



## U74CBT1G125

CMOS IC

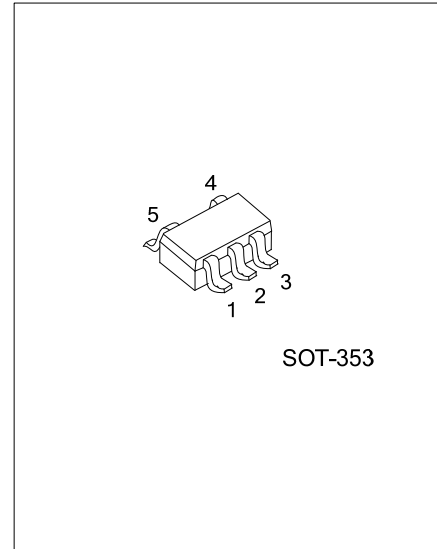
### SINGLE FET BUS SWITCH

#### DESCRIPTION

The **U74CBT1G125** features a single high-speed line switch. The switch is disabled when the output-enable ( $\overline{OE}$ ) input is high.

#### FEATURES

- \* 5- $\Omega$  Switch Connection Between Two Ports
- \* Inputs are TTL-Voltage compatible

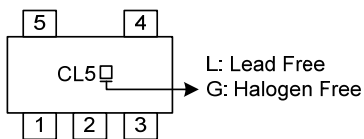


#### ORDERING INFORMATION

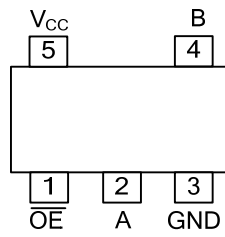
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74CBT1G125L-AL5-R	U74CBT1G125G-AL5-R	SOT-353	Tape Reel

<p>U74CBT1G125G-AL5-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AL5: SOT-353 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



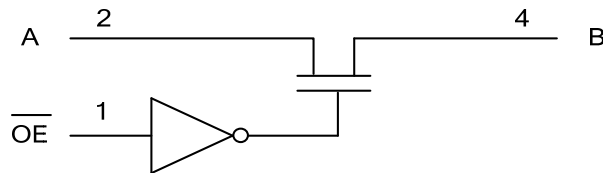
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (positive logic)



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■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)(Note 1)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	-0.5 ~ 7	V
Input Voltage	$V_I$	-0.5 ~ 7	V
Continuous channel current		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	$I_I$	$V_{CC}=5.5V, V_I=V_{CC}$ 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	$C_I$	$V_O=3V$ or 0		3		pF
I/O Capacitance (OFF)	$C_{IO}$	$V_O=3V$ or 0, $\overline{OE}=V_{CC}$		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:  $t_R, t_F \leq 2.5ns$ ; PRR≤10MHz;  $C_L=50pF$ )

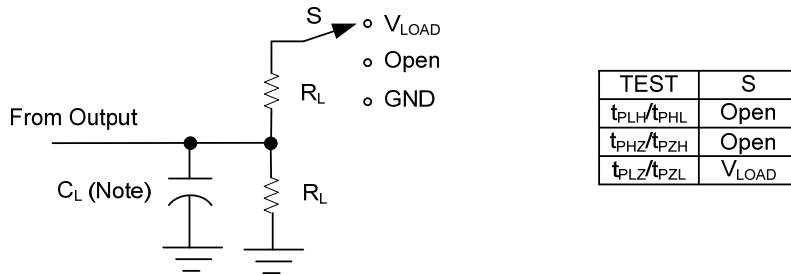
See Fig. 1 and Fig. 2 for test circuit and waveforms.

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
From input (A or B) to output (B or A) (Note)	$t_{pd}$	$V_{CC}=4V, C_L=50pF, R_L=500\Omega$			0.35	ns
		$V_{CC}=5V \pm 0.5V, C_L=50pF, R_L=500\Omega$			0.25	ns
From input $\overline{OE}$ 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 $\overline{OE}$ to output (A or B)	$t_{dis}$	$V_{CC}=4V, C_L=50pF, R_L=500\Omega$			4.5	ns
		$V_{CC}=5V \pm 0.5V, C_L=50pF, R_L=500\Omega$	1.0		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 ( $C_L=50\text{pF}$ ,  $R_L=500\Omega$ ,  $V_{LOAD}=7\text{V}$ ,  $V_M=1.5\text{V}$ )



Note:  $C_L$  includes probe and jig capacitance.

Fig. 1 Load circuitry for switching times.

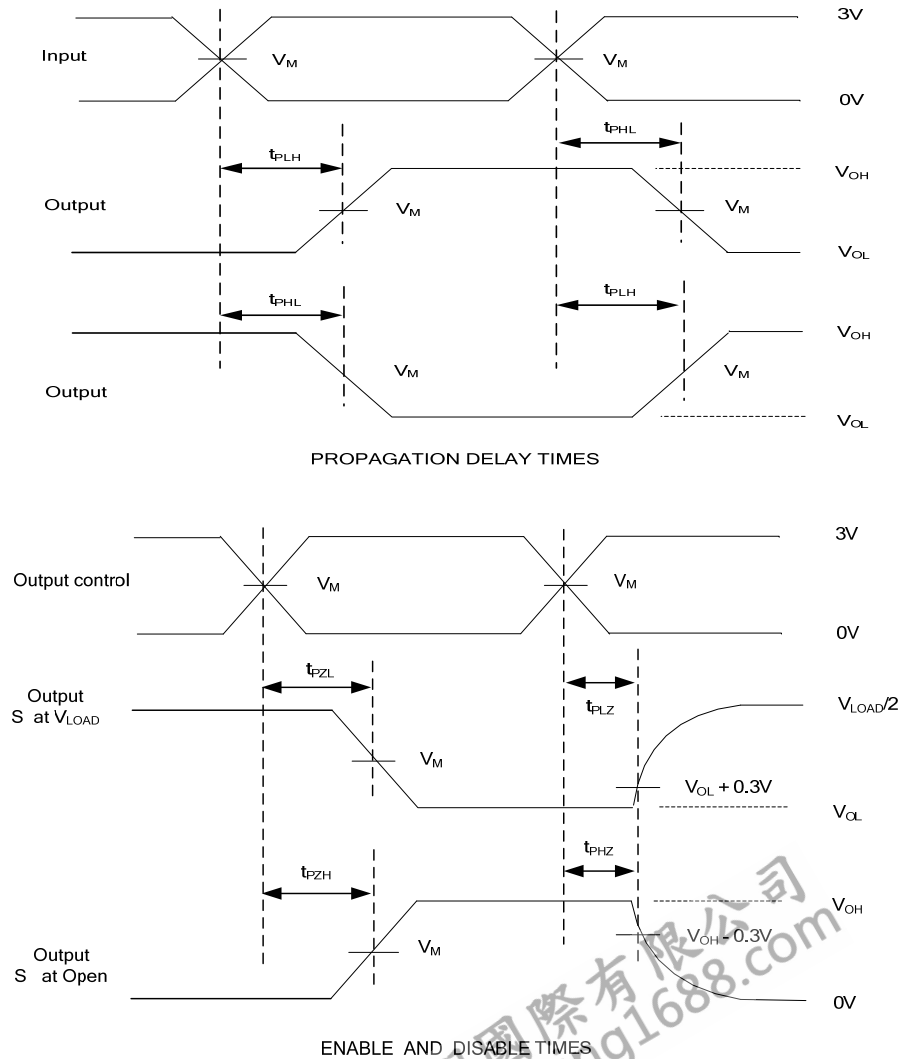


Fig. 2 Propagation delay from input(A) to output(B) and Output transition time.

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