



U74CBT1G385

CMOS IC

SINGLE FET BUS SWITCH

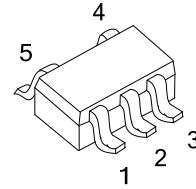
DESCRIPTION

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

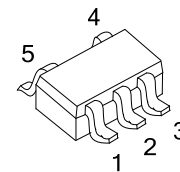
The **U74CBT1G385** is characterized for operation from -40°C to 125°C.

FEATURES

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



SOT-23-5
(JEDEC TO-236)



SOT-353

ORDERING INFORMATION

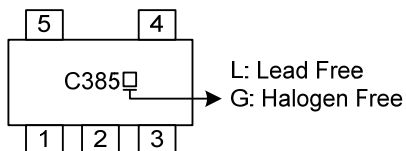
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74CBT1G385L-AE5-R	U74CBT1G385G-AE5-R	SOT-23-5	Tape Reel
U74CBT1G385L-AL5-R	U74CBT1G385G-AL5-R	SOT-353	Tape Reel

U74CBT1G385G-AE5-R

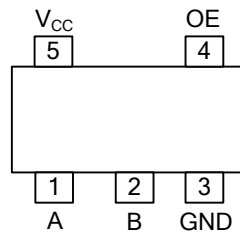
- (1) Packing Type
- (2) Package Type
- (3) Green Package

- (1) R: Tape Reel
- (2) AE5: SOT-23-5, AL5: SOT-353
- (3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



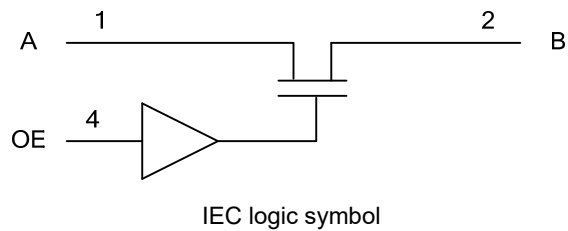
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

INPUT OE	OUTPUT
L	Disconnect
H	A port = B port

■ LOGIC DIAGRAM (positive logic)



■ **ABSOLUTE MAXIMUM RATING** (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 CONDITIONS** (Unless otherwise specified)

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		+125	°C

■ **STATIC CHARACTERISTICS** (Unless otherwise specified)

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
		$V_{CC}=4.5V, V_I=0V, I_I=30mA$		5	7	Ω
		$V_{CC}=4.5V, V_I=2.4V, I_I=15mA$		10	15	Ω

■ **DYNAMIC CHARACTERISTICS**

(Input: $t_R, t_F \leq 2.5ns$; $PRR \leq 10MHz$; $C_L=50pF$, unless otherwise specified)

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

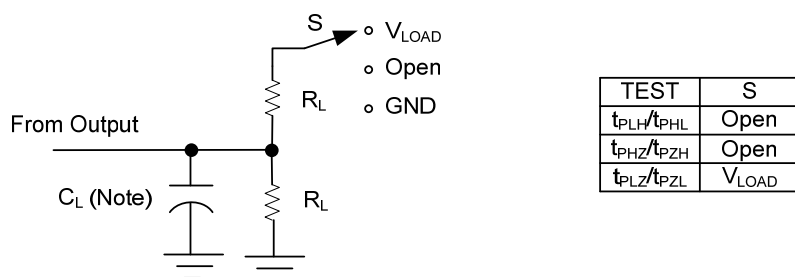
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
From input (A or B) to output (B or A) (Note)	t_{pd}	$V_{CC}=4V, C_L=50pF, R_L=500\Omega$			0.35	ns
		$V_{CC}=5V \pm 0.5V, C_L=50pF, R_L=500\Omega$			0.25	ns
From input OE to output (A or B)	t_{en}	$V_{CC}=4V, C_L=50pF, R_L=500\Omega$			5.5	ns
		$V_{CC}=5V \pm 0.5V, C_L=50pF, R_L=500\Omega$	1.6		4.9	ns
From input OE to output (A or B)	t_{dis}	$V_{CC}=4V, C_L=50pF, R_L=500\Omega$			4.5	ns
		$V_{CC}=5V \pm 0.5V, C_L=50pF, R_L=500\Omega$	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 ($C_L=50\text{pF}$, $R_L=500\Omega$, $V_{\text{LOAD}}=7\text{V}$, $V_M=1.5\text{V}$, $V_{\text{IN}}=3\text{V}$)



Note: C_L includes probe and jig capacitance.

Fig. 1 Load circuitry for switching times.

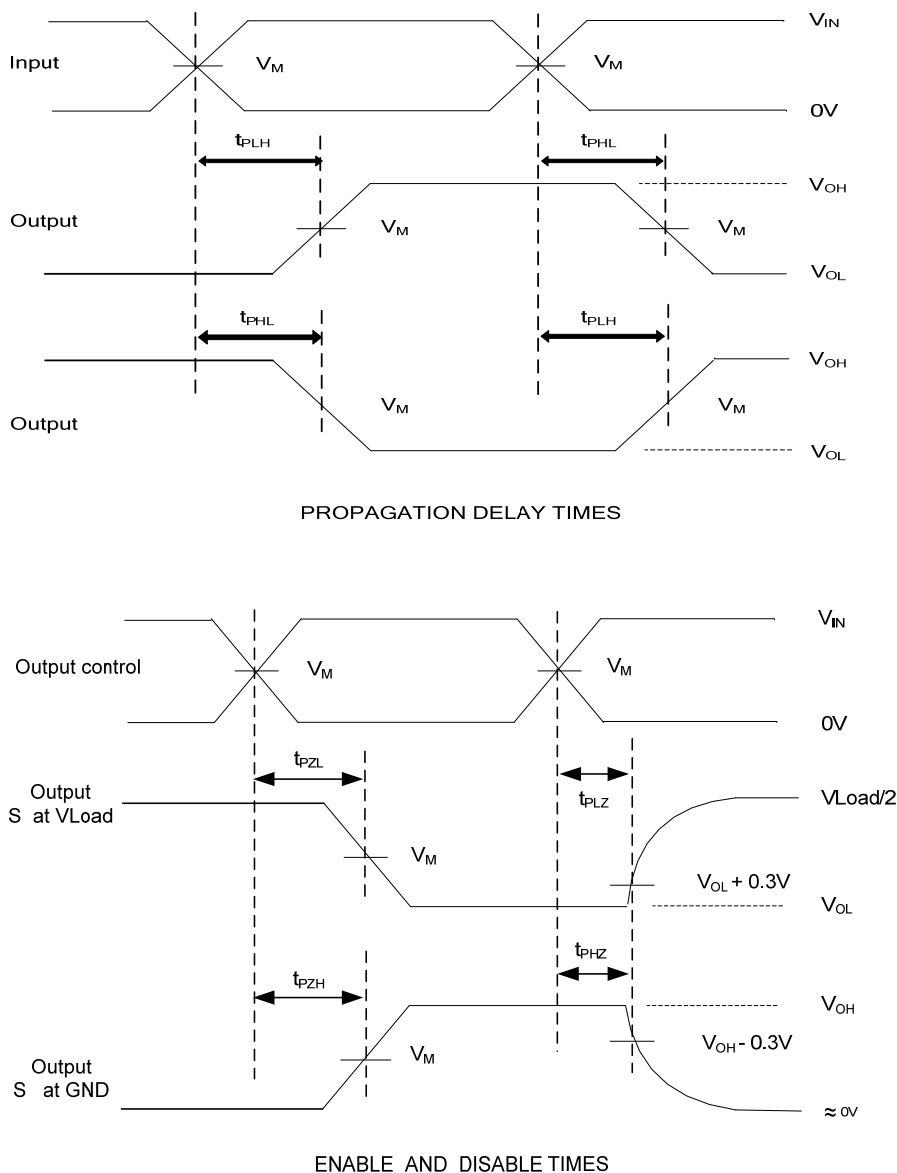


Fig. 2 Propagation delay from input(A) to output(B) and Output transition time.

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