

DESCRIPTION

CD4066BM96-CN is a quad bilateral switch intended for the transmission or multiplexing of analog or digital signals. In addition, the on-state resistance is relatively constant over the full input signal range.

The CD4066BM96-CN consists of four independent bilateral switches. A single control signal is required per switch. Both the p and the N device in a given switch are biased on or off simultaneously by the control signal. The well of the N channel device on each switch is either

tied to the input when the switch is on or to V_{SS} when the switch is off. This configuration eliminates the variation of the switch transistor threshold voltage with input signal, and thus keeps the on-state resistance low over the full operating signal range.

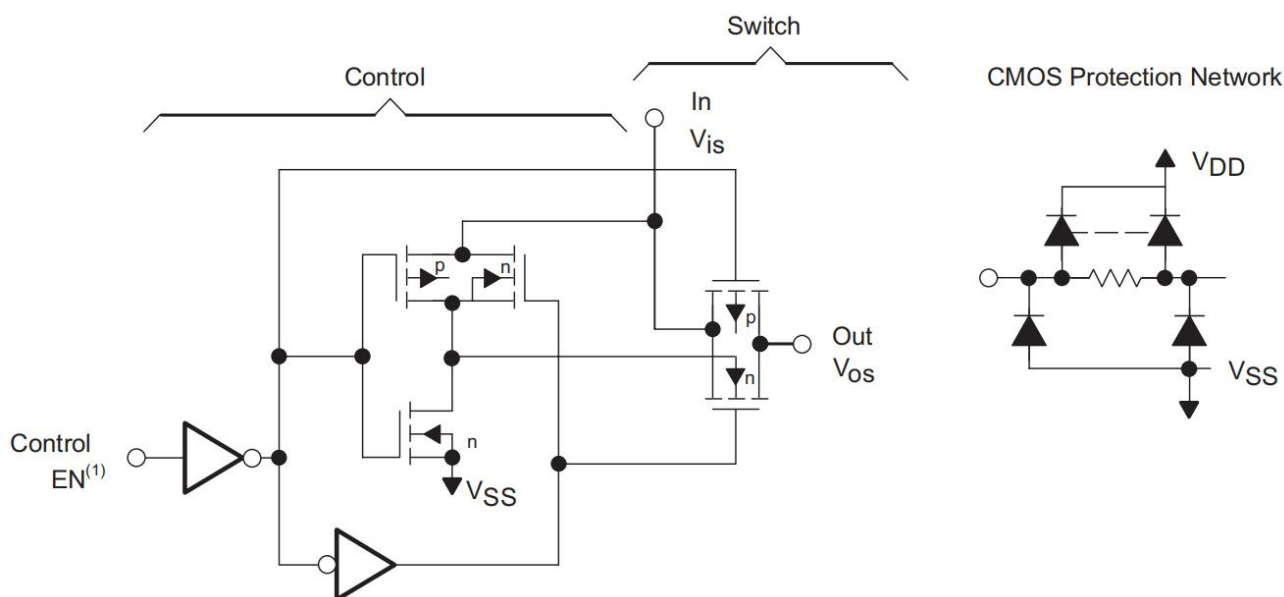
FEATURES

- Wide Supply Voltage Range: 3 ~ 15V
- Low "ON" Resistance: $125\Omega (V_{DD}=15V)$
- Matched "ON" Resistance: $\Delta R_{ON}=5\Omega (Typ)$ over 15V signal input
- High noise immunity: $0.45V_{DD} (Typ)$
- Low Crosstalk Between Switches
- High On/Off Output Voltage Ratio: 80dB
- Extremely High Control Input Impedance

APPLICATIONS

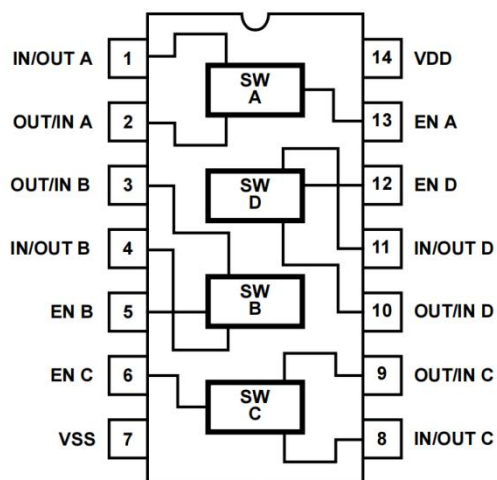
- Analog Signal Switching/Multiplexing
 - Signal gating
 - Squelch control
- Digital Signal Switching/Multiplexing
- Transmission Gate Logic Implementation
- Analog to Digital & Digital to Analog Conversion
- Digital Control of Frequency, Impedance, Phase, and Analog Signal Gain

Functional Diagram



Normal Operation Control Line Biasing: Switch On($EN="I"=V_{DD}$) ; Switch Off($EN="O"=V_{SS}$)

Pin Configuration & Truth Table



Switch Truth Table/Each Channel		
Input		Output
EN	VIS	VOS
1	0	0
1	1	1
0	0	X
0	1	X

Note: X=High Impedance

Absolute Maximum Ratings

Over operating free-air temperature range (unless otherwise noted) ⁽¹⁾

PARAMETER	MIN	MAX	UNIT
Supply Voltage (V_{DD})	-0.5	+18	V
Input Voltage (V_{IN})	-0.5	$V_{DD} + 0.5$	V
Input Current (I_{IN})	-10	+10	mA
Maximum junction temperature(T_J)		150	°C
Storage Temperature Range (T_S)	-65	+150	°C
Lead Temperature,10sec (T_W)		260	°C

Note : These values beyond which the safety of the device cannot be guaranteed. They are not meant to imply that the devices should be operated at these limits.

Recommended Operating Conditions

Over operating free-air temperature range (unless otherwise noted)

PARAMETER	MIN	TYP	MAX	UNIT
Supply Voltage	3		15	V
Input Voltage	0		V_{DD}	V
Operating Temperature Range	-20	25	+85	°C

DC ELECTRICAL CHARACTERISTICS

(At TA=+25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Device Current	I _{DD}	V _{DD} =5V, V _{IS} =0~5V	0		1	uA
		V _{DD} =10V, V _{IS} =0~10V	0		1	uA
		V _{DD} =15V, V _{IS} =0~15V	0		1	uA
Input Current	I _{IN}	V _{DD} =15V, V _{SS} ≤V _{IS} ≤V _{DD} , V _{SS} ≤EN≤V _{DD}	0		1	uA
“ON” Output Voltage	V _{OS}	V _{DD} =5V, V _{IS} =0V			0.4	V
		V _{DD} =5V, V _{IS} =5V	4.6			V
		V _{DD} =10V, V _{IS} =0V			0.5	V
		V _{DD} =10V, V _{IS} =10V	9.5			V
		V _{DD} =15V, V _{IS} =0V			1.5	V
		V _{DD} =15V, V _{IS} =15V	13.5			V
“ON” Input Current	I _{IS}	V _{DD} =5V, V _{IS} =0V		0.51		mA
		V _{DD} =10V, V _{IS} =0V		1.3		mA
		V _{DD} =15V, V _{IS} =0V		3.4		mA
		V _{DD} =5V, V _{IS} =5V		-0.51		mA
		V _{DD} =10V, V _{IS} =10V		-1.3		mA
		V _{DD} =15V, V _{IS} =15V		-3.4		mA
“ON” Resistance	R _{ON}	V _{DD} =EN=5V, V _{IS} =V _{DD} /2, R _L =10kΩ		470	1050	Ω
		V _{DD} =EN=10V, V _{IS} =V _{DD} /2, R _L =10kΩ		180	400	Ω
		V _{DD} =EN=15V, V _{IS} =V _{DD} /2, R _L =10kΩ		125	240	Ω
Δ“ON” Resistance	ΔR _{ON}	V _{DD} =EN=5V, V _{IS} =V _{DD} /2, R _L =10kΩ		15		Ω
		V _{DD} =EN=10V, V _{IS} =V _{DD} /2, R _L =10kΩ		10		Ω
		V _{DD} =EN=15V, V _{IS} =V _{DD} /2, R _L =10kΩ		5		Ω
Control Input High Voltage	V _{IHC}	V _{DD} =5V	3.5			V
		V _{DD} =10V	7.0			V
		V _{DD} =15V	11			V
Control Input Low Voltage	V _{ILC}	V _{DD} =5V		1		V
		V _{DD} =10V		2		V
		V _{DD} =15V		2		V

AC ELECTRICAL CHARACTERISTICS

(At TA=+25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay (Input to Output)	t_{PHL}	$V_{IS}=V_{DD}$, $t_r, t_f=20\text{ns}$, Square, $C_L=50\text{pF}$, $R_L=1\text{ k}\Omega$	$V_{DD}=5\text{V}$	35	70	ns
			$V_{DD}=10\text{V}$	20	40	ns
			$V_{DD}=15\text{V}$	15	30	ns
Propagation Delay (Input to Output)	t_{PLH}	$V_{IS}=V_{DD}$, $t_r, t_f=20\text{ns}$, Square, $C_L=50\text{pF}$, $R_L=1\text{ k}\Omega$	$V_{DD}=5\text{V}$	35	70	ns
			$V_{DD}=10\text{V}$	20	40	ns
			$V_{DD}=15\text{V}$	15	30	ns
Propagation Delay (EN to Output)	t_{PZH}	$V_{IS}=V_{DD}$, $t_r, t_f=20\text{ns}$, Square, $C_L=50\text{pF}$, $R_L=1\text{ k}\Omega$	$V_{DD}=5\text{V}$	20	40	ns
			$V_{DD}=10\text{V}$	10	20	ns
			$V_{DD}=15\text{V}$	7	15	ns
Propagation Delay (EN to Output)	t_{PZL}	$V_{IS}=V_{DD}$, $t_r, t_f=20\text{ns}$, Square, $C_L=50\text{pF}$, $R_L=1\text{ k}\Omega$	$V_{DD}=5\text{V}$	20	40	ns
			$V_{DD}=10\text{V}$	10	20	ns
			$V_{DD}=15\text{V}$	7	15	ns
Maximum Control Input Frequency	t_{RP}	$V_{IS}=V_{DD}$, $t_r, t_f=20\text{ns}$, Square, $C_L=50\text{pF}$, $R_L=1\text{ k}\Omega$	$V_{DD}=5\text{V}$	6		MHz
			$V_{DD}=10\text{V}$	9		MHz
			$V_{DD}=15\text{V}$	9.5		MHz

TEST CIRCUIT

(V_{SS}=0V, T_A=25°C, unless otherwise noted.)

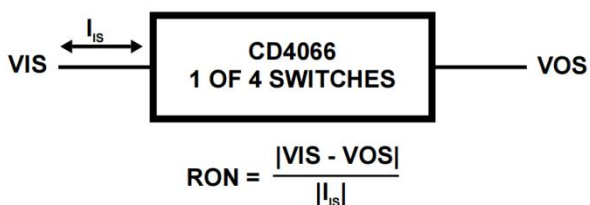


Figure 1. "ON" Resistance Test

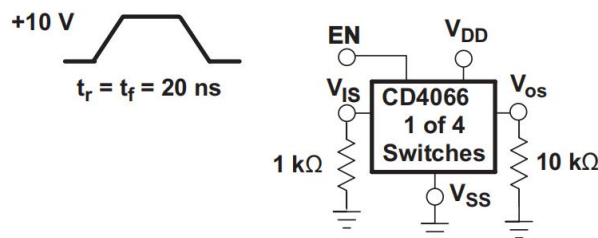


Figure 2. Crosstalk Control Input To Output

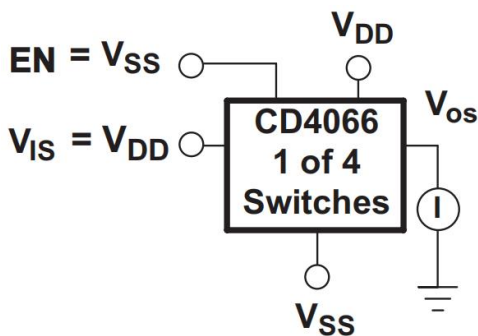


Figure 3. Turn Off Switch Input Or Output Leakage

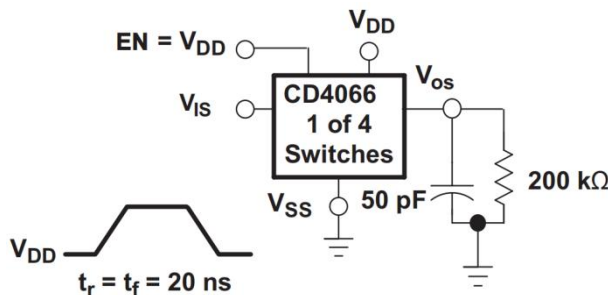


Figure 4. Propagation Delay Test

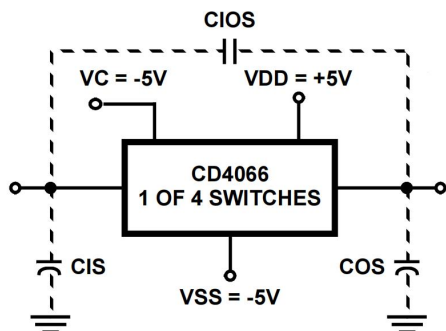


Figure 5. Capacitance Test

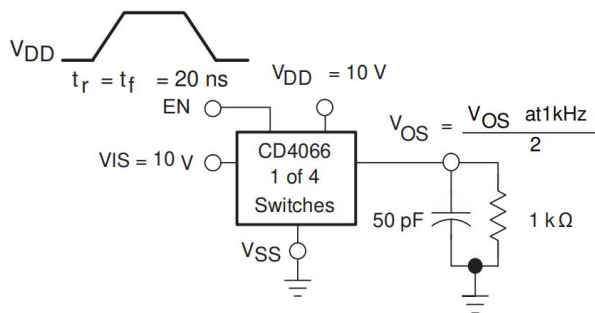


Figure 6. Maximum Control Input Frequency

TYPICAL APPLICATION

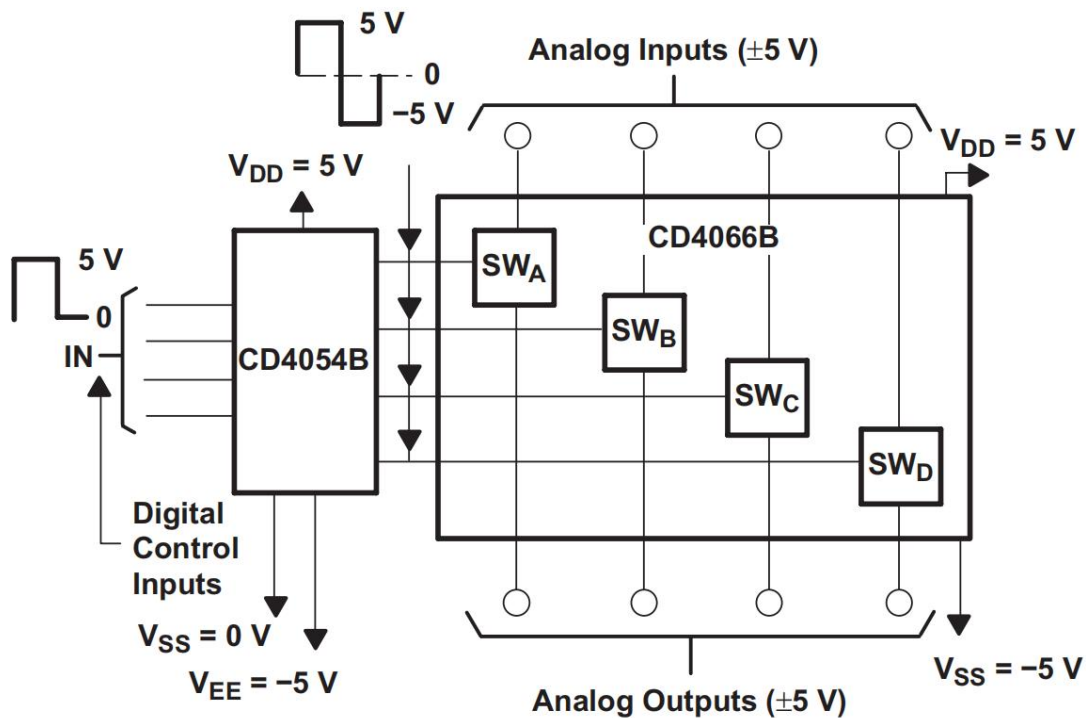
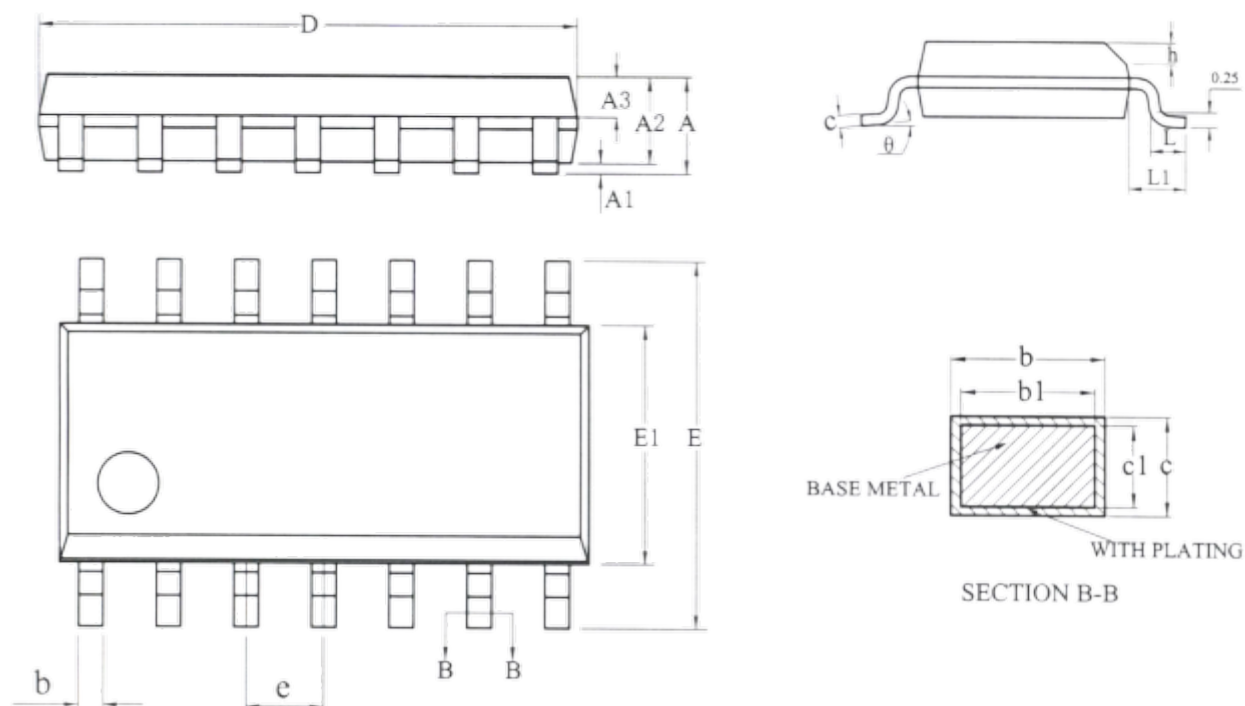


Figure 7. Bidirectional Transmission Via Digital Control Logic

PACKAGE OUTLINE DIMENSIONS
SOP14


SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	-	-	1.75
A1	0.10	-	0.225
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	-	0.47
b1	0.38	0.41	0.44
c	0.20	-	0.24
c1	0.19	0.20	0.21
D	8.55	8.65	8.75
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
h	0.25	-	0.50
L	0.50	-	0.80
L1	1.05REF		
θ	0	-	8°

NOTICE

The information presented in this document is for reference only. Involving product optimization and productivity improvement, ChipNobo reserves the right to adjust product indicators and upgrade some technical parameters. ChipNobo is entitled to be exempted from liability for any delay or non-delivery of the information disclosure process that occurs.

本文件中提供的信息仅供参考。涉及产品优化和生产效率改善，ChipNobo 有权调整产品指标和部分技术参数的升级，所出现信息披露过程存在延后或者不能送达的情形，ChipNobo 有获免责权。

The product listed herein is designed to be used with residential and commercial equipment, and do not support sensitive items and specialized equipment in areas where sanctions do exist. ChipNobo Co., Ltd or anyone on its behalf, assumes no responsibility or liability for any damages resulting from improper use.

此处列出的产品旨在民用和商业设备上使用，不支持确有制裁地区的敏感项目和特殊设备，ChipNobo 有限公司或其代表，对因不当使用而造成的任何损害不承担任何责任。

For additional information, please visit our website <http://www.chipnobo.com>, or consult your nearest Chipnobo sales office for further assistance.

欲了解更多信息，请访问我们的网站 <http://www.chipnobo.com>，或咨询离您最近的 Chipnobo 销售办事处以获得进一步帮助。