

PRELIMINARY DATA SHEET

GD74F125 QUAD BUFFER (TRI-STATE)

Description

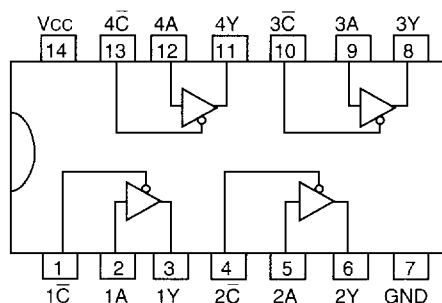
The GD74F125 contains 4 buffers with 3-State outputs and is provided with an output control input (\bar{C}) which is independent for each buffer.

Function Table (each gate)

| Inputs | | Outputs |
|-----------|---|---------|
| \bar{C} | A | Y |
| L | L | L |
| L | H | H |
| H | X | Z |

X: Immaterial
Z: High Impedance
Output is off (disabled) when \bar{C} is high

Pin Configuration



Package Type: 14 DIP, 14 SOP Available

Recommended Operating Conditions

- Free Air Ambient Temperature 0°C to 70°C
- Supply Voltage 4.5°C to 5.5°C

Absolute Maximum Ratings

- Storage Temperature -65°C to 150°C
- Ambient Temperature Under Bias -55°C to 125°C
- Junction Temperature Under Bias -0.5°C to 175°C
- V_{CC} Voltage -0.5 V to 7.0 V
- Input Voltage -5.0 V to 7.0 V
- Input Current -30 mA to 5.0 mA
- Output Voltage -0.5 V to 5.5 V

Note: Absolute Maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.

AC Characteristics

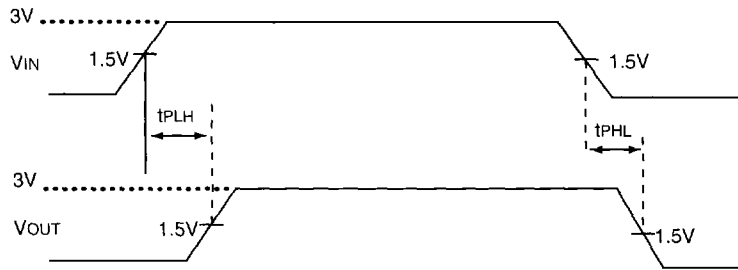
| SYMBOL | PARAMETER | TEST CONDITION | | | | | | UNIT |
|--------|---------------------|---------------------------|-----|-----|------------------------------|-----|-----|------|
| | | TA = 25°C | | | TA = 0 ~ 70°C | | | |
| | | VCC = 5.0 V CL = 50 PF | | | VCC = 5V ± 10% CL = 50 PF | | | |
| | | Min | Typ | Max | Min | Typ | Max | |
| tPLH | Propagation Delay | 2.0 | 4.0 | 6.0 | 2.0 | -- | 6.5 | ns |
| tPHL | | 3.0 | 4.6 | 7.5 | 3.0 | -- | 8.0 | ns |
| tPZH | Propagation Delay | 3.5 | 4.7 | 7.5 | 3.0 | -- | 8.5 | ns |
| tPZL | | 3.5 | 5.3 | 8.0 | 3.5 | -- | 9.0 | ns |
| tPHZ | Output Disable Time | 1.5 | 3.9 | 5.5 | 1.5 | -- | 6.0 | ns |
| tPLZ | | 1.5 | 4.0 | 6.0 | 1.5 | -- | 6.5 | ns |

DC Electrical Characteristics over recommended operating free-air temperature range

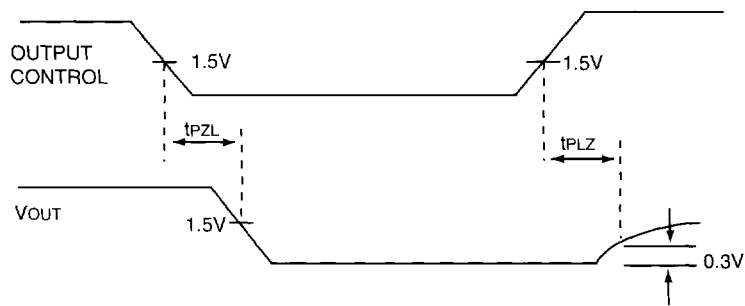
| SYMBOL | PARAMETER | TEST CONDITIONS | Min | Typ | Max | UNIT | V _{CC} | CIRCUIT |
|--|-------------------------------------|--|------|----------------------|----------------------|------|-----------------|------------|
| V _{IH} | Input High Voltage | ----- | 2.0 | | | V | | |
| V _{IL} | Input Low Voltage | ----- | | | 0.8 | V | | |
| V _{CD} | Input Clamp Diode Voltage | I _{IN} = -18mA | | | -1.2 | V | Min | See FIG. 1 |
| V _{OH} | Output High Voltage | I _{OH} = -3mA | 2.4 | | | V | 4.5 | See FIG. 2 |
| | | I _{OH} = -12mA | 2.0 | | | | 4.5 | |
| | | I _{OH} = -3mA | 2.7 | | | | 4.75 | |
| | | I _{OH} = -15mA | 2.0 | | | | 4.75 | |
| V _{OL} | Output Low Voltage | I _{OL} = 64mA | | | 0.55 | V | Min | |
| I _I | Input High Current Breakdown Test | V _{IN} = 7.0 V | | | 100 | μA | 0.0 | See FIG. 3 |
| I _{IH} | Input High Current | V _{IN} = 2.7 V | | | 20 | μA | Max | |
| I _{IL} | Input Low Current | V _{IN} = 0.5 V | | | -20 | μA | Max | |
| I _{OZH} | Tri-State Output Off Current (High) | V _{OUT} = 2.7 V | | | 50 | μA | Max | See FIG. 4 |
| I _{OZL} | Tri-State Output Off Current (Low) | V _{OUT} = 0.5 V | | | -50 | μA | Max | |
| I _{OS} | Output Short Circuit Current | V _{OUT} = 0 V | -100 | | -255 | mA | Max | See FIG. 5 |
| I _{CCH} I _{CCL} I _{CCZ} | Supply Current | V _{OUT} = High V _{OUT} = Low V _{OUT} = High Z | | 18.5 31.7 27.6 | 24.0 40.0 35.0 | mA | Max | See FIG. 6 |

* For I_{OS}, Not more than one output should be shorted at a time, and duration should not exceed one second.

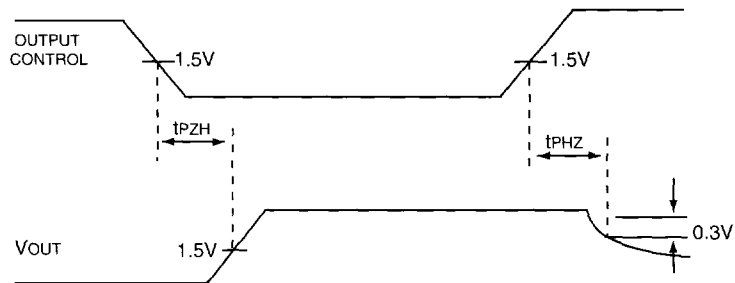
Waveform Of Functions



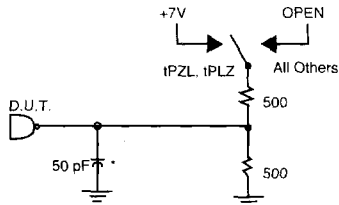
3-State Output Low Enable and Disable Times



3-State Output High Enable and Disable Times



AC Test Circuit



Input Condition

| | |
|--------------|-----------|
| Frequency | : 1.0 MHz |
| Duty Cycle | : 50% |
| Rising Time | : 2.5 ns |
| Falling Time | : 2.5 ns |
| Amplitude | : 0 to 3V |

* Include Jig And Probe Capatance

DC Test Circuit

FIG. 1 V_{CD} Test
(force I_{IN} and measure V_{CD})

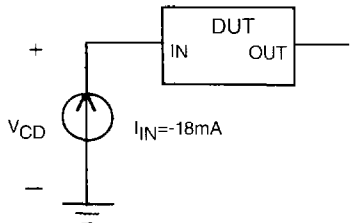


FIG. 2 V_{OH} & V_{OL} Test
(force I_O and measure V_{OH} or V_{OL})

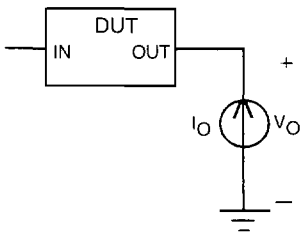


FIG. 3 I_I , I_{IH} & I_{IL} Test
(force V_{IN} and measure I_I , I_{IH} or I_{IL})

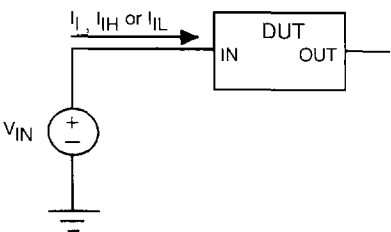


FIG. 4 I_{OZH} & I_{OZL} Test

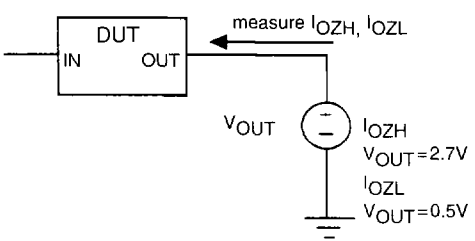


FIG. 5 I_{OS} Test

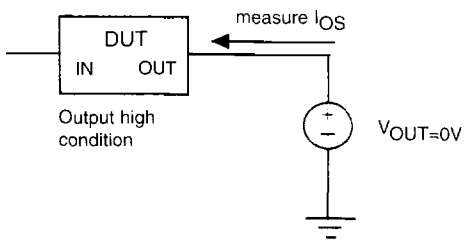


FIG. 6 I_{CC} Test

