

## 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.

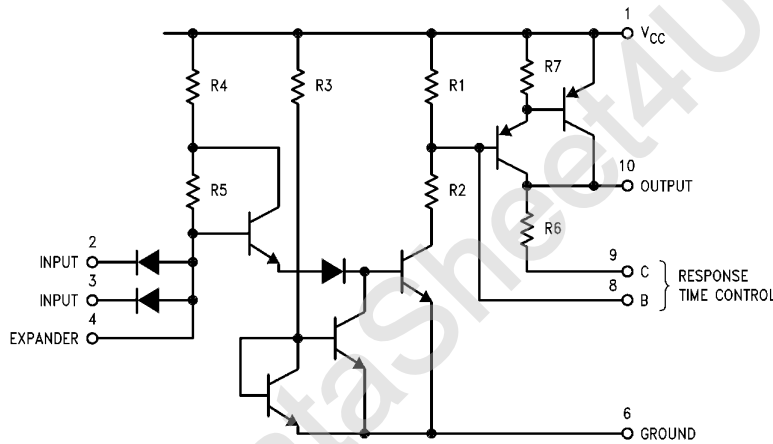
Since one side of the load is normally grounded, there is less likelihood of false turn-on due to an inadvertent short in the drive line.

### 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

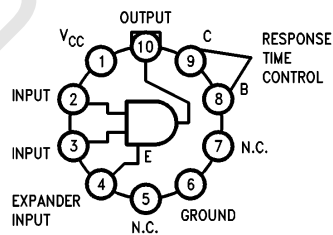
\*Previously called NH0006/NH0006C

### 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	Input Extender Current	5.0 mA
Continuous Supply Voltage	45V	Peak Output Current (50 ms On/1 sec Off)	1.5A
Input Voltage	5.5V	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)

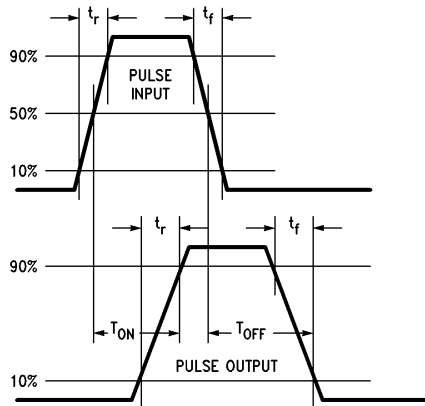
Parameter	Conditions	Min	Typ (Note 2)	Max	Units
Logical "1" Input Voltage	$V_{CC} = 45V$ to 10V	2.0			V
Logical "0" Input Voltage	$V_{CC} = 45V$ to 10V			0.8	
Logical "1" Output Voltage	$V_{CC} = 28V$ , $V_{IN} = 2.0V$ , $I_{OUT} = 400$ mA	26.5	27.0		
Logical "0" Output Voltage	$V_{CC} = 45V$ , $V_{IN} = 0.8V$ , $R_L = 1k$		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	$V_{CC} = 45V$ , $V_{IN} = 2.4V$ $V_{CC} = 45V$ , $V_{IN} = 5.5V$		0.5	5.0 100	$\mu A$
"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		$\mu s$
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  $\theta_{JA}$  of 210°C/W.

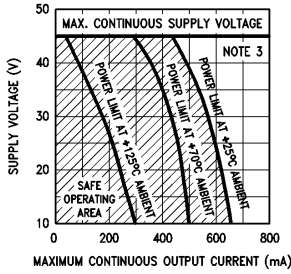
## Switching Time Waveforms



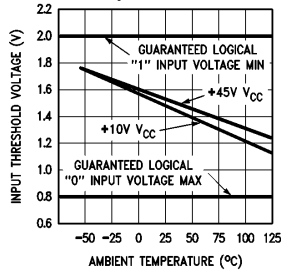
TL/K/10120-6

# Typical Performance Characteristics

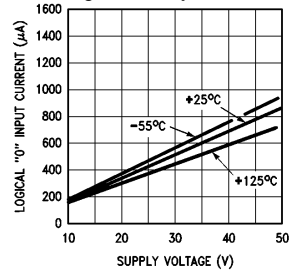
**Maximum Continuous Output Current for TO-5**



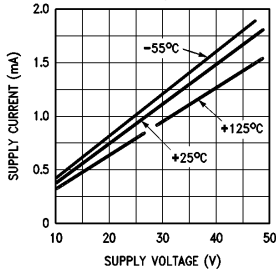
**Input Threshold Voltage vs Temperature**



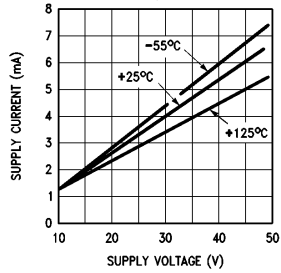
**Logical "0" Input Current**



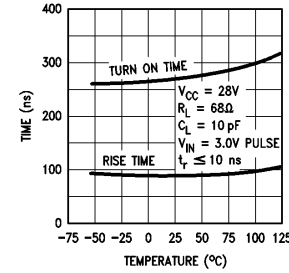
**"OFF" Supply Current Drain**



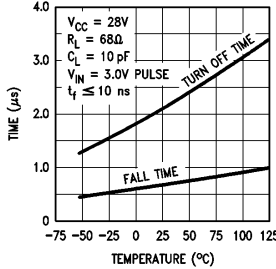
**"ON" Supply Current Drain**



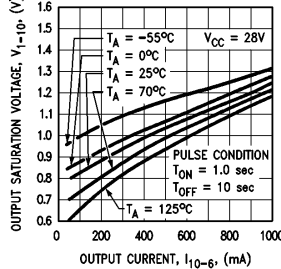
**Turn On and Rise Time**



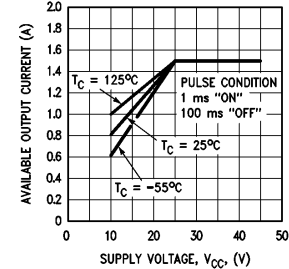
**Turn Off and Fall Time**



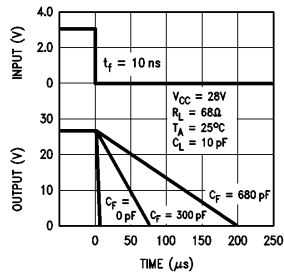
**Output Saturation Voltage**



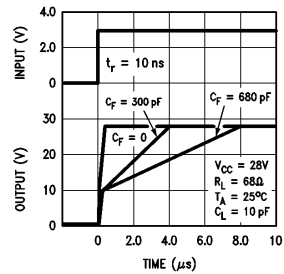
**Available Output Current**



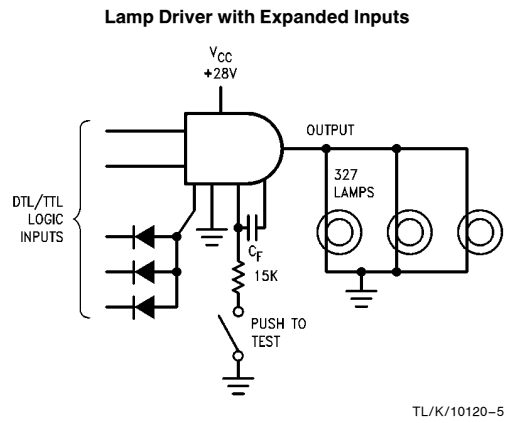
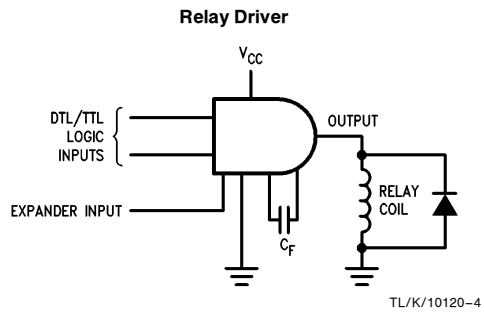
**Turn Off Control**



**Turn On Control**



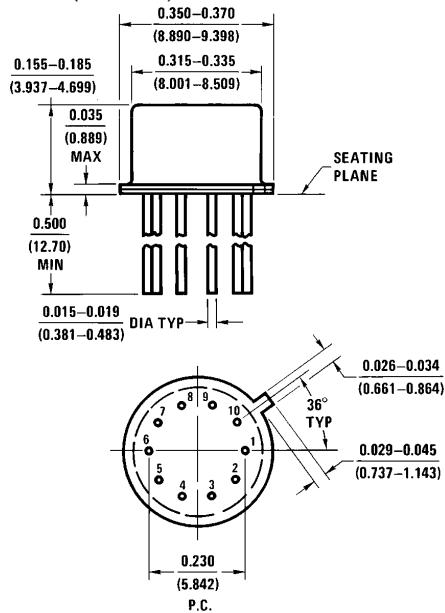
## Typical Applications





**Physical Dimensions** inches (millimeters)

Lit. # 102455



H10F (REV A)

**10-Lead, 0.230 Dia. P.C.  
Order Number DH0006H or DH0006CH  
NS Package Number H10F**

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