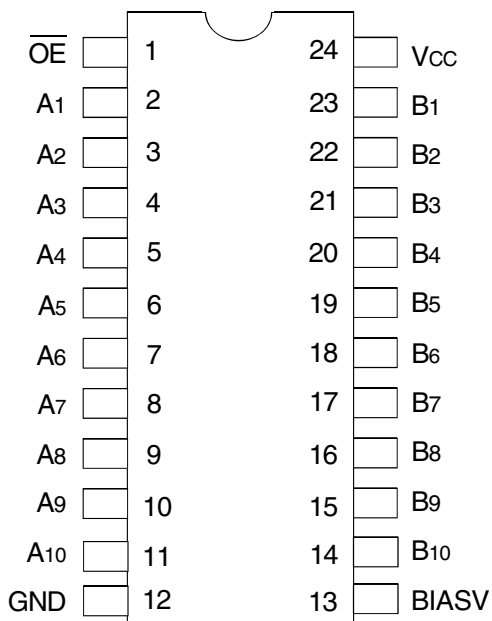


PIN CONFIGURATION



TOP VIEW

| Package Type | Package Code | Order Code |
|--------------|--------------|------------|
| TSSOP | PGG24 | PGG |
| QSOP | PCG24 | QG |

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

| Symbol | Description | Max | Unit |
|------------------|---|--------------|------|
| V _{CC} | Supply Voltage Range | -0.5 to +4.6 | V |
| V _I | Input Voltage Range | -0.5 to +4.6 | V |
| | Continuous Channel Current | 128 | mA |
| I _{IK} | Input Clamp Current, V _{I/O} < 0 | -50 | mA |
| T _{STG} | Storage Temperature | -65 to +150 | °C |

NOTE:

1. Stresses greater than those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

FUNCTION TABLE⁽¹⁾

| Input \overline{OE} | Inputs/Outputs |
|-----------------------|------------------------------|
| L | A Port = B Port |
| H | A Port = Z B Port = BIASV |

NOTE:

1. H = HIGH Voltage Level
L = LOW Voltage Level
Z = High-Impedance

OPERATING CHARACTERISTICS, T_A = 25°C⁽¹⁾

| Symbol | Parameter | Test Conditions | Min. | Max. | Unit |
|-----------------|----------------------------------|--------------------------------|------|-----------------|------|
| V _{CC} | Supply Voltage | | 2.3 | 3.6 | V |
| BIASV | Bias Voltage | | 1.3 | V _{CC} | V |
| V _{IH} | High-Level Control Input Voltage | V _{CC} = 2.3V to 2.7V | 1.7 | — | V |
| | | V _{CC} = 2.7V to 3.6V | 2 | — | |
| V _{IL} | Low-Level Control Input Voltage | V _{CC} = 2.3V to 2.7V | — | 0.7 | V |
| | | V _{CC} = 2.7V to 3.6V | — | 0.8 | |
| T _A | Operating Free-Air Temperature | | -40 | 85 | °C |

NOTE:

1. All unused control inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

DC ELECTRICAL CHARACTERISTICS OVER OPERATING RANGE

Following Conditions Apply Unless Otherwise Specified:

 Operating Conditions: $T_A = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit | |
|-----------------------|--|--|---------------------|------|----------|---------------|----------|
| V_{IK} | Control Inputs, Data Inputs | $V_{CC} = 3V, I_I = -18\text{mA}$ | — | — | -1.2 | V | |
| I_I | Control Inputs | $V_{CC} = 3.6V, V_I = V_{CC}$ or GND | — | — | ± 1 | μA | |
| I_{OZ} | Data I/O | $V_{CC} = 3.6V, V_O = 0$ or $3.6V$, switch disabled | — | — | ± 20 | μA | |
| I_{OFF} | | $V_{CC} = 0, V_I$ or $V_O = 0$ to $3.6V$ | — | — | 50 | μA | |
| $ I_O $ | | $V_{CC} = 3V, \text{BIASV} = 2.4V, V_O = 0, \overline{OE} = V_{CC}$ | 0.25 | — | — | mA | |
| I_{CC} | | $V_{CC} = 3.6V, I_O = 0, V_I = V_{CC}$ or GND | — | — | 10 | μA | |
| $\Delta I_{CC}^{(1)}$ | Control Inputs | $V_{CC} = 3.6V$, one input at $3V$, other inputs at V_{CC} or GND | — | — | 300 | μA | |
| C_I | Control Inputs | $V_I = 3V$ or 0 | — | 4 | — | pF | |
| $C_{IO(OFF)}$ | | $V_O = 3V$ or 0 , switch OFF, $\text{BIASV} = \text{Open}, \overline{OE} = V_{CC}$ | — | 7 | — | pF | |
| $R_{ON}^{(2)}$ | $V_{CC} = 2.3V$ Typ. at $V_{CC} = 2.5V$ | $V_I = 0$ | $I_I = 64\text{mA}$ | — | 5 | 8 | Ω |
| | | | $I_I = 24\text{mA}$ | — | 5 | 8 | |
| | $V_I = 1.7V$ | $I_I = 15\text{mA}$ | — | 27 | 40 | | |
| | | $I_I = 64\text{mA}$ | — | 5 | 7 | | |
| | $V_{CC} = 3V$ | $V_I = 0$ | $I_I = 24\text{mA}$ | — | 5 | 7 | |
| | | | $I_I = 15\text{mA}$ | — | 10 | 15 | |

NOTES:

- The increase in supply current is attributable to each current that is at the specified voltage level rather than V_{CC} or GND.
- This is measured by the voltage drop between the A and B terminals at the indicated current through the switch. On-state resistance is determined by the lower of the voltages of the two (A or B) terminals.

SWITCHING CHARACTERISTICS

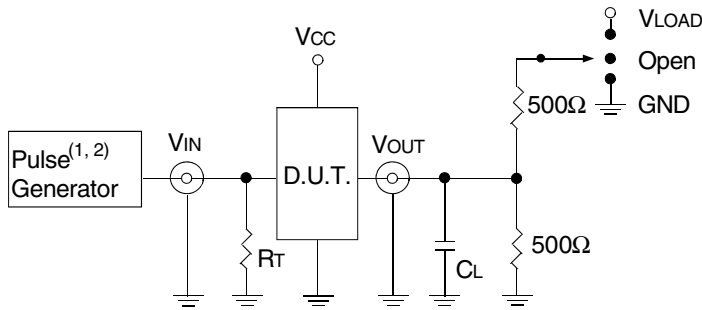
| Symbol | Parameter | $V_{CC} = 2.5V \pm 0.2V$ | | $V_{CC} = 3.3V \pm 0.3V$ | | Unit |
|----------------|---------------------------------------|--------------------------|------|--------------------------|------|------|
| | | Min. | Max. | Min. | Max. | |
| $t_{PD}^{(1)}$ | Propagation Delay A to B or B to A | — | 0.15 | — | 0.25 | ns |
| t_{PZH} | $\text{BIASV} = 3V$ or GND | 1 | 4.8 | 1 | 4.5 | ns |
| t_{PZL} | \overline{OE} to A or B | | | | | |
| t_{PHZ} | $\text{BIASV} = 3V$ or GND | 1 | 5.6 | 1 | 5.5 | ns |
| t_{PLZ} | \overline{OE} to A or B | | | | | |

- NOTE:**
- The propagation delay is the calculated RC time constant of the typical on-state resistance of the switch and the specified load capacitance driven by an ideal voltage source (zero output impedance).

TEST CIRCUITS AND WAVEFORMS

TEST CONDITIONS

| Symbol | V _{CC} ⁽¹⁾ = 3.3V±0.3V | V _{CC} ⁽²⁾ = 2.5V±0.2V | Unit |
|-------------------|--|--|------|
| V _{LOAD} | 6 | 2 x V _{CC} | V |
| V _{IH} | 3 | V _{CC} | V |
| V _T | 1.5 | V _{CC} / 2 | V |
| V _{LZ} | 300 | 150 | mV |
| V _{HZ} | 300 | 150 | mV |
| C _L | 50 | 30 | pF |



Test Circuits for All Outputs

DEFINITIONS:

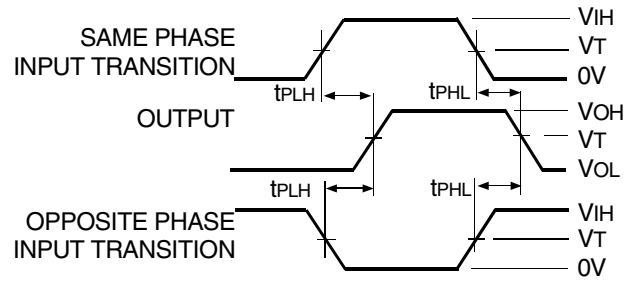
C_L = Load capacitance: includes jig and probe capacitance.
R_T = Termination resistance: should be equal to Z_{OUT} of the Pulse Generator.

NOTES:

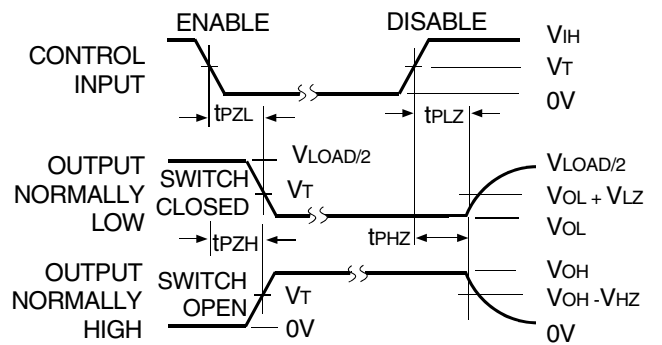
1. Pulse Generator for All Pulses: Rate ≤ 10MHz; t_r ≤ 2.5ns; t_f ≤ 2.5ns.
2. Pulse Generator for All Pulses: Rate ≤ 10MHz; t_r ≤ 2ns; t_f ≤ 2.5ns.

SWITCH POSITION

| Test | Switch |
|------------------------------------|-------------------|
| t _{PLZ} /t _{PZL} | V _{LOAD} |
| t _{PHZ} /t _{PZH} | GND |
| t _{PD} | Open |

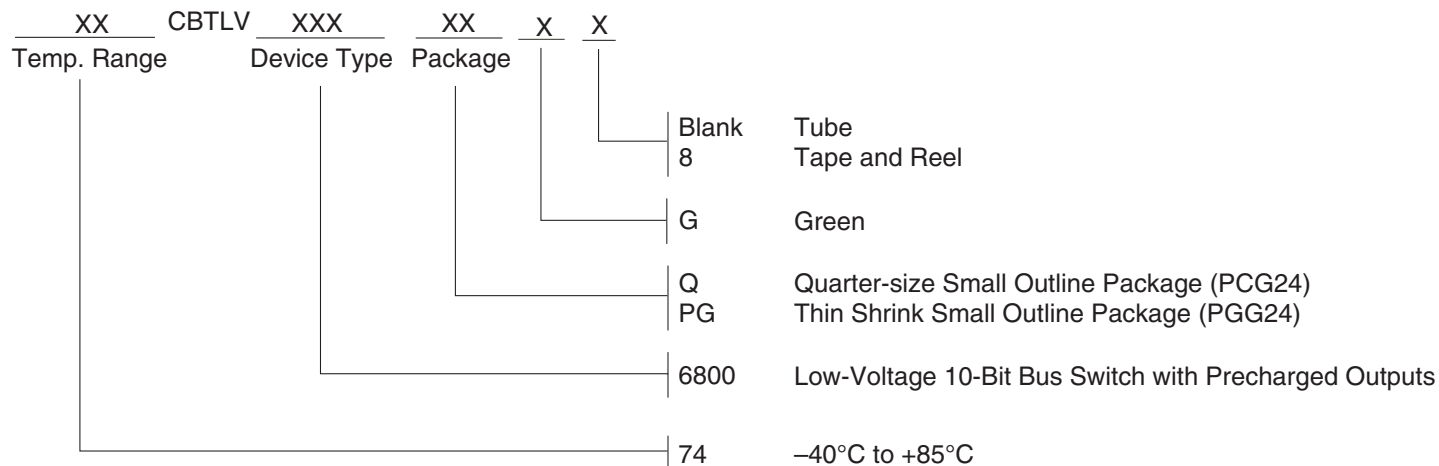


Propagation Delay



Enable and Disable Times

ORDERING INFORMATION



Orderable Part Information

| Speed (ns) | Orderable Part ID | Pkg. Code | Pkg. Type | Temp. Grade |
|------------|-------------------|-----------|-----------|-------------|
| | 74CBTLV6800PGG | PGG24 | TSSOP | I |
| | 74CBTLV6800PGG8 | PGG24 | TSSOP | I |
| | 74CBTLV6800QG | PCG24 | QSOP | I |
| | 74CBTLV6800QG8 | PCG24 | QSOP | I |

Datasheet Document History

- 12/18/2014 Pg. 5 Updated the ordering information by removing the "IDT" notation, non RoHS part and by adding Tape and Reel information.
- 05/06/2019 Pg. 2,6 Added table under pin configuration diagram with detailed package information and orderable part information table. Updated the ordering information diagram in clearer detail.

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