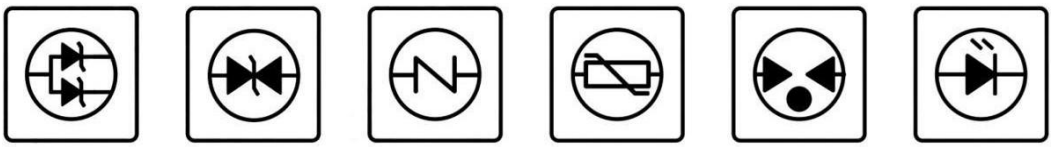
MSKSEMI 美森科
SEMICONDUCTOR



CD4011

产品规格手册

概述

CD4011 是一款采用 CMOS 技术设计的低功耗宽范围工作电压的 2 输入与非门集成电路。它内部集成 4 组相互独立的 2 输入与非门电路， 具有高抗干扰能力和驱动能力。

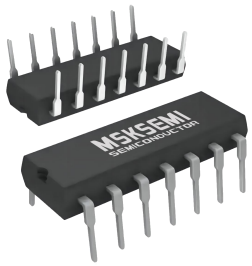
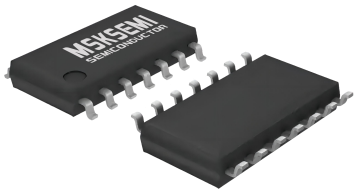
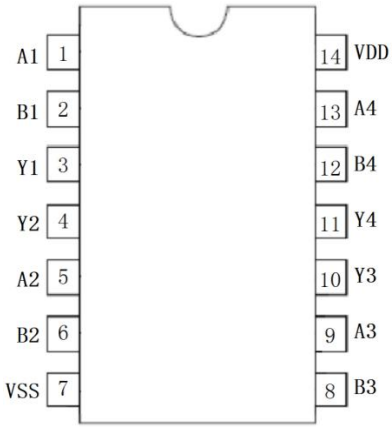
特征

- 低输入电流： IIN ≤1uA, @ VIN=VDD=15V,Ta=25℃
- 低静态功耗： IDD ≤6uA,@VDD=15V,Ta=25℃
- 宽工作电压范围： 3.0V to 15.0V
- 封装形式：DIP-14 、SOP-14

产品用途

- 数字逻辑驱动
- 无线门铃
- 工控应用
- 其它应用领域

参考信息

封装图		脚位信息
		
DIP-14	SOP-14	DIP14/SOP14 管脚功能定义

封装形式和管脚功能定义

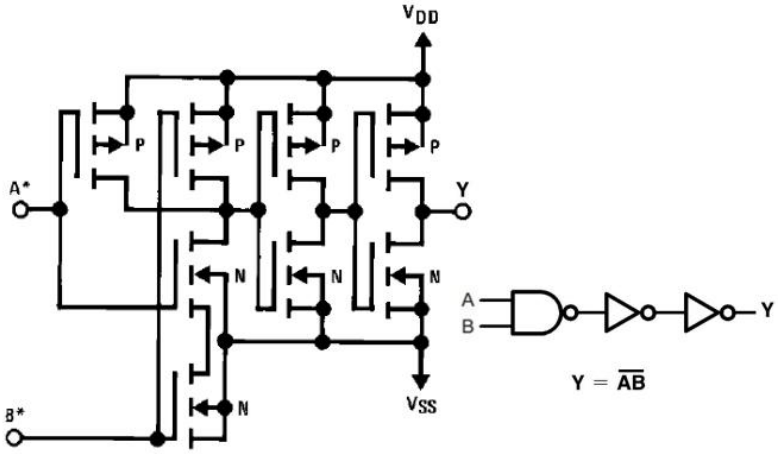
管脚序号 DIP14/SOP14	管脚定义	管脚序号 DIP14/SOP14	管脚定义
1	A1	14	VDD
2	B1	13	B4
3	Y1	12	A4
4	Y2	11	Y4
5	A2	10	Y3
6	B2	9	B3
7	VSS	8	A3

极限值

参数	符号	极限值	单位
电源电压	V_{DD}	-0.5-18	V
输入电压	V_{IN}	-0.5+VSS-V_{DD}+0.5V	V
功耗	P_D	500	mW
工作温度	T_A	0-70	℃
存储温度	T_S	-65-150	℃
引脚焊接温度	T_W	260,10s	℃

注：极限参数是指无论在任何条件下都不能超过的极限值。如果超过此极限值，将有可能造成产品劣化等物理性损伤； 同时在接近极限参数下，不能保证芯片可以正常工作。

原理逻辑图



真值表

Inputs		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

H = High Logic Level

L = Low Logic Level

推荐工作条件

项目	符号	最小值	典型值	最大值	单位
工作电压	V_{DD}	2.5		15	V
输入输出电压	V_{IN} 、Vout	0		VDD	V
工作温度	T_A	0		60	℃

电学特性

直流电学特性： TA=25℃

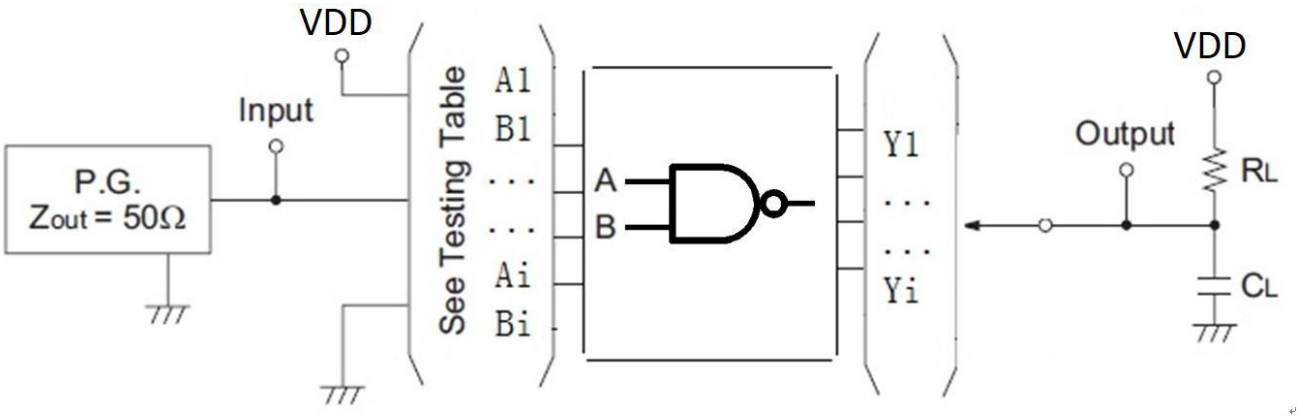
符号	项目	测试条件		VDD (V)	最小值	典型值	最大值	单位
V_{IH}	高电平有效输入电压	|Io |≤1uA	Vo= 0.5V	5	3.5			V
			Vo= 1V	10	7.0			V
			Vo= 1.5V	15	11.0			V
V_{IL}	低电平有效输入电压	|Io |≤1uA	Vo= 4.5V	5			1.5	V
			Vo= 9V	10			3.0	V
			Vo=13.5V	15			4.0	V
V_{OH}	高电平输出电压	|I_{OUT}|<1uA		5	4.95			V
				10	9.95			V
				15	14.95			V
V_{OL}	低电平输出电压	|I_{OUT}|<1uA		5			0.05	V
				10			0.05	V
				15			0.05	V
I_{IN}	输入电流	V_{IN}=VDD or VSS		15		0.01	1.0	uA
I_{OH}	高电平输出电流	Vo= 4.6V		5		-1.0	-0.5	mA
		Vo= 9.5V		10		-2.1	-1.3	mA
		Vo= 13.5V		15		-8.0	-3.4	mA
I_{OL}	低电平输出电流	Vo= 0.4V		5	0.5	2.2		mA
		Vo= 0.5V		10	1.3	5.1		mA
		Vo= 1.5V		15	3.4	19		mA
I_{DD}	工作电流	V_{IN}=VDD or VSS		5		0.1	4	uA
				10		0.1	5	uA
				15		0.1	6	uA

交流电学特性： Ta=25℃，RL=197k,CL=51pF 见测试方法。

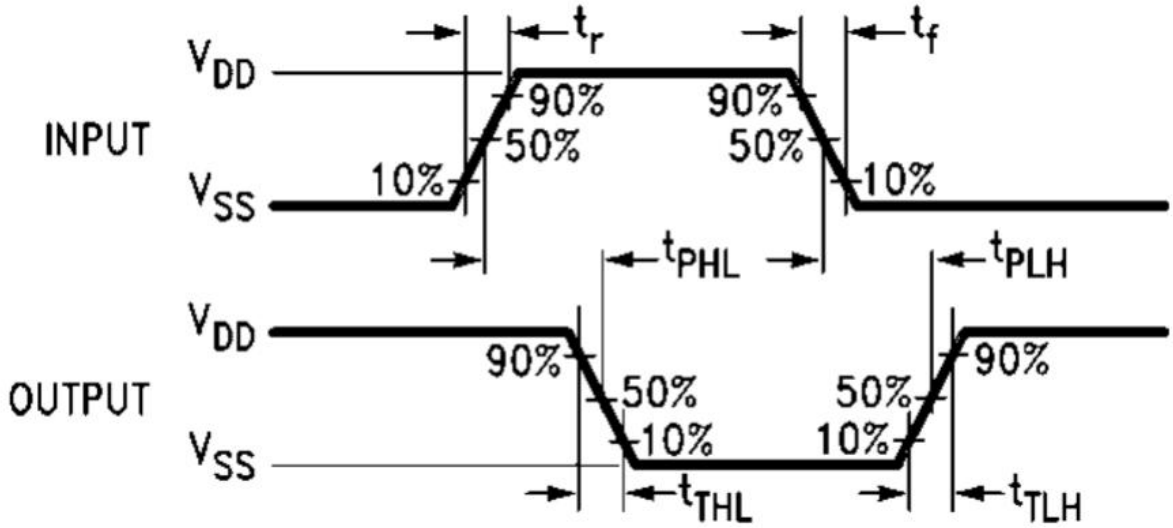
项目	符号	测试条件	最小值	典型值	最大值	单位
最大传输延迟时间 A、B to Y	t_{PHL}	VDD=5V		62		ns
	t_{PLH}			55		ns
	t_{PHL}	VDD=10V		35		ns
	t_{PLH}			35		ns
	t_{PHL}	VDD=15V		30		ns
	t_{PLH}			28		ns

测试方法

1、测试接线图



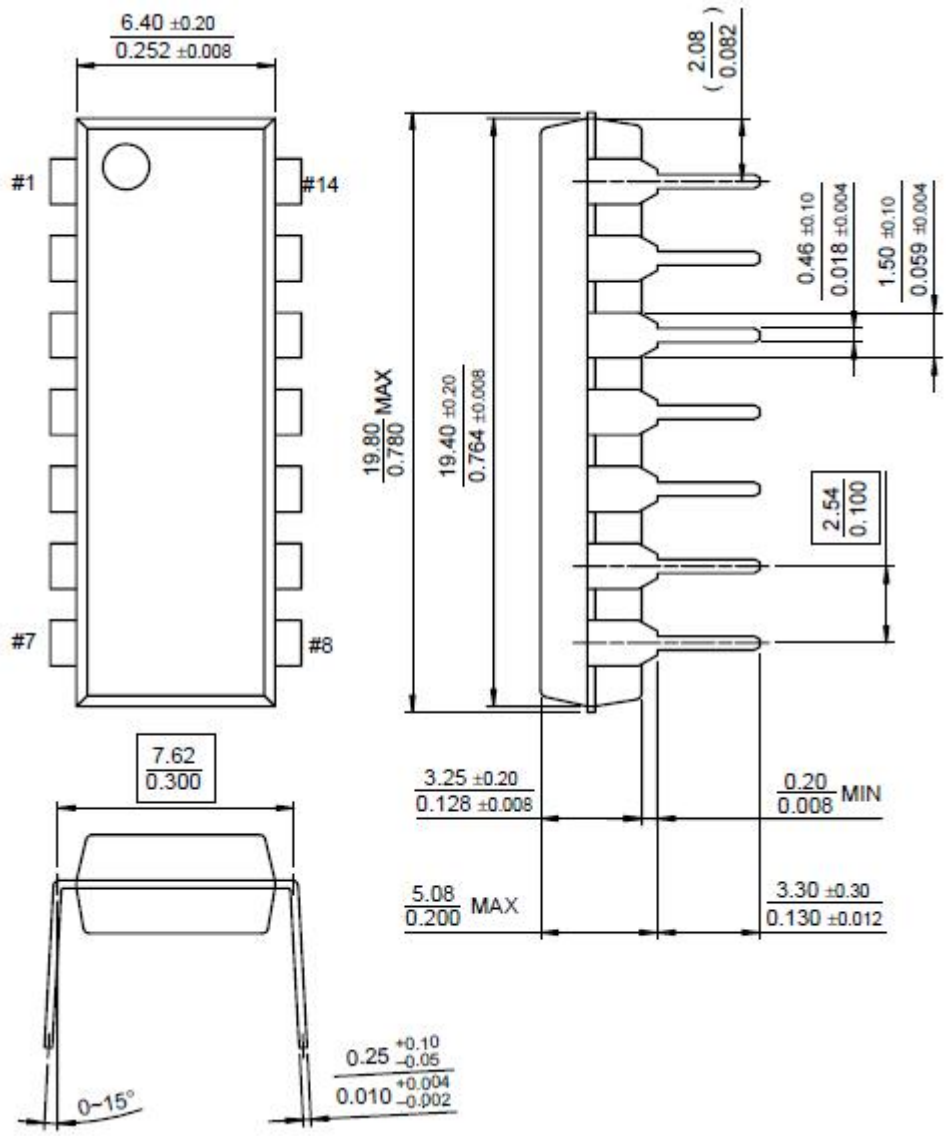
2、波形测量示意图



注： 1、See Testing Table 指交流电学特性表中相应测试项目；
2、CL 电容为外接贴片电容(0603) ，靠近输出管脚接入，电容地靠近芯片 VSS；
3、Input: 端口输入电平， f=1MHz,D=50%方波， tr=tf ≤20ns；
4、Output: Y 端输出测试。

DIP-14 包装数据

单位：毫米 / 英寸

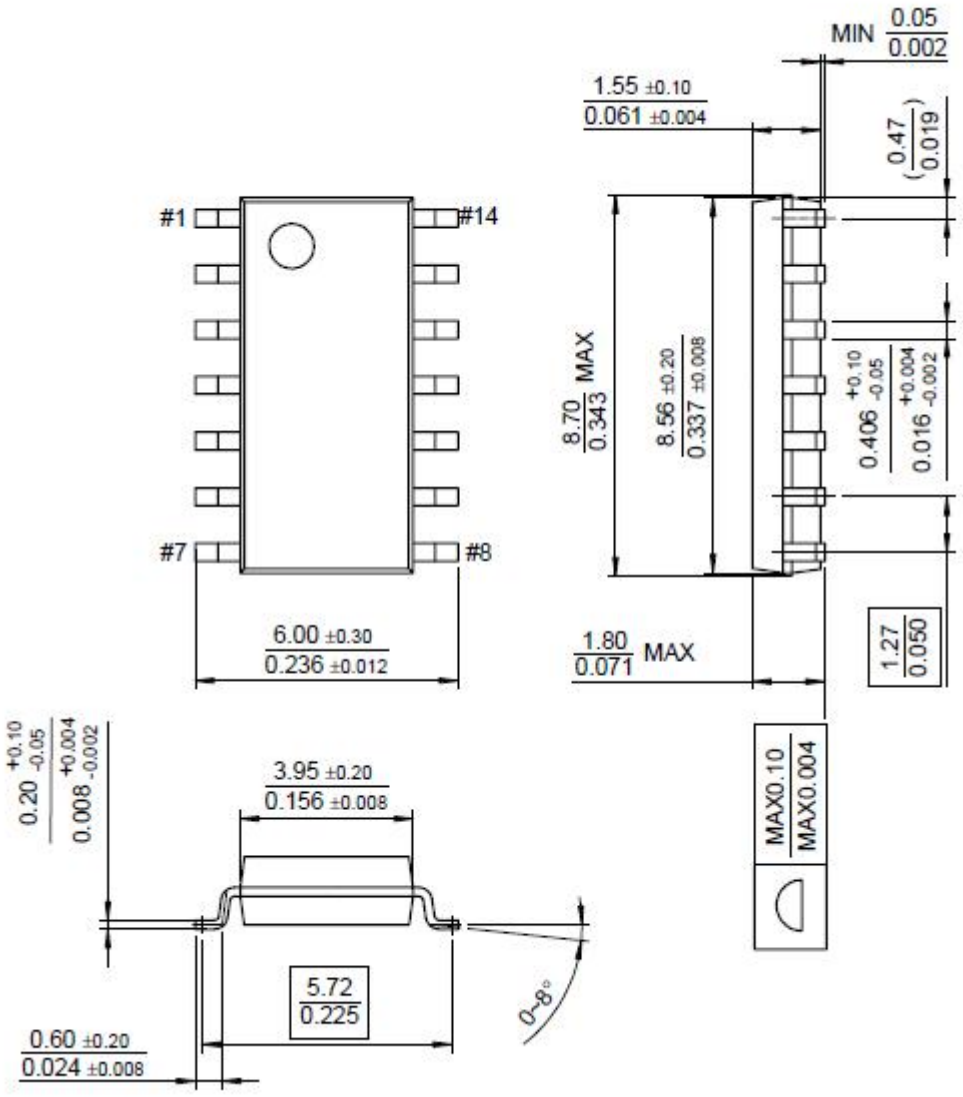


卷轴规格

P/N	PKG	QTY
CD4011BE-MS	DIP-14	1000

SOP-14 包装数据

单位：毫米 / 英寸



卷轴规格

P/N	PKG	QTY
CD4011BM-MS	SOP-14	2500

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