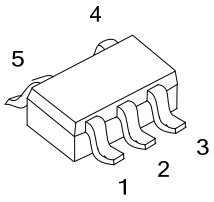
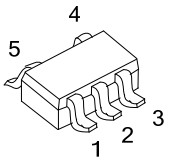
U74AHCT1G04

CMOS IC

SINGLE INVERTER GATE



SOT-25



SOT-353

■ DESCRIPTION

The UTC **U74AHCT1G04** is a single inverter gate, which provides the Function $Y = \overline{A}$

■ FEATURES

* Inputs are TTL voltage compatible
* Operation Voltage Range: 4.5V~5.5V
* Low Power Dissipation: I_{CC}=10μA(Max)
* High Speed: tpd=7.5ns(Typ)
* Halogen Free

■ ORDERING INFORMATION

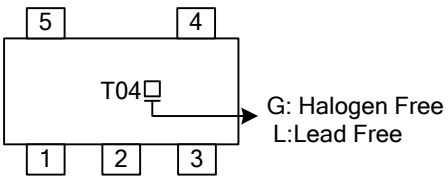
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT1G04L-AF5-R	U74AHCT1G04G-AF5-R	SOT-25	Tape Reel
U74AHCT1G04L-AL5-R	U74AHCT1G04G-AL5-R	SOT-353	Tape Reel

U74AHCT1G04L-AF5-R

(1)Packing Type
(2)Package Type
(3)Lead Free

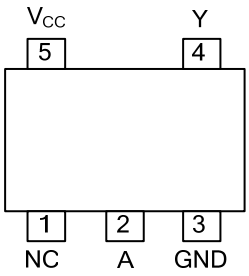
(1) R: Tape Reel
(2) AF5: SOT-25, AL5: SOT-353
(3) G: Halogen Free, L: Lead Free

■ MARKING



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■ PIN CONFIGURATION

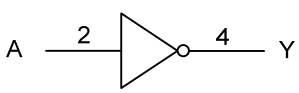


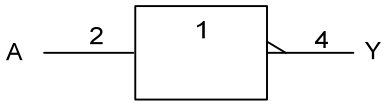
■ FUNCTION TABLE

INPUT(A)	OUTPUT(Y)
H	L
L	H

Note: H: high voltage level; L: low voltage level.

■ LOGIC DIAGRAM





■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5~+7.0	V
Input Voltage (Note 2)	V_{IN}	-0.5~+7.0	V
Output Voltage (Note 2)	V_{OUT}	-0.5~V_{CC}+0.5	V
V_{CC} or GND Current	I_{CC}	±50	mA
Output Current	I_{OUT}	±25	mA
Input Clamp Current	I_{IK}	-20	mA
Output Clamp Current	I_{OK}	±20	mA
Operating Temperature	T_{OPR}	-40 ~ +85	℃
Storage Temperature	T_{STG}	-65 ~ +150	℃

Note: 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	SOT-25	θ_{JA}	200	°C/W
	SOT-353		250	°C/W

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST 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
High-level Input Voltage	V_{IH}		2			V
Low-level Input Voltage	V_{IL}				0.8	V
High-level Output Current	I_{OH}				-8	mA
Low-level Output Current	I_{OL}				8	mA
Input Transition Rise or Fall Rate	t_R, t_F				20	ns/V

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Output Voltage	V_{OH}	V_{CC}=4.5V, I_{OH}=-50μA	4.4	4.5		V
		V_{CC}=4.5V, I_{OH}=-8mA	3.94			
Low-Level Output Voltage	V_{OL}	V_{CC}=4.5V, I_{OH}=50μA			0.1	V
		V_{CC}=4.5V, I_{OH}=8mA			0.36	
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0~5.5V, V_{IN}=5.5V or GND			±0.1	μA
Quiescent Supply Current	I_Q	V_{CC}=5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0			1	μA
Additional Quiescent Supply Current	ΔI_Q	V_{CC}=5.5V, One input at 3.4V, Other inputs at V_{CC} or GND			1.35	mA
Input Capacitance	C_I	V_{CC}=5V, V_{IN}=V_{CC} or GND		4	10	pF

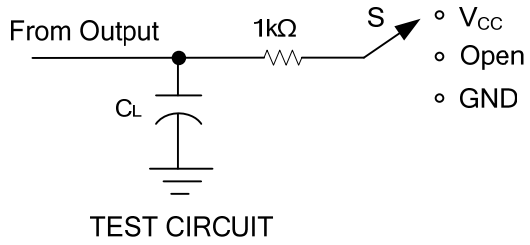
■ DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time Input(A) to Output(Y)	t_{PLH}	V_{CC}=5V±0.5V, C_L=15pF		4.7	6.7	ns
	t_{PHL}			4.7	6.7	
	t_{PLH}	V_{CC}=5V±0.5V, C_L=50pF		5.5	7.7	
	t_{PHL}			5.5	7.7	

■ OPERATING CHARACTERISTICS (T_a=25℃)

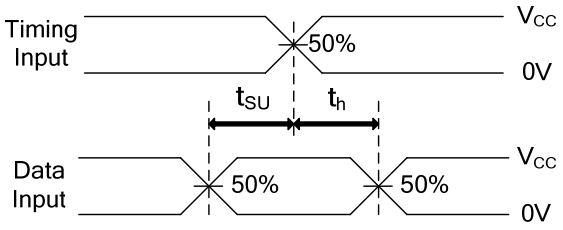
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	Cpd	No load, V_{CC}=5V, f=1MHz		14		pF

■ TEST CIRCUIT AND WAVEFORMS

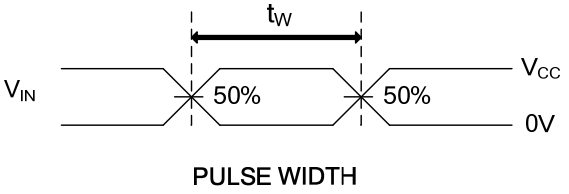


TEST CIRCUIT

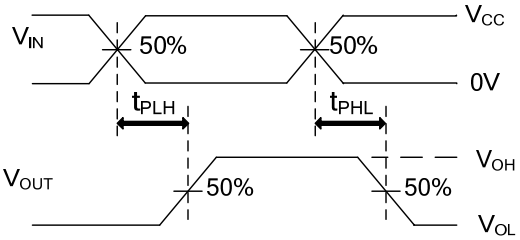
TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}



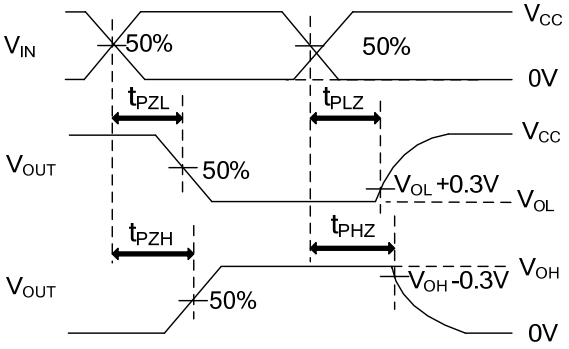
SETUP TIME AND HOLD TIME



PULSE WIDTH



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Note: C_L includes probe and jig capacitance.
PRR≦1MHz, Z_O=50Ω, t_R≦3ns, t_F≦3ns

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