

# SM74HC04

## Overview

SM74HC04 is a high speed CMOS devices, compatible with low power Schottky TTL Circuit 74LS04.

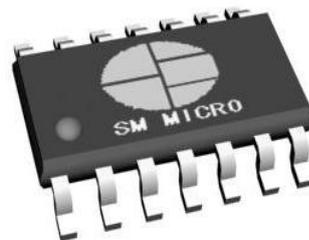
## Features

- use CMOS Technology
- Wide voltage operating range: 3.0V—5.0V
- 6 Channel Inverter
- Package: SOP14

## Application Areas

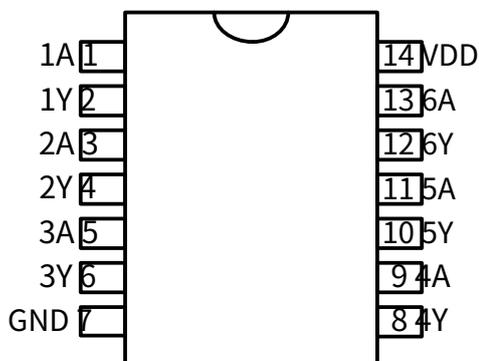
- Suitable for signal inversion applications in digital circuits

## Package Diagram



SOP14

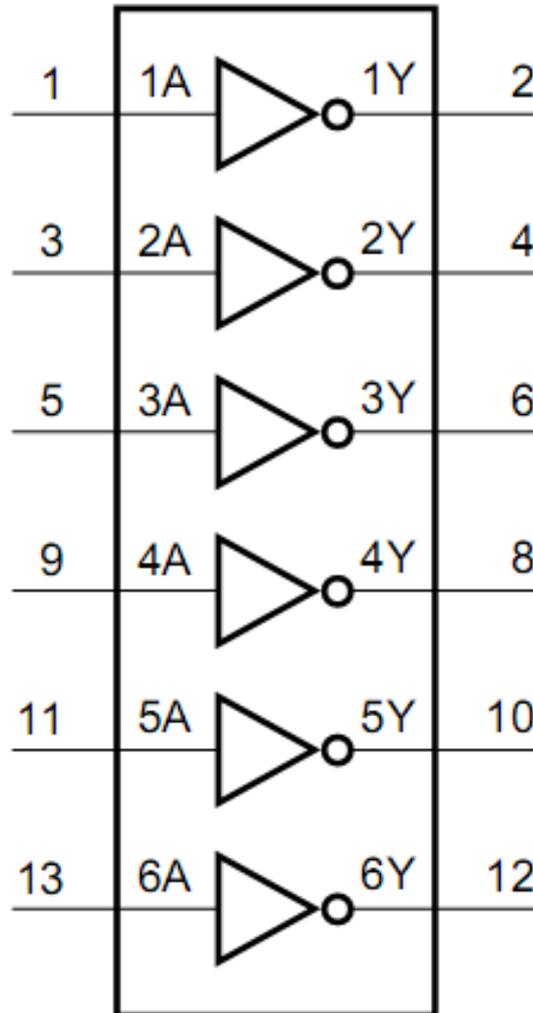
## Pin Definition



**Pin Description**

name	Functional Description	Pin Number
1A-6A	Data Entry	1,3,5,9,11,13
1Y-6Y	Data Output	2,4,6,8,10,12
VDD	Logic Power Supply	14
GND	Logically	7

**Logic diagram**



**Electrical parameters**

Limit parameters (Ta = 25°C)

parameter	symbol	scope	unit
Logic supply voltage	VDD	-0.5—+7.0	V
Logic input voltage	VI1	- 0.5—VDD + 0.5	V
Power loss	PD	<400	mW
Operating temperature	Topt	-40—+80	°C
Storage temperature	Tsj	-50—+150	°C

Normal operating range (Ta =25°C)

parameter	symbol	Minimum	typical	maximum	unit	Test conditions
Logic supply voltage	VDD	3.0	5.0	5.5	V	
High level input voltage	VIH	3.0	-	-	V	VDD=5.0V
Low level input voltage	VIL	-	-	2.0	V	VDD=5.0V

DC Characteristics:

parameter	symbol	Minimum	typical	maximum	unit	Test conditions
High level output voltage	VOH	4.9			V	VDD=5.0V
Low level output voltage	VOL			0.1	V	VDD=5.0V
Quiescent current consumption	IDD				uA	VDD=6.0V
Current source output	IOH	- twenty four		- 38	mA	VDD=5.0V
Current Sink Output	IOL	45		62	mA	VDD=5.0V

AC characteristics:

parameter	symbol	Minimum	typical	maximum	unit	Test conditions
Output rise delay	tPLH		7		ns	VDD=5.0V f=250KHz CL=15pF The waveform is shown in Figure 1 below. The test circuit is shown in Figure 2
Output falling delay	tPHL		6		ns	
Output rising edge	tTLH		8		ns	
Output falling edge	tTHL		4		ns	

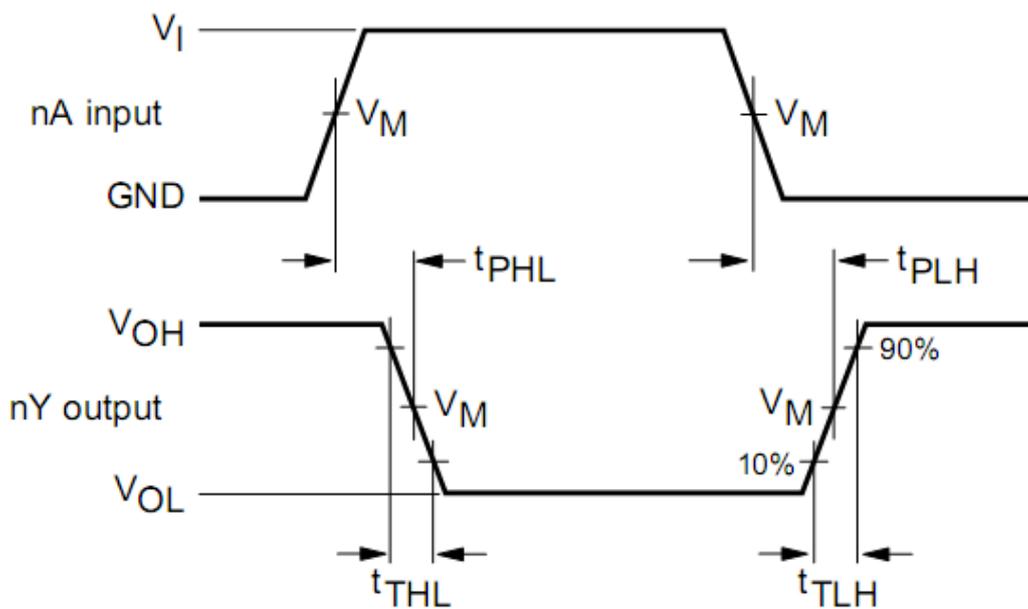


Figure 1

Note:  $V_M$  For signal 50% Test point voltage

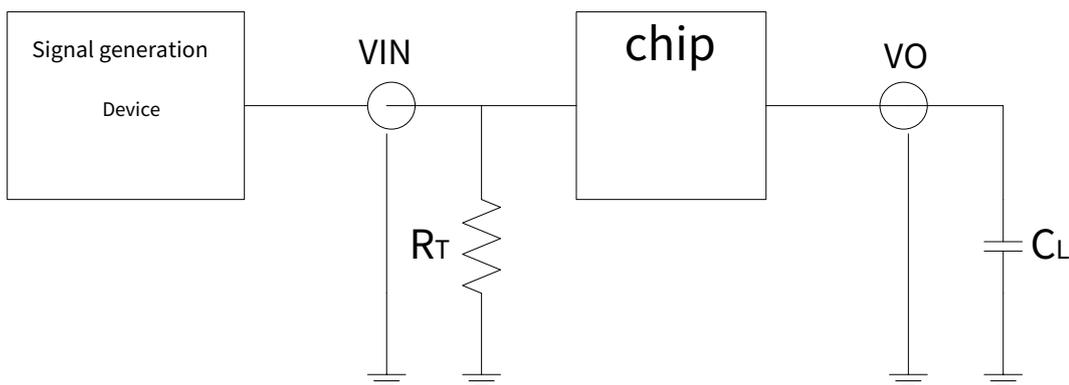


Figure 2

Note:  $R_T$  Matching resistor for signal generator

## Package

SOP14

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