Product Overview

NB7NPQ1002M: 3.3 V USB 3.1 Gen-2 10Gbps Dual Channel / Single Port Linear Redriver

For complete documentation, see the data sheet.

The NB7NPQ1002M is a high performance single-Port linear redriver designed 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 NB7NPQ1002M compensates for these losses by engaging varying levels of equalization at the input receiver, and flat gain amplification on the output transmitter.

The NB7NPQ1002M offers programmable equalization and flat gain to optimize performance over various physical mediums.

The NB7NPQ1002M contains an automatic receiver detect function which will determine whether the output is active. The receiver detection loop will be active if the corresponding channel's signal detector is idle for a period of time. The channel will then move to Unplug Mode if a load is not detected, or it will return to Low Power Mode (Slumber mode) due to inactivity. Both the channels are independent with individual controls.

The NB7NPQ1002M comes in a 2.5 x 4.5 mm WQFN30 package and is specified to operate across the entire industrial temperature range, –40°C to 85°C.

Features

- 3.3 V ± 0.3 V Power Supply
- 5 Gbps & 10 Gbps Serial Link with Linear Amplifier
- Device Supports USB 3.1 Gen 1 and USB 3.1 Gen 2 Data Rates
- Automatic Receiver Detection
- USB 3.1 Super Speed Gen1 & Gen2 Standard Compliant
- Integrated Input and Output Termination
- Pin Adjustable Receiver Equalization and Flat Gain
- 100Ω Differential CML I/O's
- Auto Slumber Mode for Adaptive Power Management
- Hot-Plug Capable

  For more features, see the data sheet

Applications

- USB3.1 Type−A and Type−C Signal Routing
- Mobile Phone and Tablet
- Computer, Laptop and Notebook
- External Storage Device
- Docking Station and Dongle

Part Electrical Specifications

Product	Compliance	Status	Type	Channels	Input / Output Ratio	Input Level	Output Level	V_{CC} Typ (V)	t_{jitter} RMS Typ (ps)	$t_{skew(o-o)}$ Max (ps)	t_{pd} Typ (ns)	t_R & t_F Max (ps)	f_{max} Clock Typ (MHz)	f_{max} Data Typ (Mbps)	Package Type
NB7NPQ1002MMTTWG	Pb-free Halide free	NEW	Signal Driver	2	1:1	CML	CML	3.3	N/A	N/A	0.9	N/A	5000	10000	WQFN-30

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

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