

Product Overview

NB7NPQ7042M: 3.3 V USB 3.1 Quad Channel / Dual Port Linear Redriver

For complete documentation, see the data sheet.

The NB7NPQ7042M is a 3.3 V quad channel / dual port linear redriver suitable for USB 3.1 Gen 1 and USB 3.1 Gen 2 applications that supports both 5 Gbps and 10 Gbps data rates. Signal integrity degrades from PCB traces, transmission cables, and inter-symbol interference (ISI). The NB7NPQ7042M compensates for these losses by engaging varying levels of equalization at the input receiver, and flat gain amplification on the output transmitter. The Flat Gain and Equalization are controlled by four level control pins. Each channel has a set of independent control pins to make signal optimization possible.

After power up, the NB7NPQ7042M periodically checks both of the TX output pairs of each port for a receiver connection. When the receiver is detected on both channels, the RX termination becomes enabled of that respective port and is set to perform the redriver function.

The port becomes active once both TX outputs have detected 50-ohm termination, and the NB7NPQ7042M is set to perform the redriver function. Port AB (channels A & B) and port CD (channels C & D) are independent of each other.

The NB7NPQ7042M comes in a small 3.1 x 4.3 mm X2QFN34 package and is specified to operate across the entire industrial temperature range, -40°C to 85°C.

Features

- 3.3 V \pm 5% Power Supply
 - Supports USB 3.1 Gen 1 and USB 3.1 Gen 2 Data Rates
 - Automatic Receiver Termination Detection
 - Integrated Input and Output Termination
 - Independent, Selectable Equalization and Flat Gain
 - Hot-Plug Capable
 - Flow-through Design for Ease of PCB Layout
 - ESD Protection: 2 kV HBM
 - Operating Temperature Range: -40°C to 85°C
 - Small 3.1 x 4.3 x 0.35 mm X2QFN34 Package
- For more features, see the data sheet

Applications

- USB3.1 Type-C and Type-A Signal Routing
- Mobile Phone and Tablet
- Computer and Laptop
- Docking Station and Dongle
- Active Cable, Back Planes

End Products

- Mobile Phone and Tablet
- Computer and Laptop
- Docking Station and Dongle
- Active Cable, Back Planes
- Gaming Console, Smart T.V., Set-Top Boxes

Part Electrical Specifications

Product	Compliance	Status	Type	Channels	Input / Output Ratio	Input Level	Output Level	V _{CC} Typ (V)	t _{Jitter} MS Typ (ps)	t _{skew(o)} Max (ps)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	f _{max} Clock Typ (MHz)	f _{max} Data Typ (Mbps)	Package Type
NB7NPQ7042MMUTWG	Pb-free Halide free	Active	Signal Driver	4	1:1	CML	CML	3.3	N/A	N/A	0.09	35	N/A	10000	X2QFN-34

For more information please contact your local sales support at www.onsemi.com.

Created on: 4/19/2019