

PI3SSD1914

Multi-Port High-Speed ONFI Switch with Presence Indication

Description

The DIODES PI3SSD1914 is designed to work in ONFI applications for advanced SSD SKUs. The purpose of the PI3SSD1914 is to effectively de-multiplex ONFI-4 NAND commands and write data to one of the NAND ports as shown in Figure 1.

The device also multiplexes the ONFI-4 NAND bus on a particular ONFI-4 NAND port to allow a selected target NAND bus to be routed to the host controller for data reads as shown in Figure 2.

The PI3SSD1914 multiplexes/de-multiplexes, four ONFI-4-compliant NAND ports with typical 12ns switching time and maximum 500ps propagation delay. The core of the PI3SSD1914 operates at a supply voltage of 2.5V to 3.6V while the I/O interface circuits operate with an independent supply voltage from 1.2V to 1.8V. The supply voltage can be further reduced to 2.375V (min) for 1.2V VDDIO applications.

Application Diagram

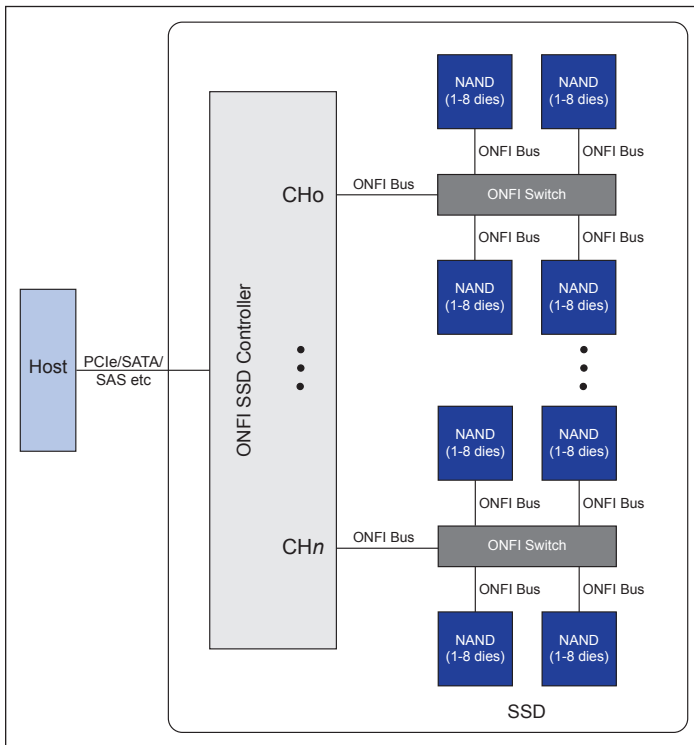


Figure 1. ONFI SSD Architecture

Features

- 19 Signal 4:1 Mux/Demux
- Supports Switching from Host Port to One of Four ONFI NAND ports
- Switching Time - 12ns Typical
- 1000MHz Bandwidth for Each Channel
- Low Propagation Delay of 500ps Max
- Max. 10ps Skew within Differential Signals
- Max. 50ps Skew for Bus Signals in Group (within Same NAND Port)
- Switch Presence Indication
- Low Operating Power Supply: 2.375V – 3.6V
- Wide Temperature Range: 0°C to 100°C
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>
- Packaging (Pb-free & Green):
 - 115-ball, 7mm × 7mm with 0.5mm Pitch, TFBGA (NK)

Ordering Information

Ordering Number	Package Code	Description
PI3SSD1914NKE+DG	NK	115-Ball, 7mm×7mm (0.3mm Ball) (TFBGA) (Greatek) with Au Wire
PI3SSD1914NKE+DGX	NK	115-Ball, 7mm×7mm (0.3mm Ball) (TFBGA) Greatek tape & reel for Au wire

Notes:

- E = Pb-free and Green
- X suffix = Tape/Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, “Green” and Lead-free.
3. Halogen- and Antimony-free “Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.