

NanoPlex™ general description

NanoPlex NPS-06-01-04A Universal Relay ISP-Channel Multiplier allows the expansion of the number of channels of ISP-Programming tools, while also offering galvanic isolation. The total number of switched signals is 28. NanoPlex is used on PCBAs production lines, in ATE-controlled ISP programming. Thanks to its ultra-small size (only 51.0- x 66.5-mm), this NanoPlex model takes easily place in Test Fixtures. Designed for piggyback mounting, NanoPlex is universal and compatible with all types of ISP Programming tools.

Recommended Readings - Further Documentation

Before starting, please study the following essential papers:

- *NanoPlex NPS-06-01-04A Data Sheet*
- *NanoPlex NPS-06-01-04A Flexibility Application Note*

'*NanoPlex NPS-06-01-04A Flexibility Application Note*' clearly describes NanoPlex **modularity** and how to deploy **multiple units** in order to create high-density ISP Programming Multipliers with an **unlimited number of channels**.

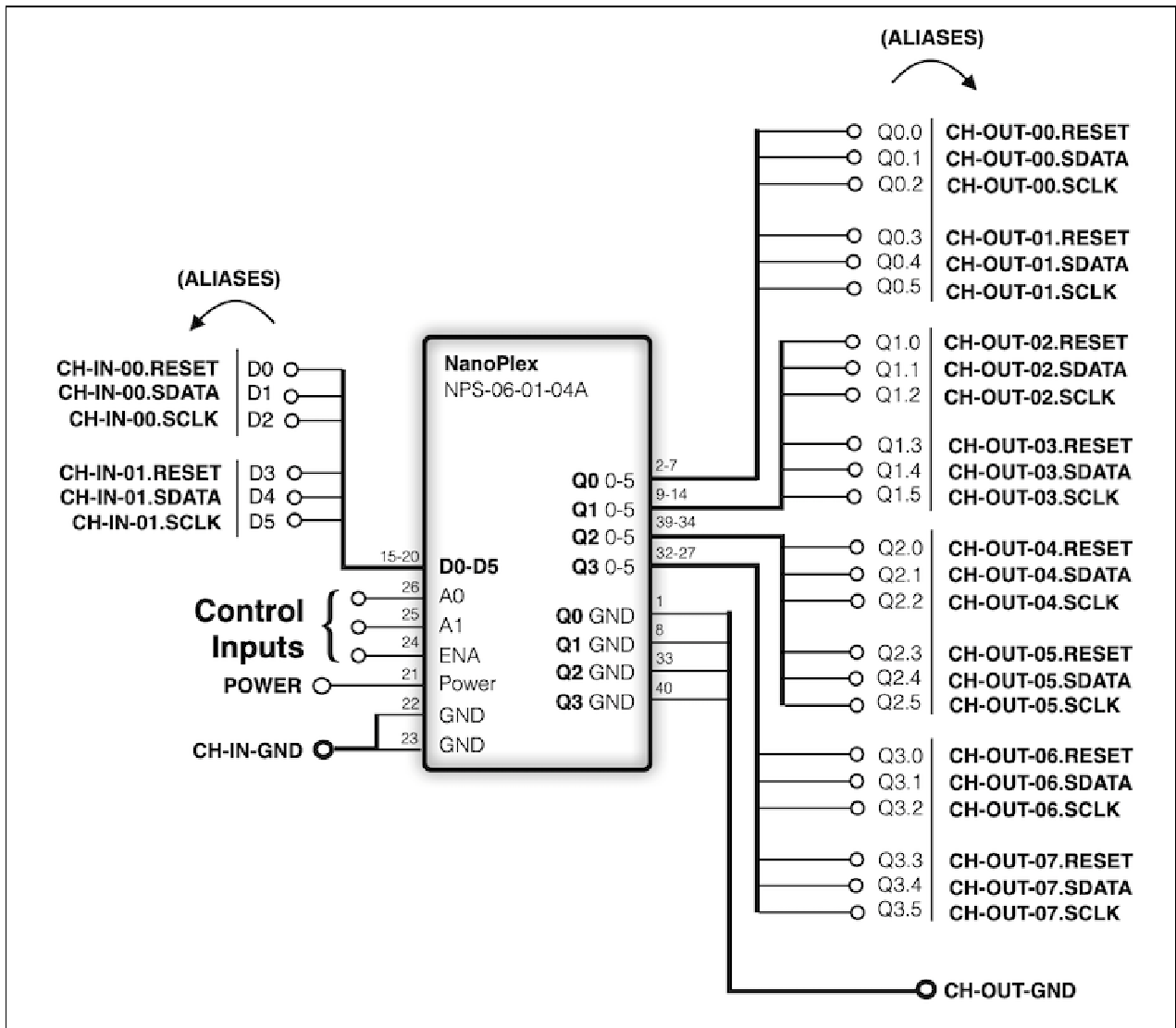
Cypress PSoC1 (ISSP)

Signals required for ISP Programming are:

- RESET
- SDATA
- SCLK

The most convenient way to ISP program multiple instances of this device through NanoPlex is using this model in **2x8 operating mode**. 2 NanoPlex input channels are multiplied to 8 separated, galvanic isolated output channels.

On the following mode examples diagram, NanoPlex signal names are assigned with aliases (texts are in **bold**).



Truth table

(the symbol ► stands for “connected to”)

ENA	A1	A0	CH-IN-	00.RESET ►	00.SDATA ►	00.SCLK ►	01.RESET ►	01.SDATA ►	01.SCLK ►
1	0	0	CH-OUT-	00.RESET	00.SDATA	00.SCLK	01.RESET	01.SDATA	01.SCLK
1	0	1	CH-OUT-	02.RESET	02.SDATA	02.SCLK	03.RESET	03.SDATA	03.SCLK
1	1	0	CH-OUT-	04.RESET	04.SDATA	04.SCLK	05.RESET	05.SDATA	05.SCLK
1	1	1	CH-OUT-	06.RESET	06.SDATA	06.SCLK	07.RESET	07.SDATA	07.SCLK
0	X	X	CH-OUT-	HI-Z	HI-Z	HI-Z	HI-Z	HI-Z	HI-Z

Operating sequence

ENA = 1

A1-A0 = "00"

CH-IN-00.RESET ► CH-OUT-00.RESET
CH-IN-00.SDATA ► CH-OUT-00.SDATA
CH-IN-00.SCLK ► CH-OUT-00.SCLK

CH-IN-01.RESET ► CH-OUT-01.RESET
CH-IN-01.SDATA ► CH-OUT-01.SDATA
CH-IN-01.SCLK ► CH-OUT-01.SCLK

A1-A0 = "01"

CH-IN-00.RESET ► CH-OUT-02.RESET
CH-IN-00.SDATA ► CH-OUT-02.SDATA
CH-IN-00.SCLK ► CH-OUT-02.SCLK

CH-IN-01.RESET ► CH-OUT-03.RESET)
CH-IN-01.SDATA ► CH-OUT-03.SDATA)
CH-IN-01.SCLK ► CH-OUT-03.SCLK

A1-A0 = "10"

CH-IN-00.RESET ► CH-OUT-04.RESET)
CH-IN-00.SDATA ► CH-OUT-04.SDATA)
CH-IN-00.SCLK ► CH-OUT-04.SCLK

CH-IN-01.RESET ► CH-OUT-05.RESET)
CH-IN-01.SDATA ► CH-OUT-05.SDATA)
CH-IN-01.SCLK ► CH-OUT-05.SCLK

A1-A0 = "11"

CH-IN-00.RESET ► CH-OUT-06.RESET)
CH-IN-00.SDATA ► CH-OUT-06.SDATA)
CH-IN-00.SCLK ► CH-OUT-06.SCLK

CH-IN-01.RESET ► CH-OUT-07.RESET)
CH-IN-01.SDATA ► CH-OUT-07.SDATA)
CH-IN-01.SCLK ► CH-OUT-07.SCLK

Connector pinout (aliases signals, top view)

Pin	Signal
01	CH-OUT-GND
02	CH-OUT-00.RESET
03	CH-OUT-00.SDATA
04	CH-OUT-00.SCLK
05	CH-OUT-01.RESET
06	CH-OUT-01.SDATA
07	CH-OUT-01.SCLK
08	CH-OUT-GND
09	CH-OUT-02.RESET
10	CH-OUT-02.SDATA
11	CH-OUT-02.SCLK
12	CH-OUT-03.RESET
13	CH-OUT-03.SDATA
14	CH-OUT-03.SCLK
15	CH-IN-00.RESET
16	CH-IN-00.SDATA
17	CH-IN-00.SCLK
18	CH-IN-01.RESET
19	CH-IN-01.SDATA
20	CH-IN-01.SCLK

Signal	Pin
CH-OUT-GND	40
CH-OUT-04.RESET	39
CH-OUT-04.SDATA	38
CH-OUT-04.SCLK	37
CH-OUT-05.RESET	36
CH-OUT-05.SDATA	35
CH-OUT-05.SCLK	34
CH-OUT-GND	33
CH-OUT-06.RESET	32
CH-OUT-06.SDATA	31
CH-OUT-06.SCLK	30
CH-OUT-07.RESET	29
CH-OUT-07.SDATA	28
CH-OUT-07.SCLK	27
A0	26
A1	25
ENA	24
GND (*)	23
GND (*)	22
Power	21

(*) GND at pins 22/23 is used for both Power GND and CH-IN-GND.

Using multiple NanoPlex NPS-06-01-04A units

NanoPlex NPS-06-01-04A product is modular by design. Several units can be deployed in order to set-up a very large, limitless channel-multiplier. The advantage of using more units is a faster and less expensive substitution.

Please read '[NanoPlex NPS-06-01-04A Flexibility Application Note](#)' to discover how to set-up a switching system with the **number of channels as high as your application requires**.

About Manta Systems

Manta Systems is a high-tech company, global leader in high-density signal switching for In-System Programming (ISP) and Testing Systems. The company targets the electronic boards assembly market, where a high number of connections is required. Manta Systems flagship product is NanoPlex™, a series of Channels Multipliers for In-System Programming (ISP) and Testing instruments. NanoPlex is the **world's first universal tool** providing end-user with the possibility of having compact, easy-to-use, professional, reliable In-System Programming (ISP) and Testing Channel Multiplication functionality.

Warranty

All Manta Systems products are covered by a **three-year warranty** against defects and workmanship from the purchase date. The warranty only covers products when properly installed and used.

Orders

All NanoPlex™ Series products are generally **off-the-shelf**.

Shipping is within **24 hours** from order reception.

Free shipping & 30-day money back guarantee.

Disclaimer

Manta Systems is the owner of NanoPlex™ tradename. Manta Systems reserves the right to make improvements to NanoPlex™ Series and its documentation without notice. Information in this document is intended to be accurate and reliable. However, Manta Systems assumes no responsibility for its use; nor for any infringements of rights of third parties which may result from its use.

MANTA SYSTEMS WILL NOT BE LIABLE FOR DAMAGES RESULTING FROM LOSS OF DATA, PROFITS, USE OF PRODUCTS, OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

Copyright © Manta Systems. All rights reserved.

NanoPlex™ is a tradename of Manta Systems.

All other product or service names are the property of their respective owners.

www.mantasys.com

info@mantasys.com

