V
Driver Supply Voltage, $V_{CC'}$ . . . . . –0.5V to +18V
Input Voltage, V_i . . . . . 0 to V_{CC} V
Output Voltage, V_O . . . . . –2V to V_{CC}+2.5V
Peak Output Current (t_{op} = 10ms, relative cycle 0.2Hz Max), $I_O$max
  NTE1892 . . . . . ±2.0A
  NTE1892A . . . . . ±1.2A
Continuous Output Current 1, $I_{O(1)}$ . . . . . ± 330mA
Continuous Output Current 2 (**NTE1892 Only**, Note 1), $I_{O(2)}$ . . . . . ± 600mA
Power Dissipation (T_A = +75°C), P_D
  NTE1892 . . . . . 1.6W
  NTE1892A 830mW
Operating Temperature Range, T_{opr}
  NTE1892 . . . . . –10° to +75°C
  NTE1892A . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –55° to +125°C

Note 1. With external heat sink (3000mm^2 x 1.5mm)

Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		4	12	16	V
Output Current	I_O		–	–	±300	mA
High−Level Input Voltage	V_{IH}	Input S_1, S_2, S_E	2	–	V_{CC}	V
Low−Level Input Voltage	V_{IL}	Input S_1, S_2, S_E	0	–	0.4	V
Motor Braking Interval NTE1892	t_s		10	100	–	ms
NTE1892A			100	–	–	ms
Thermal Shutdown Temperature	$t_{j(shut)}$	$V_{CC} \geq 7V$	–	150	–	°C

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Output Leakage Current	$I_{O(LEAK)}$	$V_{CC} = V_{CC'}$ = 18V, $V_{S1} = V_{S2}$ = 0V, V_{SE} = 0V or 2V	V_O = 18V	–	–	100	μA
			V_O = 0V	–	–	−100	μA
High−Level Output Voltage	V_{OH}	$V_{CC} = V_{CC'}$ = 12V	$I_{OH(1)}$ = −200mA	10.8	–	–	V
			$I_{OH(1)}$ = −500mA	10.7	–	–	V
Low−Level Output Voltage	V_{OL}	$V_{CC} = V_{CC'}$ = 12V	I_{OL} = 200mA	–	–	0.5	V
			I_{OL} = 500mA	–	–	1.35	V
High−Level Input Current	I_{IH}	$V_{CC} = V_{CC'}$ = 12V, V_i = 2V		50	–	120	μA
Low−Level Input Current	I_{IL}	$V_{CC} = V_{CC'}$ = 12V, V_i = 0V		50	–	120	μA
Supply Current	I_{CC}	$V_{CC} = V_{CC'}$ = 12V	V_{SE} = 0V, $V_{S1} = V_{S2}$ = 0V	–	–	10	mA
			V_{SE} = 0V, V_{S1} = 0V, V_{S2} = 2V	–	–	20	mA

Function:

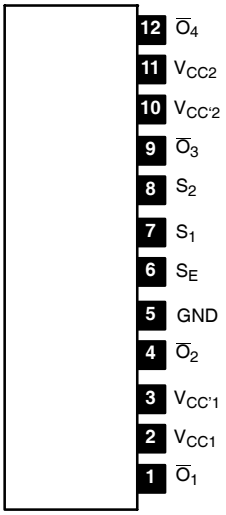
The NTE1892/NTE1892A, two full bridge motor driver, has the logic circuitry and the quasi−darlington power driver for bi−directional control of two DC motors operating at currents up to 2A.

The input S_E selects one of the bridges and S_1 and S_2 determines the output polarity.

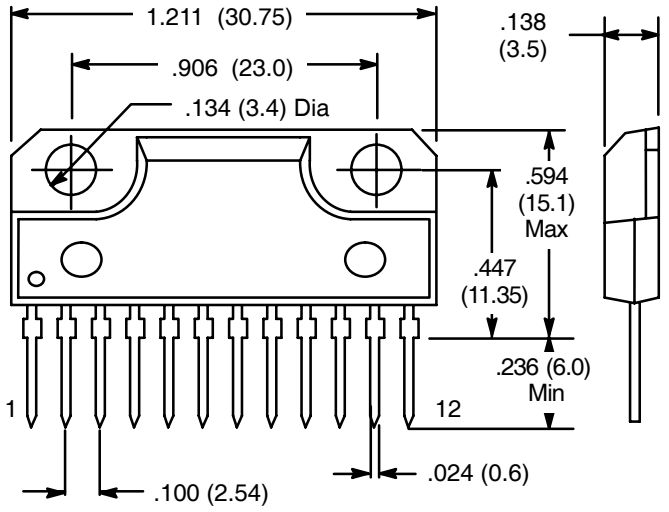
Logic Truth Table:

Input			Output				Note	
S_E	S_1	S_2	$\overline{O}_1$	$\overline{O}_2$	$\overline{O}_3$	$\overline{O}_4$	Output $\overline{O}_1$, $\overline{O}_2$	Output $\overline{O}_3$, $\overline{O}_4$
0	0	0	OFF	OFF	OFF	OFF	OPEN	OPEN
0	1	0	1	0	OFF	OFF	Motor Forward	OPEN
0	0	1	0	1	OFF	OFF	Motor Reverse	OPEN
0	1	1	0	0	OFF	OFF	BRAKING	OPEN
1	0	0	OFF	OFF	OFF	OFF	OPEN	OPEN
1	1	0	OFF	OFF	1	0	OPEN	Motor Forward
1	0	1	OFF	OFF	0	1	OPEN	Motor Reverse
1	1	1	OFF	OFF	0	0	OPEN	BRAKING

Pin Connection Diagram
(Front View)



NTE1892



NTE1892A