

DH0006/DH0006C* Current Drivers

General Description

The DH0006/DH0006C is an integrated high voltage, high current driver designed to accept standard DTL or TTL logic levels and drive a load of up to 400 mA at 28V. AND inputs are provided along with an Expander connection, should additional gating be required. The addition of an external capacitor provides control of the rise and fall times of the output in order to decrease cold lamp surges or to minimize electromagnetic interference if long lines are driven.

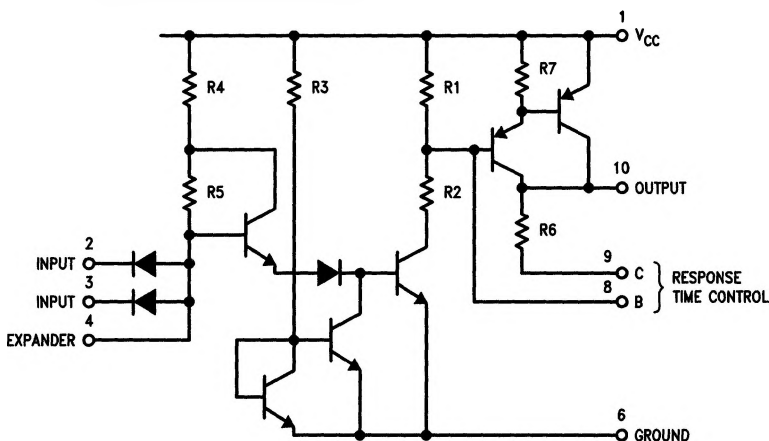
Since one side of the load is normally grounded, there is less likelihood of false turn-on due to an inadvertent short in the drive line.

Features

- Operation from a Single +10V to +45 Power Supply
- Low Standby Power Dissipation of only 35 mW for 28V Power Supply
- 1.5A, 50 ms, Pulse Current Capability

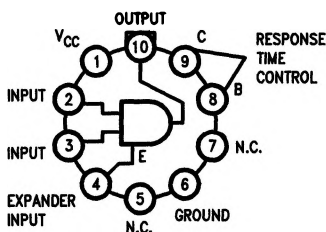
*Previously called NH0006/NH0006C

Schematic and Connection Diagrams



TL/K/10120-1

Metal Can Package



TL/K/10120-2

Top View

Order Number DH0006H or DH0006CH
See NS Package Number H10F

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 0.1 sec)	60V
Continuous Supply Voltage	45V
Input Voltage	5.5V

Input Extender Current	5.0 mA
Peak Output Current (50 ms On/1 sec Off)	1.5A
Operating Temperature	
DH0006	–55°C to +125°C
DH0006C	0°C to +70°C
Storage Temperature	–65°C to +150°C

Electrical Characteristics (Note 1)

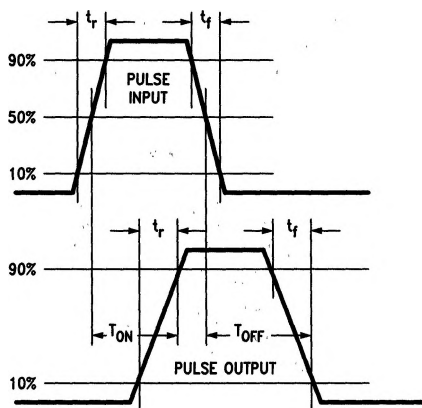
Parameter	Conditions	Min	Typ (Note 2)	Max	Units
Logical "1" Input Voltage	$V_{CC} = 45V$ to 10V	2.0			V
Logical "0" Input Voltage	$V_{CC} = 45V$ to 10V			0.8	
Logical "1" Output Voltage	$V_{CC} = 28V$, $V_{IN} = 2.0V$, $I_{OUT} = 400$ mA	26.5	27.0		
Logical "0" Output Voltage	$V_{CC} = 45V$, $V_{IN} = 0.8V$, $R_L = 1$ k		0.001	0.01	
Logical "1" Output Voltage	$V_{CC} = 10V$, $V_{IN} = 2.0V$, $I_{OUT} = 150$ mA	8.8	9.2		
Logical "0" Input Current	$V_{CC} = 45V$, $V_{IN} = 0.4V$		–0.8	–1.0	mA
Logical "1" Input Current	$V_{CC} = 45V$, $V_{IN} = 2.4V$		0.5	5.0	μ A
	$V_{CC} = 45V$, $V_{IN} = 5.5V$			100	
"Off" Power Supply Current	$V_{CC} = 45V$, $V_{IN} = 0.8V$		1.6	2.0	mA
"On" Power Supply Current	$V_{CC} = 45V$, $V_{IN} = 2.0V$, $I_{OUT} = 0$ mA			8	mA
Rise Time	$V_{CC} = 28V$, $R_L = 82\Omega$		0.10		μ s
Fall Time			0.8		
T_{on}			0.26		
T_{off}			2.2		

Note 1: Unless otherwise specified, limits shown apply from –55°C to +125°C for DH0006 and 0°C to +70°C for DH0006C.

Note 2: Typical values are for 25°C ambient.

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

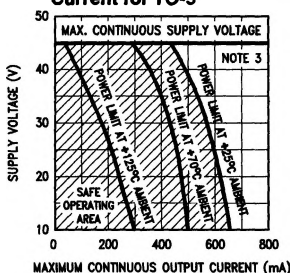
Switching Time Waveforms



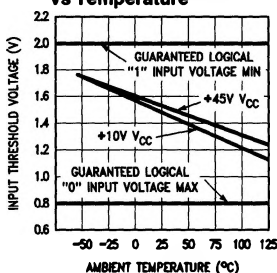
TL/K/10120-6

Typical Performance Characteristics

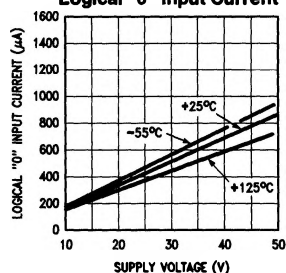
Maximum Continuous Output Current for TO-5



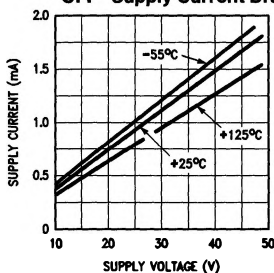
Input Threshold Voltage vs Temperature



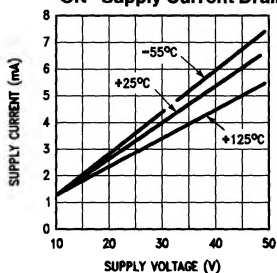
Logical "0" Input Current



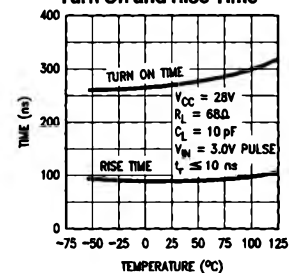
"OFF" Supply Current Drain



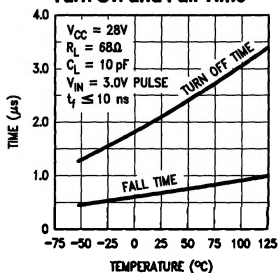
"ON" Supply Current Drain



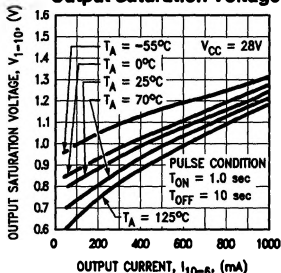
Turn On and Rise Time



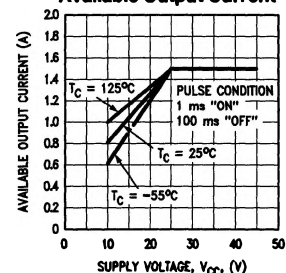
Turn Off and Fall Time



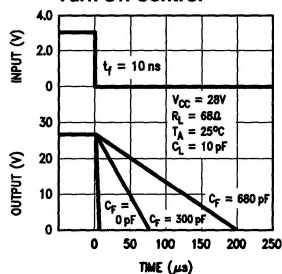
Output Saturation Voltage



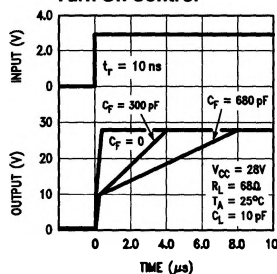
Available Output Current



Turn Off Control

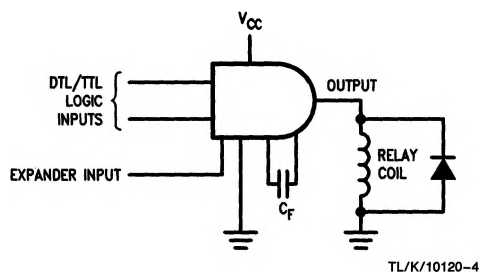


Turn On Control



Typical Applications

Relay Driver



Lamp Driver with Expanded Inputs

