



DH0008 High Voltage, High Current Driver

General Description

The DH0008 is an integrated high voltage, high current driver, designed to accept standard DTL or TTL input levels and provide a pulsed load of up to 3A from a continuous supply voltage up to 45V. AND inputs are provided with an EXPANDER connection, should additional gating be required.

Since one side of the load is normally grounded, there is less likelihood of false turn-on due to an inadvertent short in the drive line.

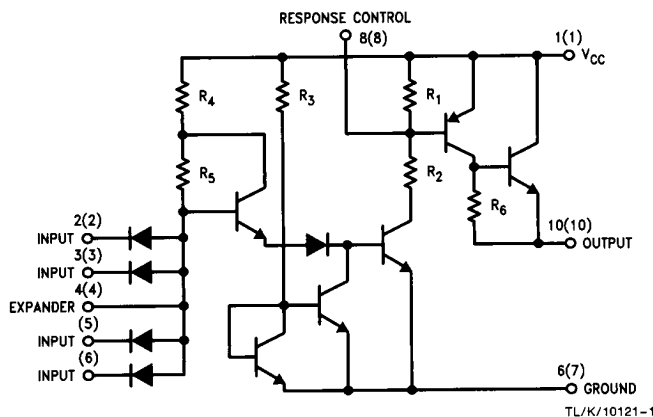
The high pulse current capability makes the DH0008 ideal for driving nonlinear resistive loads such as incandescent lamps. The circuit also requires only one power supply for circuit functional operation.

*Previously called NH0008/NH0008C

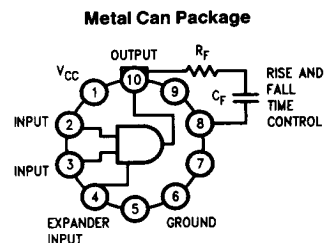
Features

- Operation from a single +10V to +45V power supply
- Low standby power dissipation of only 35 mW for 28V power supply
- 3.0A, 50 ms, pulse current capability

Schematic and Connection Diagrams



Numbers in parentheses are pin numbers for N package only



Top View

Order Number DH0008H
See NS Package Number H10F

Switching Sequence

Step	A	B	C	D
1	1	0	1	0
2	1	0	0	1
3	0	1	0	1
4	0	1	1	0
1	1	0	1	0

To reverse the direction use a 4, 3, 2, 1 sequence.

Absolute Maximum Ratings

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Peak Power Supply Voltage (for 0.1s)	60V
Continuous Supply Voltage	45V
Input Voltage	5.5V
Input Extender Current	5.0 mA

Peak Output Current
(50 ms On/1s Off)

3.0A

Operating Temperature
DH0008

–55°C to +125°C

Storage Temperature

–65°C to +150°C

Electrical Characteristics (Note 1)

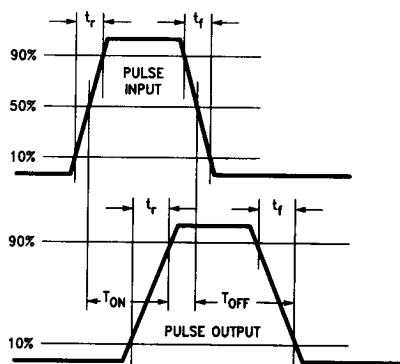
Parameter	Conditions	Min.	Typ. (Note 2)	Max.	Units
Logical "1" Input Voltage	$V_{CC} = 45V$ to 10V	2.0			V
Logical "0" Input Voltage	$V_{CC} = 45V$ to 10V			0.8	V
Logical "1" Output Voltage	$V_{CC} = 45V$, $V_{IN} = 2.0V$, $I_{OUT} = 1.6A$ 50 ms On/1 s Off	43	43.5		V
Logical "0" Output Voltage	$V_{CC} = 45V$, $V_{IN} = 0.8V$, $R_L = 1 k\Omega$		0.02	0.1	V
Logical "1" Output Voltage	$V_{CC} = 28V$, $V_{IN} = 2.0V$, $I_{OUT} = 0.8A$ 50 ms On/1 s Off	26.5	27.1		V
Logical "0" Input Current	$V_{CC} = 45V$, $V_{IN} = 0.4V$		–0.8	–1.0	mA
Logical "1" Input Current	$V_{CC} = 45V$, $V_{IN} = 2.4V$ $V_{CC} = 45V$, $V_{IN} = 5.5V$		0.5	5.0 100	μA
"Off" Power Supply Current	$V_{CC} = 45V$, $V_{IN} = 0V$		1.6	2.0	mA
"On" Power Supply Current	$V_{CC} = 45V$, $V_{IN} = 2.0V$, $I_{OUT} = 0 mA$			8.0	mA
Rise Time	$V_{CC} = 28V$, $R_L = 39\Omega$, $V_{IN} = 5.0V$		0.2		μs
Fall Time	$V_{CC} = 28V$, $R_L = 39\Omega$, $V_{IN} = 5.0V$		3.0		μs
T_{ON}	$V_{CC} = 28V$, $R_L = 39\Omega$, $V_{IN} = 5.0V$		0.4		μs
T_{OFF}	$V_{CC} = 28V$, $R_L = 39\Omega$, $V_{IN} = 5.0V$		7.0		μs

Note 1: Unless otherwise specified limits shown apply from –55°C to +125°C for DH0008 and 0°C to +70°C for DH0008C.

Note 2: Typical values are 25°C.

Note 3: Power ratings for the TO-5 based on a maximum junction temperature of +175°C and a θ_{JA} of 210°C/W.

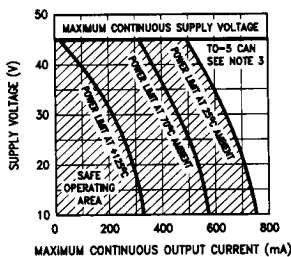
Switching Time Waveforms



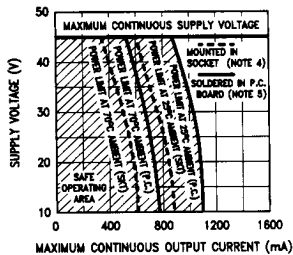
TL/K/10121-5

Typical Performance Characteristics

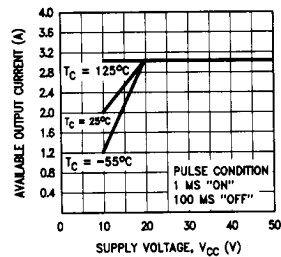
Maximum Continuous Output Current for TO-5 Package



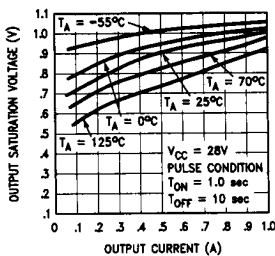
Maximum Continuous Output Current for Molded DIP



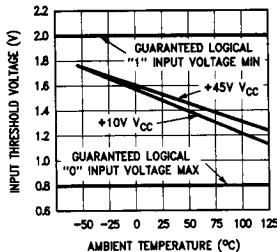
Available Output Current



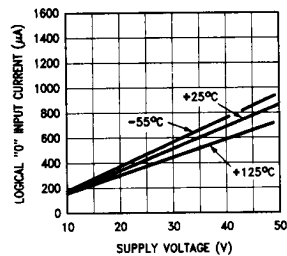
Output Saturation Voltage



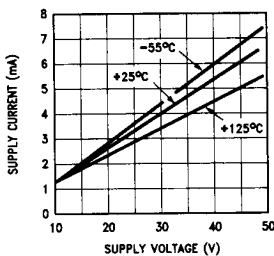
Input Threshold Voltage vs Temperature



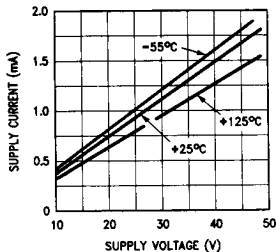
Logical "0" Input Current



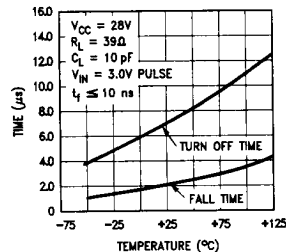
ON Supply Current Drain



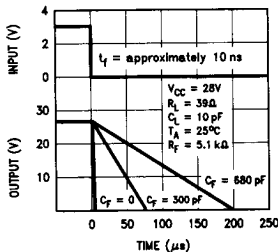
OFF Supply Current Drain



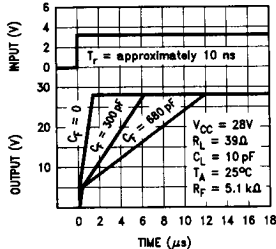
Turn OFF and Fall Times



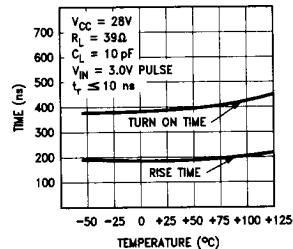
Turn ON Control



Turn OFF Control

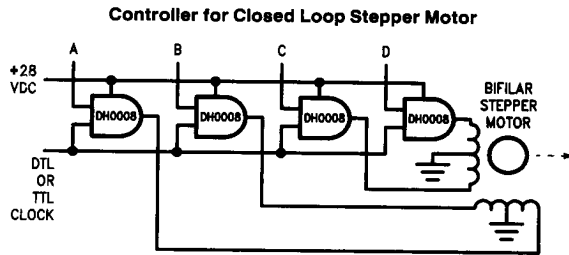


Turn ON and Rise Time



TL/K/10121-6

Typical Applications



TL/K/10121-4