

## Product Overview

### NB7NPQ1004M: 3.3 V USB 3.1 Gen-2 10Gbps Quad Channel / Dual Port Linear Redriver

For complete documentation, see the data sheet.

The NB7NPQ1004M is a high performance 2-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 NB7NPQ1004M compensates for these losses by engaging varying levels of equalization at the input receiver, and flat gain amplification on the output transmitter.

The NB7NPQ1004M offers programmable equalization and flat gain for each independent channel to optimize performance over various physical mediums.

The NB7NPQ1004M 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.

The NB7NPQ1004M comes in a 3.5 x 9 mm WQFN42 package and is specified to operate across the entire industrial temperature range, -40°C to 85°C.

## Features

- 3.3 V  $\pm$  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
- Integrated Input and Output Termination
- Pin Adjustable Receiver Equalization and Flat Gain
- 100- Differential CML I/O's
- Auto Slumber Mode for Adaptive Power Management
- Hot-Plug Capable
- ESD Protection  $\pm$ 2 kV HBM

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	Pricing (\$/Unit)	Compliance	Status	Type	Channels	Input / Output Ratio	Input Level	Output Level	V <sub>CC</sub> Typ (V)	t <sub>Jitter</sub> MS Typ (ps)	t <sub>skew(o)</sub> Max (ps)	t <sub>pd</sub> Typ (ns)	t <sub>R</sub> & t <sub>F</sub> Max (ps)	f <sub>max</sub> Clock Typ (MHz)	f <sub>max</sub> Data Typ (Mbps)	Package Type
NB7NPQ1004MMTTWG		Pb-free Halide free	Active	Signal Driver	4	1:1	CML	CML	3.3	N/A	N/A	0.9	N/A	5000	10000	WQFN-42

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