



U74CBT3306

CMOS IC

DUAL FET BUS SWITCH

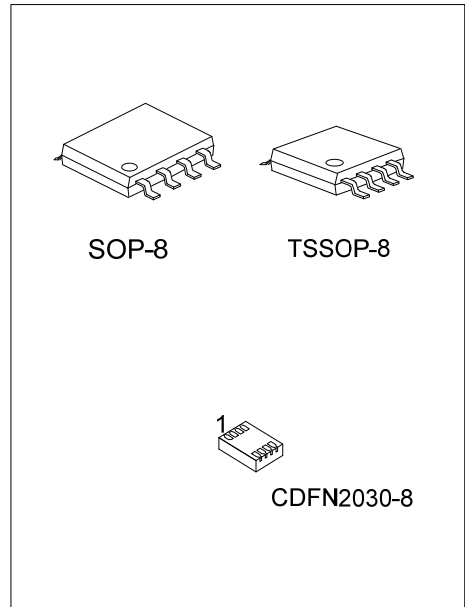
DESCRIPTION

The **U74CBT3306** dual FET bus switch features independent line switches.

Each switch is disabled when the associated output-enable (\overline{OE}) input is high.

FEATURES

- * 5- Ω Switch Connection Between Two Ports
- * TTL-Compatible Input Levels



ORDERING INFORMATION

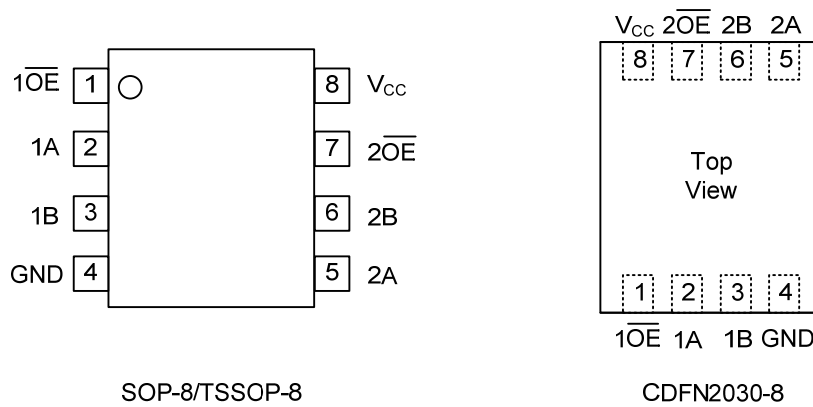
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74CBT3306L-S08-R	U74CBT3306G-S08-R	SOP-8	Tape Reel
U74CBT3306L-P08-R	U74CBT3306G-P08-R	TSSOP-8	Tape Reel
U74CBT3306L-CK08-2030-R	U74CBT3306G-CK08-2030-R	CDFN2030-8	Tape Reel

<p>U74CBT3306G-S08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) S08: SOP-8, P08: TSSOP-8 CK08-2030: CDFN2030-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

SOP-8	TSSOP-8	CDFN2030-8
<p>8 7 6 5 → Date Code UTC □□□□ CBT3306 □ L: Lead Free G: Halogen Free □ □ □ □ → Lot Code 1 2 3 4</p>	<p>1 2 3 4 → UTC □□□□ 8 7 6 5 → Date Code C306 □ □ □ □ L: Lead Free G: Halogen Free □ □ □ □ → Lot Code</p>	<p>CBT 3306 □ □ □ □ → Date Code</p>

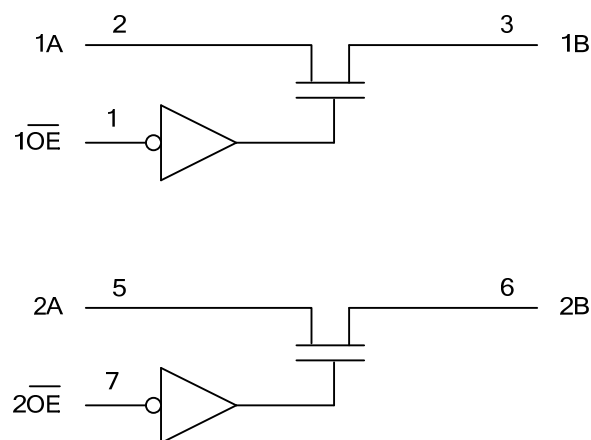
■ PIN CONFIGURATION



■ FUNCTION TABLE

INPUT	FUNCTION
\overline{OE}	
L	A port = B port
H	Disconnect

■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (Unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7	V
Input Voltage Range (Note 1)	V_{IN}	-0.5 ~ 7	V
Input Clamp Current	I_{IK}	-50	mA
Continuous Channel Current		128	mA
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

Notes: 1. The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.

2. The package thermal impedance is calculated in accordance with JESD 51-7.

■ RECOMMENDED OPERATING CONDITIONS (Unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	4.0		5.5	V
High-Level Control Input Voltage	V_{IH}	2.0			V
Low-Level Control Input Voltage	V_{IL}			0.8	V
Operating Temperature	T_A	-40		+125	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Ambient	SOP-8	θ_{JA}	97	°C/W
	TSSOP-8		149	°C/W
	CDFN2030-8		230	°C/W

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

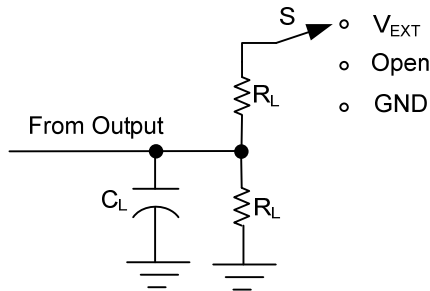
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Control Input Clamp Voltage	V_{IK}	$V_{CC}=4.5V, I_{IN}=-18mA$			-1.2	V	
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=5.5V, V_{IN}=V_{CC}$ or GND			±1	µA	
Quiescent Supply Current	I_{CC}	$V_{CC}=5.5V, I_{OUT}=0, V_{IN}=V_{CC}$ or GND			3	µA	
Additional Quiescent Supply Current	ΔI_{CC}	$V_{CC}=5.5V$, One input at 3.4V, Other inputs at V_{CC} or GND			2.5	mA	
Control Input Capacitance	C_{IN}	$V_{IN}=3V$ or 0		3		pF	
Input Capacitance	$C_{IO(OFF)}$	$V_{OUT}=3V$ or 0, $\overline{OE}=V_{CC}$		4		pF	
ON-Resistance	R_{ON}	$V_{CC}=4V, V_{IN}=2.4V, I_{OUT}=-15mA$		14	20	Ω	
		$V_{CC}=4.5V, V_{IN}=0$		5	7	Ω	
		$V_{CC}=4.5V, V_{IN}=0$	$I_{OUT}=64mA$		5	7	Ω
		$V_{CC}=4.5V, V_{IN}=2.4V$	$I_{OUT}=-15mA$		10	15	Ω

■ SWITCHING CHARACTERISTICS ($C_L=50pF, R_L=500\Omega$. see 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}	$V_{CC}=4V$			0.35	ns
		$V_{CC}=5V\pm 0.5V$			0.25	ns
From input \overline{OE} to output (A or B)	t_{en}	$V_{CC}=4V$			5.6	ns
		$V_{CC}=5V\pm 0.5V$	1.8		5	ns
From input \overline{OE} to output (A or B)	t_{dis}	$V_{CC}=4V$			4.6	ns
		$V_{CC}=5V\pm 0.5V$	1		4.3	ns

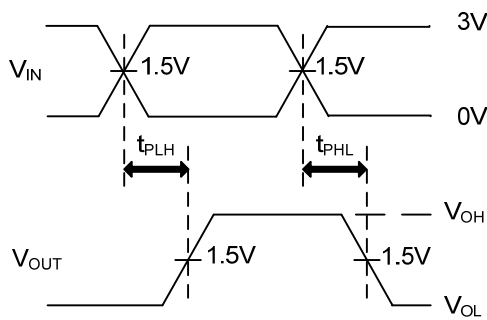
Note: The propagation delay is the calculated RC time constant of the typical ON-state resistance of the switch and the specified load capacitance, when driven by an ideal voltage source (zero output impedance).

■ TEST CIRCUIT AND WAVEFORMS

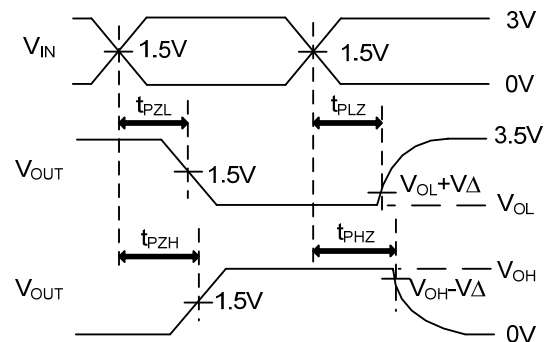


TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	Open
t_{PLZ}/t_{PZL}	V_{EXT}

TEST	V_{CC}	V_i	t_r / t_f	V_{Δ}	V_{EXT}	C_L	R_L
t_{PLH}/t_{PHL}	4V	V_{CC} or GND	≤ 2.5 ns		Open	50pF	500 Ω
	$5V \pm 0.5V$	V_{CC} or GND	≤ 2.5 ns		Open	50pF	500 Ω
t_{PLZ}/t_{PZL}	4V	GND	≤ 2.5 ns	0.3V	7V	50pF	500 Ω
	$5V \pm 0.5V$	GND	≤ 2.5 ns	0.3V	7V	50pF	500 Ω
t_{PHZ}/t_{PZH}	4V	V_{CC}	≤ 2.5 ns	0.3V	Open	50pF	500 Ω
	$5V \pm 0.5V$	V_{CC}	≤ 2.5 ns	0.3V	Open	50pF	500 Ω



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

- Notes:
- C_L includes probe and jig capacitance.
 - All input pulses are supplied by generators having the following characteristics: $PRR \leq 10$ MHz, $Z_0 = 50\Omega$, $t_r \leq 2.5$ ns, $t_f \leq 2.5$ ns.
 - The outputs are measured one at a time with one transition per measurement.
 - t_{PLZ} and t_{PHZ} are the same as t_{dis} .
 - t_{PZL} and t_{PZH} are the same as t_{en} .
 - t_{PLH} and t_{PHL} are the same as $t_{pd}(s)$.
 - All parameters and waveforms are not applicable to all devices.

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