

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	HEF4011BT
▶ Overseas	Part Number	HEF4011BT
▶ Equivalent	Part Number	HEF4011BT

EV is the abbreviation of name EVVO

产品简介

HEF4011BT 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。

产品特点

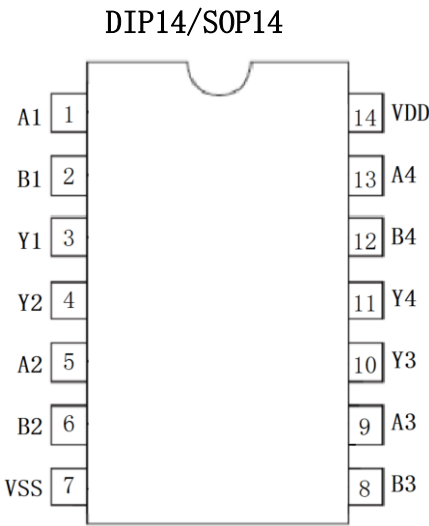
- 低输入电流： $I_{IN} \leq 1\mu A$, @ $V_{IN}=V_{DD}=15V$, $T_a=25^{\circ}C$
- 低静态功耗： $I_{DD} \leq 6\mu A$, @ $V_{DD}=15V$, $T_a=25^{\circ}C$
- 宽工作电压范围： 3.0V to 15.0V
- 封装形式： DIP14 、 SOP14

产品用途

- 数字逻辑驱动
- 无线门铃
- 工控应用
- 其它应用领域

封装形式和管脚功能定义

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

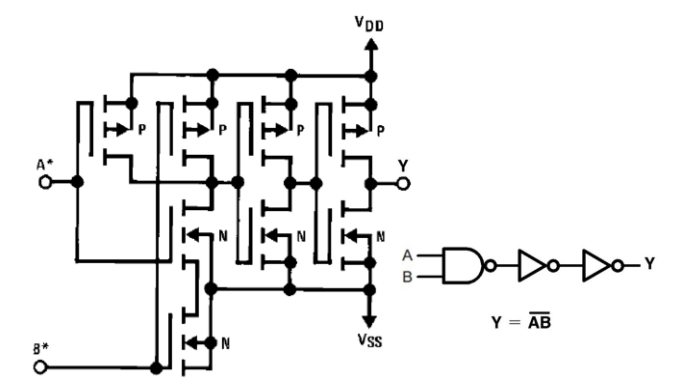


极限参数

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	$^{\circ}C$
存储温度	T_S	-65-150	$^{\circ}C$
引脚焊接温度	T_W	260, 10s	$^{\circ}C$

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} 、V _{out}	0		V _{DD}	V
工作温度	T _A	0		60	°C

电学特性

直流电学特性： T_A=25°C

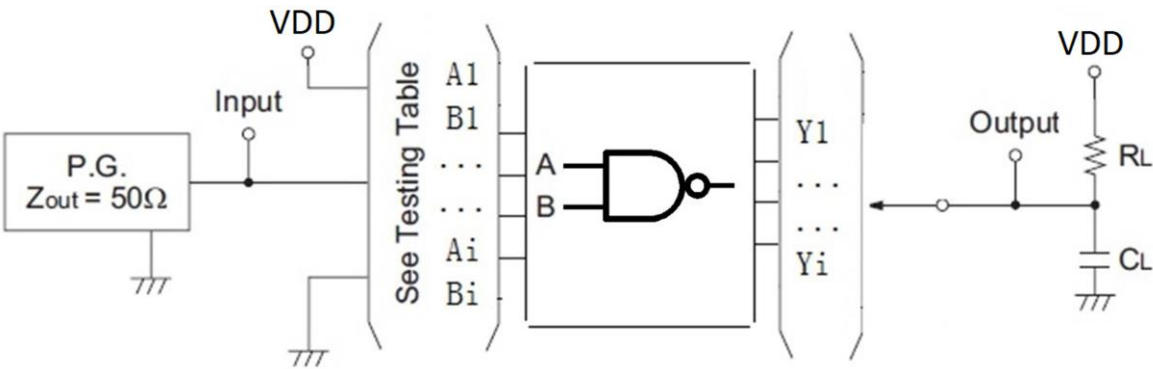
符号	项目	测试条件	V _{DD} (V)	最小值	典型值	最大值	单位
V _{IH}	高电平有效 输入电压	I _O ≤ 1uA	V _O = 0.5V	5	3.5		V
			V _O = 1V	10	7.0		V
			V _O = 1.5V	15	11.0		V
V _{IL}	低电平有效 输入电压	I _O ≤ 1uA	V _O = 4.5V	5		1.5	V
			V _O = 9V	10		3.0	V
			V _O =13.5V	15		4.0	V
V _{OH}	高电平输出电压	I _{OUT} < 1uA	5	4.95			V
			10	9.95			V
			15	14.95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

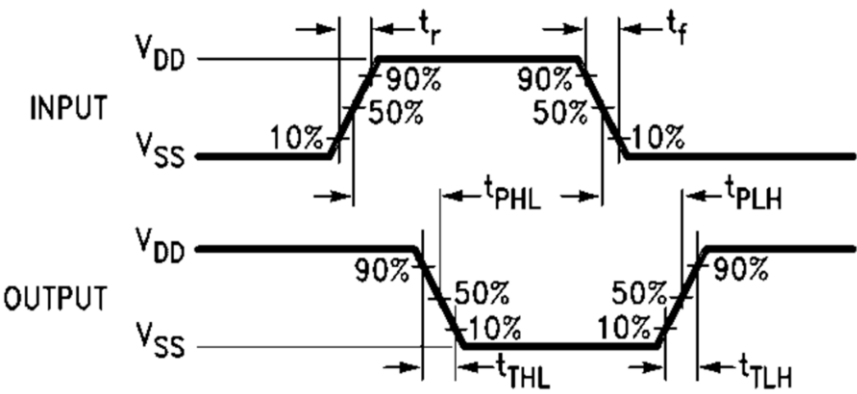
项目	符号	测试条件	最小值	典型值	最大值	单位
最大传输延迟时间 A、B to Y	t _{PHL}	VDD=5V		62		ns
	t _{PLH}			55		ns
	t _{PHL}	VDD=10V		35		ns
	t _{PLH}			35		ns
	t _{PHL}	VDD=15V		30		ns
	t _{PLH}			28		ns

测试方法

1、测试接线图



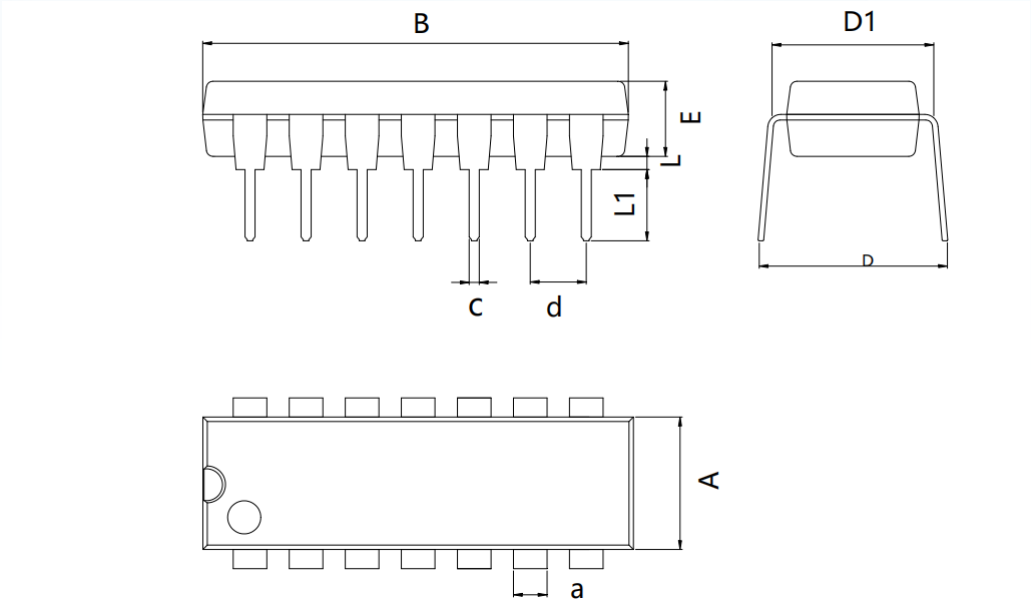
2、波形测量示意图



- 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。

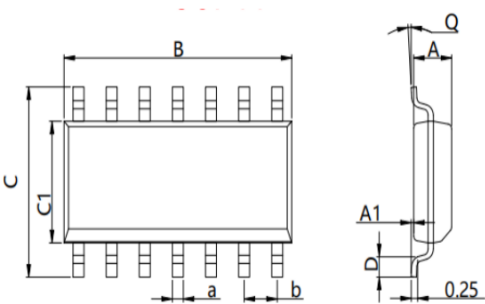
封装信息

DIP14



Dimensions In Millimeters(DIP14)										
Symbol:	A	B	D	D1	E	L	L1	a	C	d
Min:	6.10	18.94	8.40	7.42	3.10	0.50	3.00	1.50	0.40	2.54 BSC
Max:	6.68	19.56	9.00	7.82	3.55	0.70	3.60	1.55	0.50	

SOP14



Dimensions In Millimeters(SOP14)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	8.55	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	8.75	6.20	4.00	0.80	8°	0.45	

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.