

四双向模拟开关 CD4066

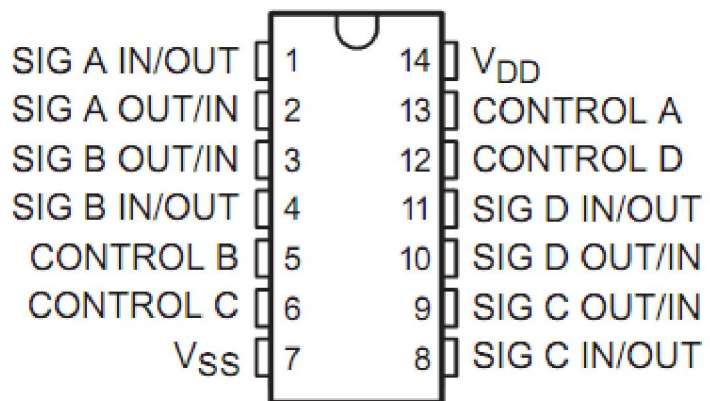
概述

CD4066 是四双向模拟开关, 主要用作模拟或数字信号的多路传输, 具有比较低的导通阻抗, 导通阻抗在整个输入信号范围内基本不变。CD4066 由四个相互独立的双向开关组成, 每个开关有一个控制信号, 开关中的 p 和 n 器件在控制信号作用下同时开关。这种结构消除了开关晶体管阈值电压随输入信号的变化, 因此在整个工作信号范围内导通阻抗比较低。与单通道开关相比, 具有输入信号峰值电压范围等于电源电压以及在输入信号范围内导通阻抗比较稳定等优点。当模拟开关的电源电压采用双电源时, 例如 $\pm 5V$, $\pm 5V$ (均对地 0V 而言), 则输入电压对称于 0V 的正、负信号电压 ($+5V \sim -5V$) 均能传输。这时要求控制信号 C = “1” 为 $+5V$, C = “0” 为 $-5V$, 否则只能传输正极性的信号电压。

特点:

- ☆ 低静态功耗
- ☆ 高关态阻抗
- ☆ 极低的漏电流
- ☆ 通道间无串扰

管脚排列图



The diagram shows a CMOS transmission gate circuit. The input node is labeled In with voltage V_{is} . The output node is labeled Out with voltage V_{os} . The circuit includes a PMOS transistor with its gate connected to V_{DD} and its source connected to In . An NMOS transistor has its gate connected to V_{SS} and its source connected to In . The gates of both transistors are also connected to a control signal $V_{C\uparrow}$ through two inverters. The drains of both transistors are connected to Out . A diode-connected PMOS transistor is also shown, with its gate connected to V_{DD} and its source connected to Out . The circuit is powered by V_{DD} and V_{SS} .

第 2 页 共 4 页

直流电气特性:

符号	参数	条件	+25℃			单位
			最小	典型	最大	
IDD	静态电流	VDD=5V		0.01	0.25	uA
		VDD=10V		0.01	0.5	
		VDD=15V		0.01	1	
信号输入和输出						
RON	开态电阻	RL=10K Ω returned to (VDD – VSS)/2, VIS=VSS to VDD				
		VDD = 5V		520	1050	Ω
		VDD = 10V		240	400	
		VDD = 15V		180	240	
ΔRON	任意通道开态电阻差	RL=10K Ω , VC=VDD				
		VDD = 5V		15		Ω
		VDD = 10V		10		
		VDD = 15V		5		
IIS	输入输出关断漏电	VC = 0 V, Vis = 15 V, Vos = 0 V; VC = 0 V, Vis = 0 V, Vos = 15 V		±0.1	±50	nA
控制端输入						
VILC	输入低电平电压	Vis = VSS, VOS = VDD Vis = VDD, VOS = VSS				
		VDD = 5V		2.25	1.5	V
		VDD = 10V		4.5	3	
		VDD = 15V		6.75	4	
VIHC	输入高电平电压	VDD = 5V	3.5	2.75		
		VDD = 10V	7	5.5		
		VDD = 15V	11	8.25		
IIN	输入电流	VDD–VSS=15V VDD≥VIS≥VSS VDD≥VC≥VSS	–10 ⁻⁵	-0.1		uA

交流电气特性

符号	参数	条件	最小	典型	最大	单位
tPHL tPLH	信号输入输出传输延时	VC=VDD, CL=50PF, RL=200K				
		VDD=5V		35	65	nS
		VDD=10V		25	45	
		VDD=15V		15	35	
CIS	信号输入电容			8		PF
COS	信号输出电容	VDD=10V		8		PF
CIOS	反馈电容	VC=0V		0.5		PF
CIN	控制输入电容			5	7.5	PF

典型参数特性

