



## U74HCT3G04

CMOS IC

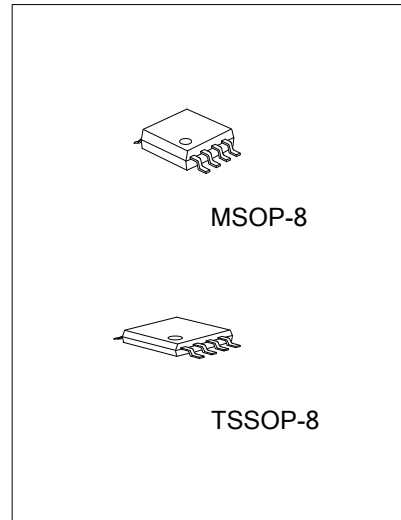
### INVERTER

#### DESCRIPTION

The **U74HCT3G04** provides three inverters, it is compatible with TTL.

#### FEATURES

- \* Low power dissipation
- \* High speed
- \* High noise immunity



#### ORDERING INFORMATION

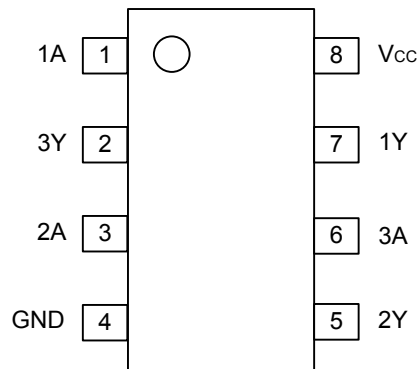
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HCT3G04L-SM1-R	U74HCT3G04G-SM1-R	MSOP-8	Tape Reel
U74HCT3G04L-P08-R	U74HCT3G04G-P08-R	TSSOP-8	Tape Reel

<p>U74HCT3G04G-SM1-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) SM1: MSOP-8, P08: TSSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING

MSOP-8	TSSOP-8
<p>8 7 6 5 → Date Code UTC □□□□ HCT3G04 □ □ □ → L: Lead Free □ □ → G: Halogen Free ● □ □ □ → Lot Code 1 2 3 4</p>	<p>1 2 3 4 → Date Code ● UTC □ □ □ □ 3G04 □ □ □ □ □ □ □ □ → L: Lead Free □ □ □ □ → G: Halogen Free □ □ □ □ → Lot Code</p>

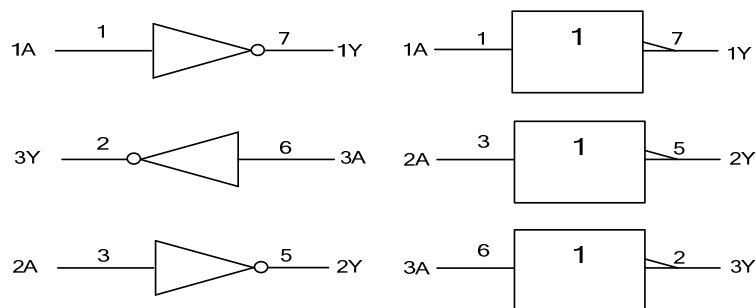
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

INPUT	OUTPUT
A	Y
L	H
H	L

■ LOGIC DIAGRAM (positive logic)



### ■ ABSOLUTE MAXIMUM RATINGS (unless otherwise specified)

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
Output Current	$I_{OUT}$	±25	mA
$V_{CC}$ or GND Current	$I_{CC}$	±50	mA
Input Clamp Current	$I_{IK}$	±20	mA
Output Clamp Current	$I_{OK}$	±20	mA
Power Dissipation	$P_D$	300	mW
Storage Temperature	$T_{STG}$	-65 ~ +150	°C

Note: 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.

### ■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$		4.5	5.0	5.5	V
Input Voltage	$V_{IN}$		0		$V_{CC}$	V
Output Voltage	$V_{OUT}$		0		$V_{CC}$	V
Input Rise and Fall Times	$t_R, t_F$	$V_{CC}=4.5V$		6.0	500	ns
Operating Temperature	$T_A$		-40		+125	°C

### ■ STATIC CHARACTERISTICS ( $T_A=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	$V_{IH}$	$V_{CC}=4.5V\sim 5.5V$	2.0	1.6		V
Low-Level Input Voltage	$V_{IL}$	$V_{CC}=4.5V\sim 5.5V$		1.2	0.8	V
High-Level Output Voltage	$V_{OH}$	$V_{CC}=4.5V, I_{OH}=-20\mu A$	4.4	4.5		V
		$V_{CC}=4.5V, I_{OH}=-4.0mA$	4.18	4.32		
Low-Level Output Voltage	$V_{OL}$	$V_{CC}=4.5V, I_{OL}=20\mu A$		0	0.1	V
		$V_{CC}=4.5V, I_{OL}=4.0mA$		0.15	0.26	
Input Leakage Current	$I_{(LEAK)}$	$V_{CC}=5.5V, V_{IN}=V_{CC}$ or GND			±1.0	μA
Quiescent Supply Current	$I_Q$	$V_{CC}=5.5V, I_{OUT}=0, V_{IN}=V_{CC}$ or GND			10	μA
Additional Quiescent Supply Current	$\Delta I_Q$	$V_{CC}=5.5V, I_{OUT}=0, V_{IN}=V_{CC}-2.1V$			300	μA
Input Capacitance	$C_{IN}$			1.5		pF

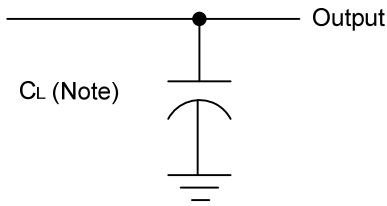
### ■ DYNAMIC CHARACTERISTICS ( $t_R, t_F \leq 6.0ns$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From nA to nY	$t_{PHL} / t_{PLH}$	$V_{CC}=4.5V, C_L=50pF$		10	23	ns
Output Transition Time	$t_{THL} / t_{TLH}$	$V_{CC}=4.5V, C_L=50pF$		6	19	ns

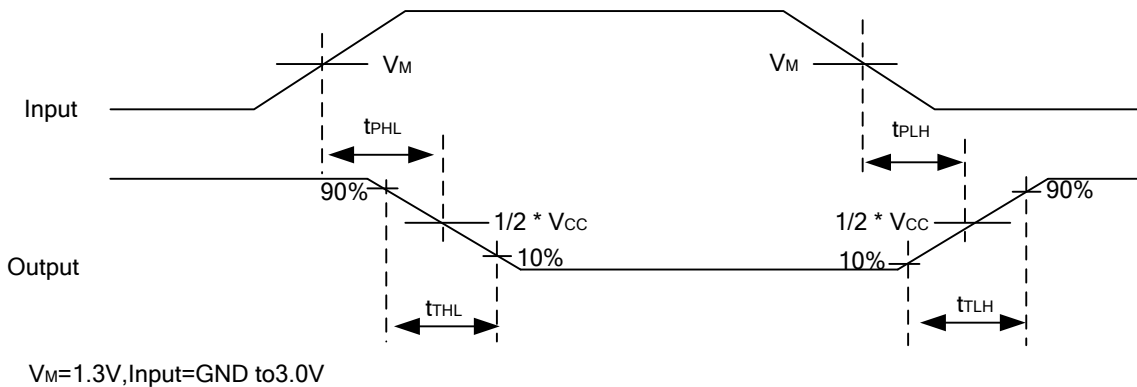
### ■ OPERATING CHARACTERISTIC

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$			9		pF

## ■ TEST CIRCUIT AND WAVEFORMS



Note:  $C_L$  includes probe and jig capacitance.



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