



U74CBT1G385

CMOS IC

SINGLE FET BUS SWITCH

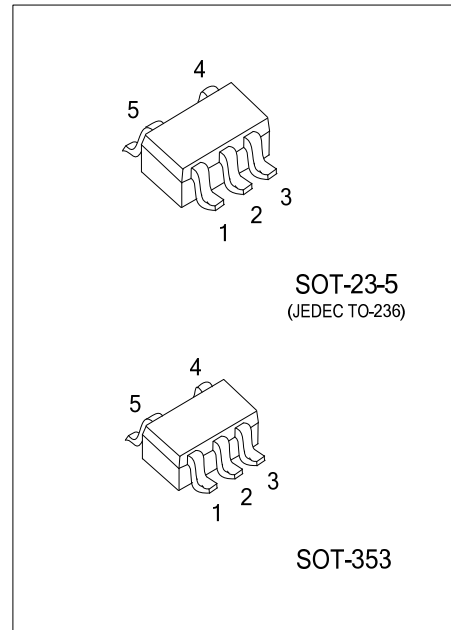
DESCRIPTION

The **U74CBT1G385** features a single high-speed line switch. The switch is disabled when the output-enable(OE) input is high.

The **U74CBT1G385** is characterized for operation from -40°C to 85°C.

FEATURES

- * 5-Ω Switch Connection Between Two Ports
- * TTL-compatible Control Input Levels
- * Packaged in Plastic Small-Outline Transistor Packages

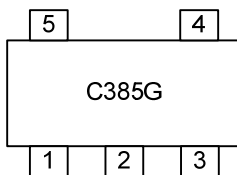


ORDERING INFORMATION

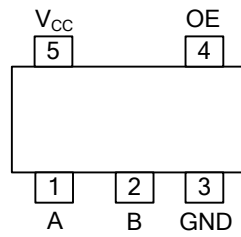
| Ordering Number | Package | Packing |
|--------------------|----------|-----------|
| U74CBT1G385G-AE5-R | SOT-23-5 | Tape Reel |
| U74CBT1G385G-AL5-R | SOT-353 | Tape Reel |

| | |
|--|---|
| <p>U74CBT1G385G-AE5-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p> | <p>(1) R: Tape Reel (2) AE5: SOT-23-5, AL5: SOT-353 (3) G: Halogen Free and Lead Free</p> |
|--|---|

MARKING



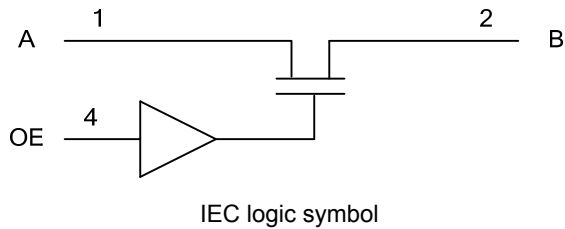
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

| INPUT OE | OUTPUT |
|----------|-----------------|
| L | Disconnect |
| H | A port = B port |

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING (T_A=25°C , unless otherwise specified) (Note 1)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|--|------------------|------------|------|
| Supply Voltage | V _{CC} | -0.5~7 | V |
| Input Voltage | V _{IN} | -0.5~7 | V |
| Continuous channel current | I _{CH} | 128 | mA |
| Input Clamp Current(V _I <0) | I _{IK} | -50 | mA |
| Storage Temperature | T _{STG} | -65 ~ +150 | °C |

Notes: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
 2. The package thermal impedance is calculated in accordance with JESD 51.

■ RECOMMENDED OPERATING COMDITIONS

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT |
|----------------------------|-----------------|-----|-----|-----|------|
| Supply Voltage | V _{CC} | 4 | | 5.5 | V |
| High-control input voltage | V _{IH} | 2 | | | V |
| Low-control input voltage | V _{IL} | | | 0.8 | V |
| Operating Temperature | T _A | -40 | | +85 | °C |

■ STATIC CHARACTERISTICS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT | |
|--------------------------------|-----------------|--|----------------------|-----|------|------|---|
| Digital Input Diode Voltage | V _{IK} | V _{CC} =4.5V, I _I =-18mA | | | -1.2 | V | |
| Input Leakage Current | I _{IN} | V _{CC} =5.5V, V _I =V _{CC} or GND | | | ±1 | μA | |
| V _{CC} or GND Current | I _{CC} | V _{CC} = 5.5V, V _I =5.5V or GND, I _O =0 | | | 1 | μA | |
| Control input | C _{IN} | V _O =3V or 0 | | 3 | | pF | |
| I/O Capacitance (OFF) | C _{IO} | V _O =3V or 0, OE= V _{CC} | | 4 | | pF | |
| Resistor between two ports | R _{ON} | V _{CC} =4V, TYP at V _{CC} =4V, V _I =2.4V, I _I =15mA | | 14 | 20 | Ω | |
| | | V _{CC} =4.5V, V _I =0V | I _I =64mA | | 5 | 7 | Ω |
| | | | I _I =30mA | | 5 | 7 | Ω |
| | | V _{CC} =4.5V, V _I =2.4V, I _I =15mA | | 10 | 15 | Ω | |

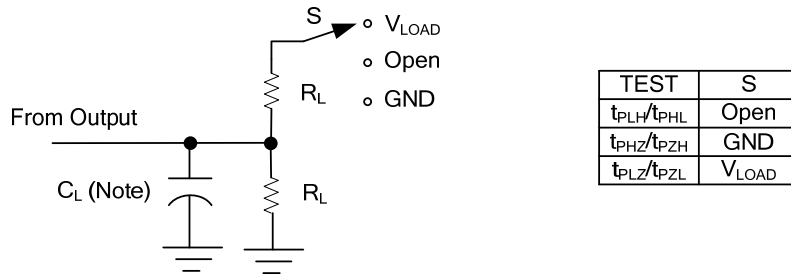
■ DYNAMIC CHARACTERISTICS (Input: t_R, t_F≤2.5ns; PRR≤10MHz; CL=50pF)

See Fig. 1 and Fig. 2 for test circuit and waveforms.

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|------------------|---|-----|-----|------|------|
| From input (A or B) to output (B or A) (Note) | t _{pd} | V _{CC} =4V, C _L =50pF, R _L =500Ω | | | 0.35 | ns |
| | | V _{CC} = 5V±0.5V, C _L =50pF, R _L =500Ω | | | 0.25 | ns |
| From input OE to output (A or B) | t _{en} | V _{CC} =4V, C _L =50pF, R _L =500Ω | | | 5.5 | ns |
| | | V _{CC} = 5V±0.5V, C _L =50pF, R _L =500Ω | 1.6 | | 4.9 | ns |
| From input OE to output (A or B) | t _{dis} | V _{CC} =4V, C _L =50pF, R _L =500Ω | | | 4.5 | ns |
| | | V _{CC} = 5V±0.5V, C _L =50pF, R _L =500Ω | 1 | | 4.2 | ns |

Notes: 1. t_{pd}: t_{PLH} and t_{PHL}.
 2. t_{en}: t_{PZL} and t_{PZH}.
 3. t_{dis}: t_{PLZ} and t_{PHZ}.

■ TEST CIRCUIT AND WAVEFORMS ($C_L=50\text{pF}$, $R_L=500\Omega$, $V_{LOAD}=7\text{V}$, $V_M=1.5\text{V}$, $V_{IN}=3\text{V}$)



Note: C_L includes probe and jig capacitance.

Fig. 1 Load circuitry for switching times.

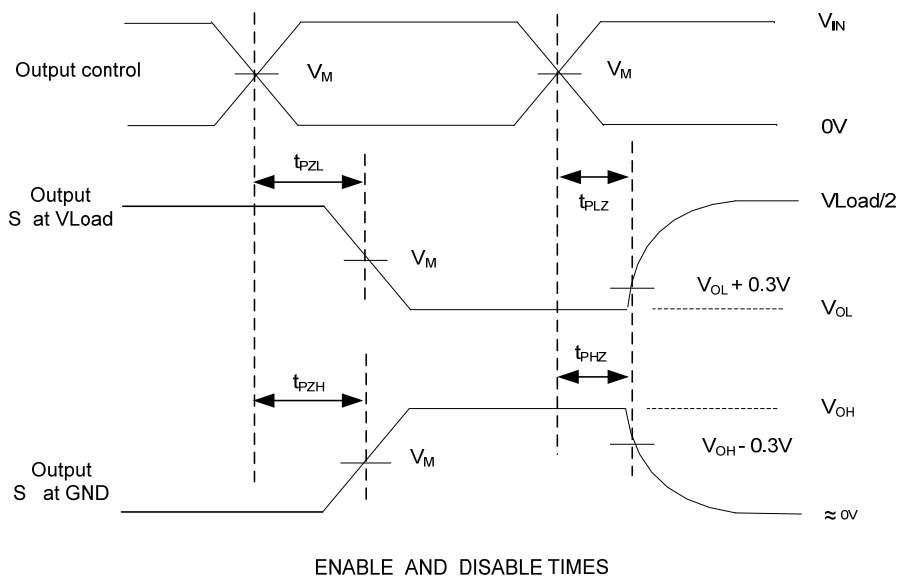
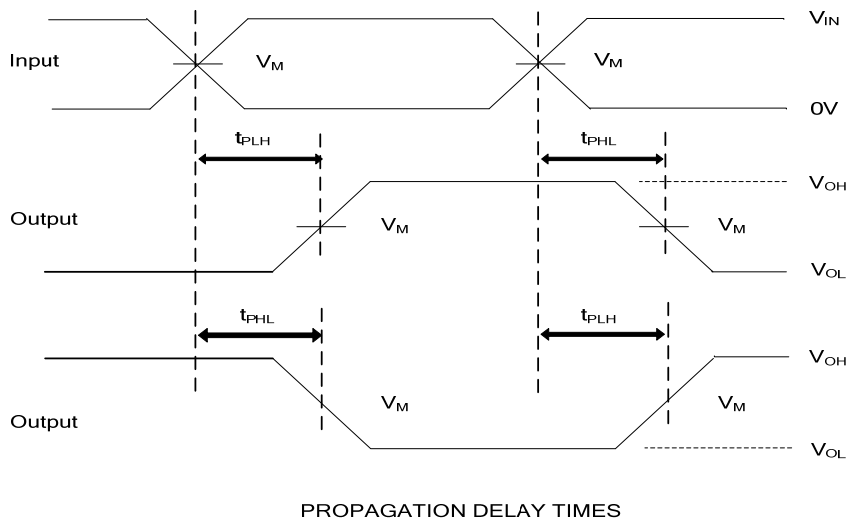


Fig. 2 Propagation delay from input(A) to output(B) and Output transition time.

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