3-Input Signal Convolver

LB73401A

Nicholas Schrombeck

Valparaiso University

COLLEGE OF ENGINEERING

1. Description:

The LB73401A consists of a static CMOS configuration implementing one of four possible predetermined combinational logic functions, but is also capable of producing convolved outputs signals to promote signal encryption.

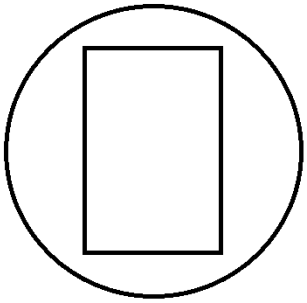


Figure 1. Block Diagram for LB73401A.

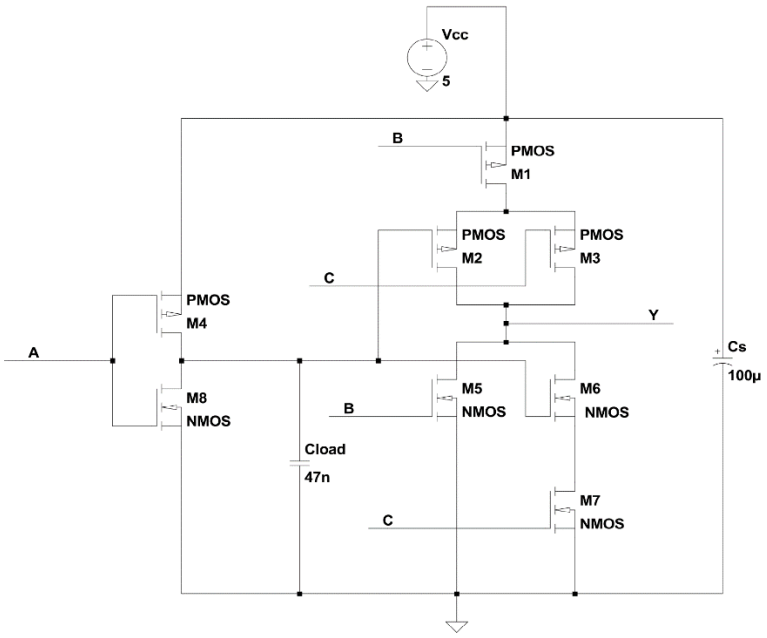
2. Features:

- Desirable functionality
- Procrastination
- Solar-friendly
- 2.4 & 5 GHz Compliant
- A Worthwhile

3. Applications:

- Signal Encryption
- IP Masking
- Gmail Password Protection
- The List Goes On!

4. Equivalent Schematic



5. Pin Configuration and Functions

Vcc	Provides reference for output voltage
GND	Provides reference for Vcc
A	Input A
B	Input B
C	Input C
Y	Output Y

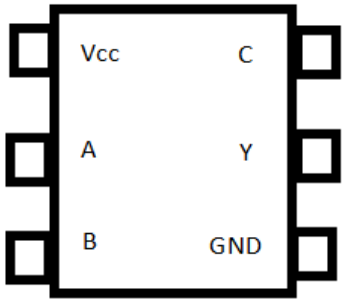


Figure 2. Pin Layout for LB73401A.

6. Specifications

6.1. Absolute Maximum Ratings

Symbol	Parameter	LB73401A	Units
V_{VCI}	Vcc-Input Voltage	60	V
V_{VGI}	GND-Input Voltage	60	V
V_{VCG}	Vcc-GND Voltage	± 20	V
T_{STG}	Operating and Storage Temperature Range	-55 to 150	°C

6.2. Recommended Operating Conditions

Symbol	Parameter	LB73401A	Units
V_{VCI}	Vcc-Input Voltage	0	V
V_{VGI}	GND-Input Voltage	5	V
V_{VCG}	Vcc-GND Voltage	5	V
T_{STG}	Operating and Storage Temperature Range	25	°C

6.3. Static Characteristics

Input	Value	Rating	Units	Output	Value	Rating	Units
A	LO	0	V	Y	LO	0	V
A	HI	5	V	Y	HI	5	V
B	LO	0	V	Y	HI	5	V
B	HI	5	V	Y	LO	0	V
C	LO	0	V	Y	HI	5	V
C	HI	5	V	Y	LO	0	V

6.4. Dynamic Characteristics

Symbol	Parameter	LB73401A	Units
t_{RISE}	Output Rise Time	600	ns
t_{RISE}	Output Fall Time	300	ns
t_{RISE}	Output LO to HI Propagation Delay	230	ns
t_{RISE}	Output HI to LO Propagation Delay	115	ns

7. Parameter Measurement Information

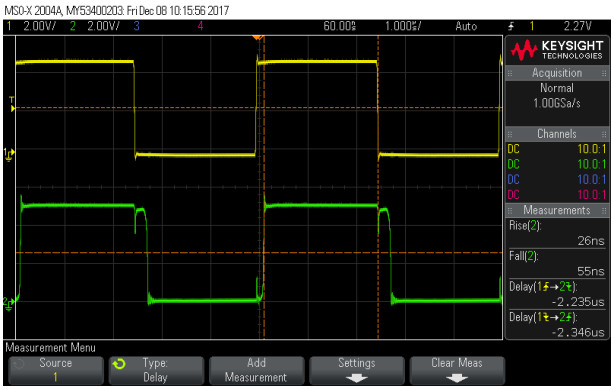


Figure 3. Input A Variation vs Output Y.

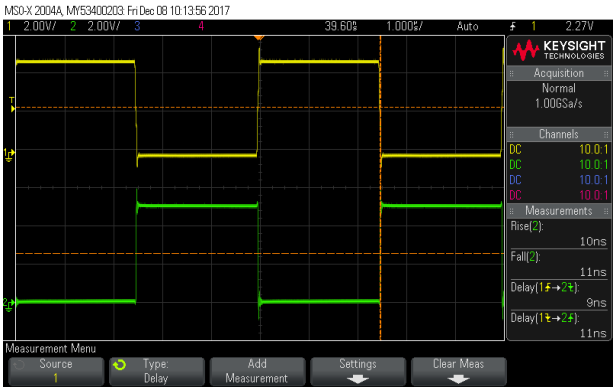


Figure 4. Input B Variation vs Output Y.

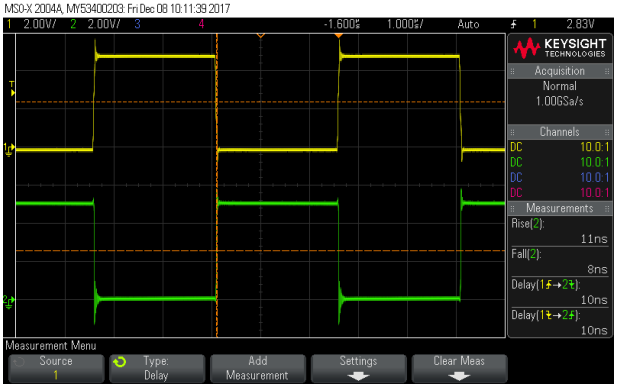


Figure 5. Input C Variation vs Output Y.

Probe 1: Input

Probe 2: Output

8. Revision History

1. [2017-12-8] Initial version.