



U74AHCT1G126

CMOS IC

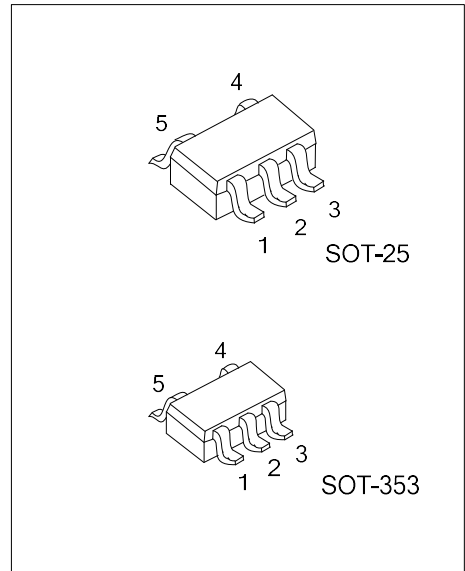
SINGLE BUS BUFFER GATE WITH 3-STATE OUTPUT

DESCRIPTION

The UTC **U74AHCT1G126** is a single bus buffer gate with 3-state output controlled by enable input (OE). When OE is LOW and the output is disabled.

FEATURES

- * Operation Voltage Range:4.5~5.5V
- * Low Power Dissipation: $I_{CC}=1\mu A$ (Max.) @25°C
- * Inputs are TTL-Voltage Compatible

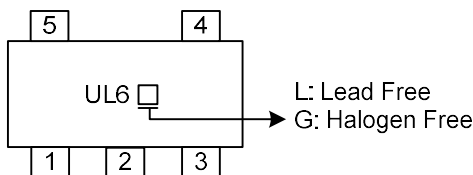


ORDERING INFORMATION

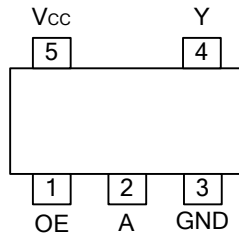
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT1G126L-AF5-R	U74AHCT1G126G-AF5-R	SOT-25	Tape Reel
U74AHCT1G126L-AL5-R	U74AHCT1G126G-AL5-R	SOT-353	Tape Reel

<p>U74AHCT1G126G-AF5-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AF5: SOT-25, AL5: SOT-353 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



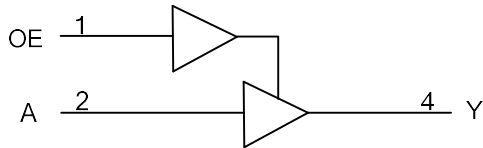
■ **PIN CONFIGURATION**



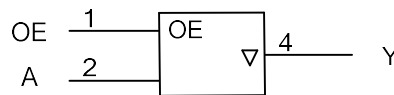
■ **FUNCTION TABLE** (each gate)

INPUT		OUTPUT
OE	A	Y
H	L	L
H	H	H
L	X	Z

■ **LOGIC DIAGRAM** (positive logic)



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified) (Note 2)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	-0.5 ~ 7	V
Input Voltage	V _{IN}	-0.5 ~ 7	V
Output Voltage	V _{OUT}	-0.5 ~ V _{CC} +0.5	V
Input Clamp Current	I _{IK}	-20	mA
Output Clamp Current	I _{OK}	±20	mA
Output Current	I _{OUT}	±25	mA
V _{CC} or GND Current	I _{CC}	±50	mA
Storage Temperature	T _{STG}	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}		4.5		5.5	V
Input Voltage	V _{IN}		0		5.5	V
Output Voltage	V _{OUT}		0		V _{CC}	V
Input Transition Rise or Fall Rate	Δt/ΔV	V _{CC} =5.0±0.5V			20	ns/V
Operating Temperature	T _A		-40		+125	°C

■ STATIC CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
Input Voltage	High-Level	V _{IH}	V _{CC} =4.5V~5.5V		2			2		V
	Low-Level	V _{IL}	V _{CC} =4.5V~5.5V				0.8		0.8	V
Output Voltage	High-Level	V _{OH}	V _{CC} =4.5V, I _{OH} =-50μA		4.4	4.5			4.4	V
			V _{CC} =4.5V, I _{OH} =-8mA		3.94				3.7	V
	Low-Level	V _{OL}	V _{CC} =4.5V, I _{OL} =50μA				0.1		0.1	V
			V _{CC} =4.5V, I _{OL} =8mA				0.36		0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0V~5.5V, V _{IN} =V _{CC} or GND				±0.1		2	μA	
Output Current, OFF-state	I _{OZ}	V _{CC} =5.5V, V _{OUT} =V _{CC} or GND				±0.25		±10	μA	
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND I _{OUT} =0				1		40	μA	
Additional Quiescent Supply Current	ΔI _{CC}	V _{CC} =5.5V, One input at 3.4V, Other input at V _{CC} or GND				1.35		1.5	mA	

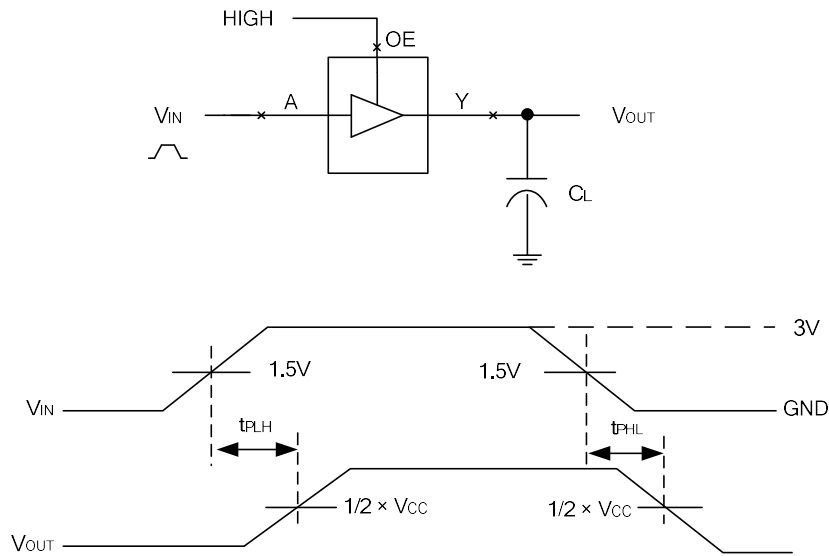
■ **DYNAMIC CHARACTERISTICS** (Input: $t_R, t_F \leq 3\text{ns}$; $P_{RR} \leq 1\text{MHz}$, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^\circ\text{C}$			$T_A=-40^\circ\text{C}\sim+125^\circ\text{C}$			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
Propagation delay from A to Y	t_{PLH}	$V_{CC}=5V \pm 0.5V, C_L=15\text{pF}$		3.8	5.5	1		8	ns	
	t_{PHL}			3.8	5.5	1		8	ns	
Turn-on time OE to Y	t_{PZH}			3.6	5.1	1		6.5	ns	
	t_{PZL}			3.6	5.1	1		6.5	ns	
Turn-off time OE to Y	t_{PHZ}			4.6	6.8	1		8.5	ns	
	t_{PLZ}			4.6	6.8	1		8.5	ns	
Propagation delay from A to Y	t_{PLH}		$V_{CC}=5V \pm 0.5V, C_L=50\text{pF}$		5.3	7.5	1		10.5	ns
	t_{PHL}				5.3	7.5	1		10.5	ns
Turn-on time OE to Y	t_{PZH}				5.1	7.1	1		9	ns
	t_{PZL}				5.1	7.1	1		9	ns
Turn-off time OE to Y	t_{PHZ}			6.1	8.8	1		11.5	ns	
	t_{PLZ}			6.1	8.8	1		11.5	ns	

■ **OPERATING CHARACTERISTICS** ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C_{IN}	$V_{CC}=5V, V_{IN}=V_{CC}$ or GND		4	10	pF
Output Capacitance	C_{OUT}	$V_{CC}=5V, V_{OUT}=V_{CC}$ or GND		10		pF
Power Dissipation Capacitance	C_{PD}	No load, $f=1\text{MHz}, V_{CC}=5V$		14		pF

TEST CIRCUIT AND WAVEFORMS



Note: CL includes probe and jig capacitance.

Fig-1 Propagation delay from A to Y

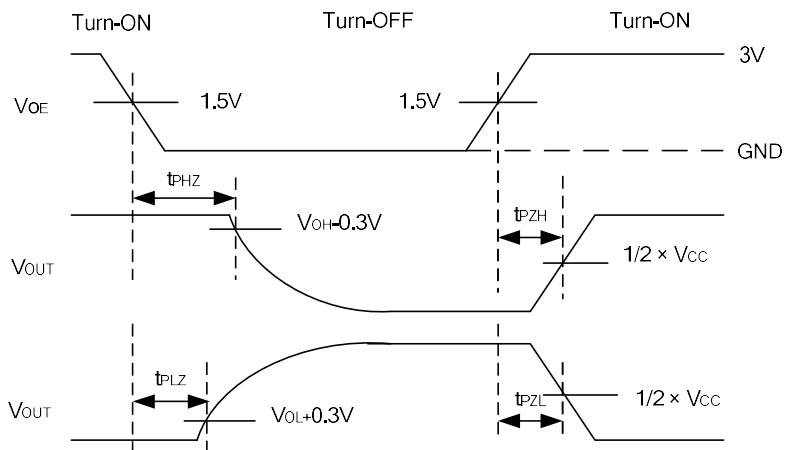
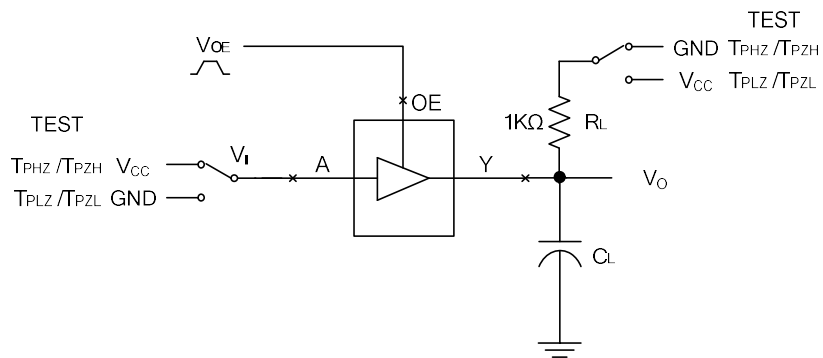


Fig-2 The turn-on and turn-off times.

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