ELECTRONICS, INC.
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NTE1750
Integrated Circuit
Dual Switch–Mode Solenoid Driver

Description:

This NTE1750 is a monolithic integrated circuit in a 15–Lead Staggared SIP type package that incorporates all the functions for direct interfacing between digital circuitry and inductive loads. This device is designed to accept standard micriprocessor logic levels at the inputs and can drive 2 solenoids. The output current is completely controlled by means of a switching technique allowing very efficient operation. Furthermore, it includes an enable input and dual supplies (for interfacing with peripherals running at a higher voltage than the logic).

Features:

- High Current Capability
- High Voltage Operation
- High Efficiency Switch–Mode Operation
- Regulated Output Current
- Separate Logic Supply
- Thermal Protection

Applications:

- Hammer Driver for Matrix Printers
- Stepper Motor Driver
- Electromagnetic Controller

Absolute Maximum Ratings:

Supply Voltge, V_S 50V
Logic Supply Voltage, V_{SS} 12V
Enable and Input Voltage, V_{EN}, V_i 7V
Reference Voltage, V_{ref} 7V
Peak Output Current (Each Channel), I_O
  Non–Repetitive (t = 100μs) 3.0A
  Repetitive (80% ON; 20% OFF, T_{on} = 10ms) 2.5A
  DC Operation 2.0A
Total Power Dissipation (T_C = +75°C), P_{tot} 25W
Operating Junction Temperature Range, T_J . . . . . –40° to +150°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Case, T_{thJC} . . . . . 3°C/W
Thermal Resistancde, Junction–to–Ambient, R_{thJA} . . . . . 35°C/W

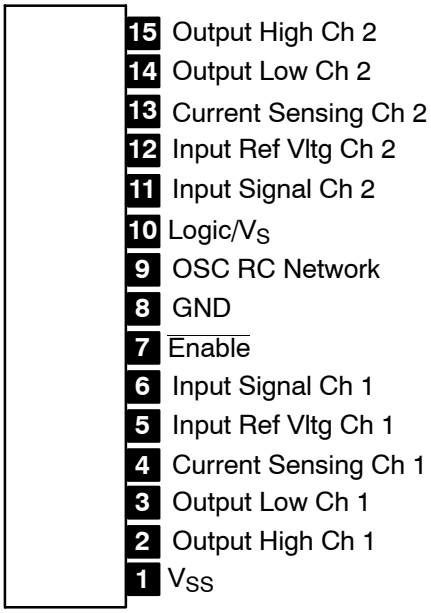
Electrical Characteristics: (V_{SS} = 5V, V_S = 26V, T_J = +25°C, Note 1 unless otherwise specified)

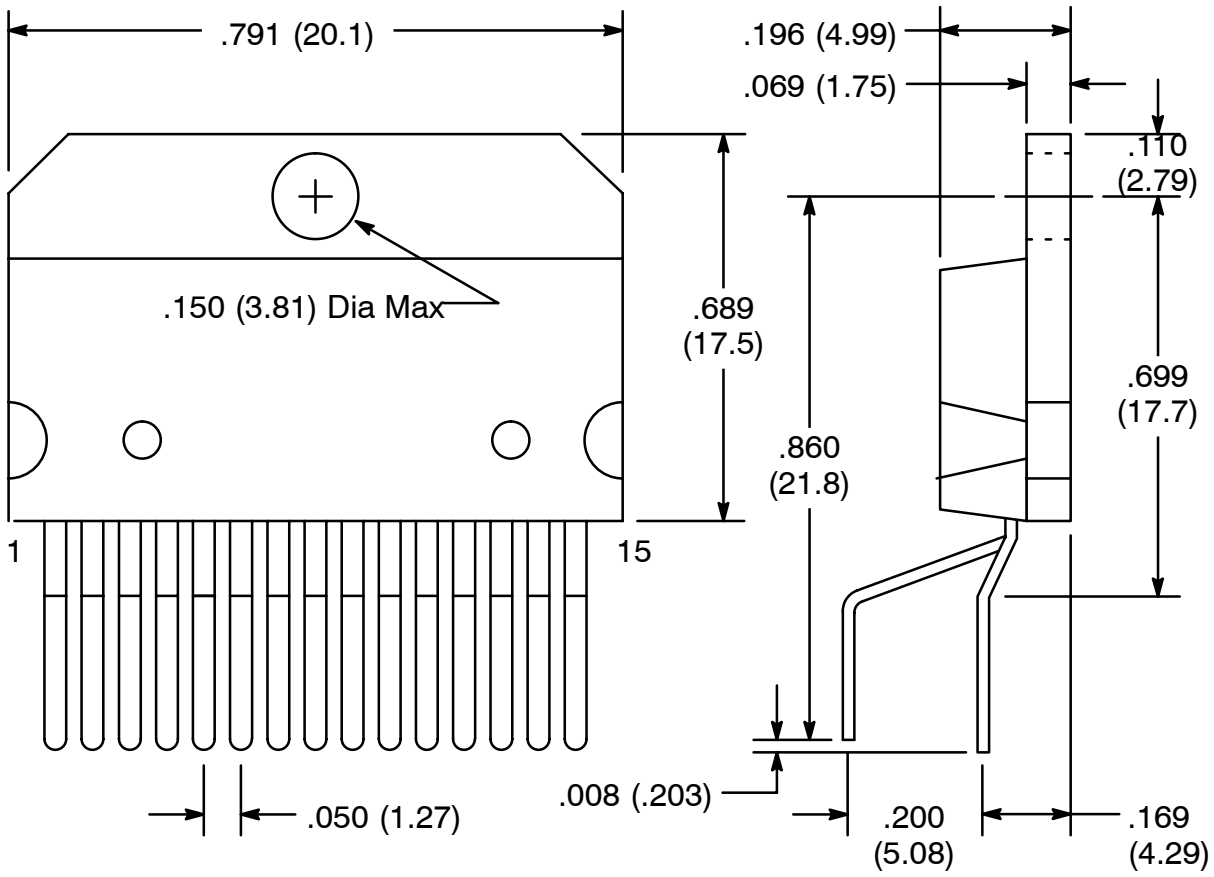
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_S		12	–	46	V
Logic Supply Voltage	V_{SS}		4.75	–	10.0	V
Quiescent Drain Current (From V_{SS})	I_d	V_S = 46V, V_{i1} = V_{i2} = V_{EN} = L	–	–	4	mA
Quiescent Drain Current (From V_S)	I_{ss}	V_{SS} = 10V	–	–	46	mA
Input Voltage	V_{i1}, V_{i2}	Low	–0.3	–	+0.8	V
		High	2.2	–	7.0	V
Enable Input Voltage	V_{EN}	Low	–0.3	–	+0.8	V
		High	2.2	–	7.0	V
Input Current	I_{i1}, I_{i2}	V_{i1} = V_{i2} = L	–	–	–100	μA
		V_{i1} = V_{i2} = H	–	–	10	μA
Enable Input Current	I_{EN}	V_{EN} = L	–	–	–100	μA
		V_{EN} = H	–	–	10	μA
Input Reference Voltage	V_{ref1}, V_{ref2}		0.2	–	2.0	V
Input Reference Current	I_{ref1}, I_{ref2}		–	–	–5	μA
Oscillation Frequency	f_{OSC}	C = 3.0nF, R = 9.1kΩ	–	25	–	kHz
Transconductance (Each Channel)	I_p / V_{ref}	V_{ref} = 1V	1.9	2.0	2.1	A/V
Total Output Voltage Drop (Each Channel)	V_{drop}	I_O = 2A, Note 2	–	2.8	3.6	V
External Sensing Resistors Voltage Drop	V_{sense1}, V_{sense2}		–	–	2	V

Note 1. L = Low, H = High

Note 2. $V_{drop} = V_{CE(sat)\ Q1} + V_{CE(sat)\ Q2}$.

Pin Connection Diagram
(Front View)




.791 (20.1)
.196 (4.99)
.069 (1.75)
.110
(2.79)
.150 (3.81) Dia Max
.689
(17.5)
.699
(17.7)
.860
(21.8)
1
15
.008 (.203)
.050 (1.27)
.200
(5.08)
.169
(4.29)

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