

Double four optional one analog switch

summary

The CD405X series analog switches use digital signals to control multiple circuit modulation / selection analog switches with low conduction resistance and a low cut-off leakage current. Digital signals with an amplitude of 4.5V~18V can control analog signals with a peak value of 18V. For example, selecting VDD=+5V, VSS=0V, VEE=-13.5V, the digital signal of the 0~5V controls the analog signal of the -13.5~4.5V and these switching circuits have extremely low static power consumption over the entire range of VDD-VSS and VDD-VEE power supplies. CD4052 is a double four and one analog switch.

Each set of four and one analog switch has A,

B two binary control input terminals and INH input respectively.

The two binary signals can put any of the four analog channels into on state,

INH input puts all channels of four sets of one analog switch to off state, and input "0" puts two sets of four and one analog switch into on state.

Features

Wide digital control and transmission analog signal voltage range: digital 4.5V ~18V, analog 18V;

Low conductive resistance: 80 Ω (VDD-VEE = 15 V, signal greater than 15Vpp);

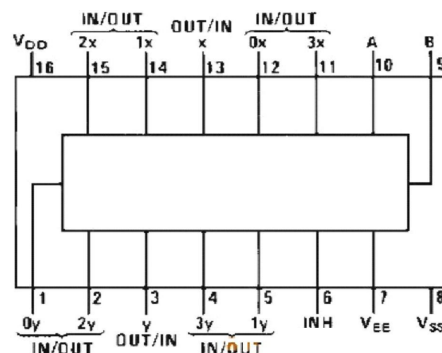
with extremely low static voltage power consumption;

high-off state resistance;

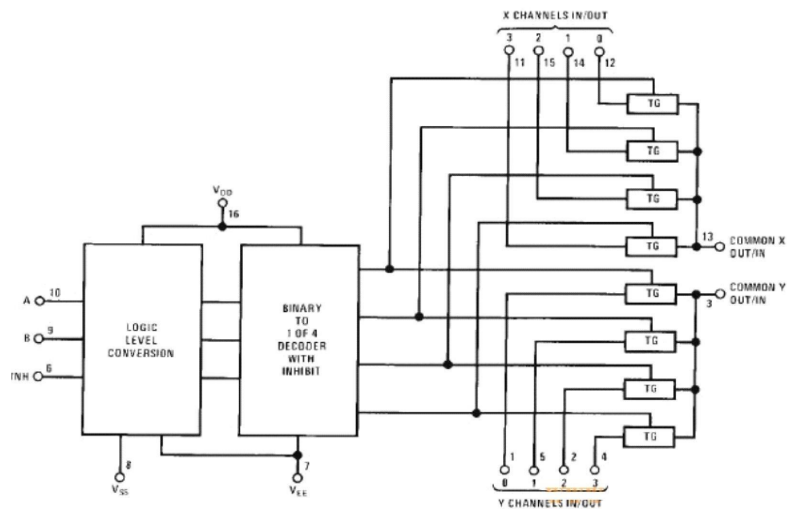
digital address signal 4.5V ~18V logical level conversion to switch the analog signal 18Vpp;

The Foot has a built-in binary address decoder.

description (top view)



CD4052 Logic Map:



True Table:

Input Status			Output situation
INH	B	A	
0	0	0	0X, 0Y
0	0	1	1X, 1Y
0	1	0	2X, 2Y
0	1	1	3X, 3Y
1	X	X	None

Limit parameters:

Symbol	Description:		Limit value	Unit:
	Description			
VDD	DC power supply voltage		-0.5~+18	V
VIN	Input voltage		-0.5~VDD + 0.5	V
Tstg	Package operating temperature range		0-70	°C
Ptot	Power consumption	DIP	700	mW
		SOP	500	mW
TL	Welding temperature		260	°C

Recommended working conditions:

Symbol	Description:	Limit value	Unit:
VDD	DC power supply voltage	+5~+15	V
VIN	Input voltage	0~VDD	V

DC Current Parameters:

Symbol	The Project	Conditions	+25°C			Unit:
			Minimum value	Typical Value	Maximum value	
IDD		VDD=5V			5	uA
		VDD=10V			10	
		VDD=15V			20	

Signal input VIS and output VOS

RON	Pilot on resistance (Peak VEE ≅ VIS ≅ VDD)	RL=10K Ω (Either channel)	VDD=2.5V VEE=-2.5V or VDD=5V VEE=0V		270	1050	Ω
			VDD=5V VEE= -5V or VDD=10V VEE=0V		120	400	
			VDD=7.5V VEE=-7.5V or VDD=15V VEE=0V		80	240	
△ RON	On resistance gain between any two channels	RL=10K Ω (Either channel)	VDD=2.5V VEE=-2.5V or VDD=5V VEE=0V		10		Ω
			VDD=5V VEE= -5V or VDD=10V		10		

			VDD=7.5V VEE=-7.5V or VDD=15V VEE=0V		5		
			VDD=7.5V, VEE=-7.5V 0 / I= ± 7.5V, I/O=0V		±0.01	±50	nA
			INH=7.5V		±0.04	±200	nA
Control Inputs for A, B and INH							
VIL	Low-level input voltage	VEE=VSS RL=1K Ω All channels are Off	VDD=5V			1.5	V
			VDD=10V			3.0	
			VDD=15V			4.0	
VIH	High-level input voltage	VDD=5V		3.5			V
		VDD=10V		7			
		VDD=15V		11			
IIN	Input-in current	VDD=15V VEE=0V	VIN=0V		-10-5	-0.1	uA
			VIN=15V		10-5	0.1	

AC current parameters:

Symbol	The Project	Conditions	VDD	Minimum value	Typical Value	Maximum value	Unit :
tPZH tPZL	Transmission delay time from forbidden to signal output (open channel)	VEE=VSS=0V RL=1K Ω CL=50pF	5V 10V 15V		600 225 160	1200 450 320	ns
tPHZ tPLZ	Transmission delay time from forbidden to signal output (off channel)	VEE=VSS=0V RL=1K Ω CL=50pF	5V 10V 15V		210 100 75	420 200 150	ns
Cin	Input	Control			5	7.5	

	capacitor	input					pF	
		Signal input						
Cout	Output capacitor (Total I / 0) VEE=VSS=0V		10V			10	15	pF
CIOS	Bypass capacitor					0.2		pF
CPO	Power supply dissipative capacity					140		pF
Signal input VIS and output VOS								
	Sine-oidal wave distortion	RL=10KΩ fIS=1KHz VIS=5Vp-p VEE=VSI=0V	10V			0.04		%
	Sine-string-wave frequency response	RL=1KΩ VEE=0V VIS=5Vp-p 20log10VOS/VIS= - 40dB	10V			40		MHz
	Off-off crosstalk frequency	RL=1KΩ VEE=0V VIS=5Vp-p 20log10VOS/VIS= - 40dB	10V			10		MHz
	Signal crosstalk frequency	RL=1KΩ VEE=0V VIS=5Vp-p 20log10VOS/VIS= - 40dB	10V			3		MHz
tPHL tPLH	Transmission delay to signal input to output	VEE=VSS=0V CL=50pF	5V 10V 15V			25 15 10	55 35 25	ns
Control Inputs for A, B and INH								
	Control the input to the signal response	VEE=VSS=0V RL=10KΩ Input a square wave amplitude of 10V at the end of all channels	10V			65		mV
tPHL tPLH	Transmission delay time From the address to the signal output channel is on or off	VEE=VSS=0V CL=50pF	5V 10V 15V			500 160 120	1000 350 240	ns

Waveform chart:

