NB7L1008MNGEVB

NB7L1008MNG Evaluation Board User's Manual

ON Semiconductor®

http://onsemi.com

EVAL BOARD USER'S MANUAL

Introduction

The NB7L1008 is a high performance differential 1:8 Clock/Data fanout buffer that operates up to 12 Gbps/7 GHz with a 2.5 V or 3.3 V power supply. ON Semiconductor has developed a "universal" QFN−32 evaluation board and configured it for the NB7L1008. This evaluation board was designed to provide a flexible and convenient platform to quickly evaluate, characterize and verify the operation of the NB7L1008.

This evaluation board manual contains:

- Information on the NB7L1008 Evaluation Board
- Test and Measurement Setup Procedures

This manual should be used in conjunction with the device datasheet, which contains full technical details on the device specifications and operation.

Board Layout

The NB7L1008 Evaluation Board provides a high bandwidth, 50-Ω controlled impedance environment and is implemented in one layer.

Layer Stack

L1 (Rogers)

High-performance SMA connectors are provided for all high-speed input & output signal access.

Evaluation Board Assembly Instructions

The QFN−32 evaluation board is designed for characterizing devices in a 50-Ω laboratory environment using high bandwidth equipment.

Output Loading/Termination

LVPECL Outputs

Table 1. DIFFERENTIAL INPUTS DRIVEN SINGLE – ENDED (Notes 1 & 2)

Symbol	Characteristic	Min	Typ	Max	Unit
V_{IH}	Single – Ended Input High Voltage	V_{th} + 75	–	V_{CC}	mV
V_{IL}	Single – Ended Input Low Voltage	V_{EE}	–	V_{th} – 100	mV
V_{th}	Input Threshold Reference Voltage Range	V_{EE} + 1100	–	V_{CC} – 100	mV
V_{ISE}	Single – Ended Input Voltage ($V_{IH} - V_{IL}$)	200	–	1200	mV

1. V_{th}, V_{IH}, V_{IL} and V_{ISE} parameters must be complied with simultaneously.
2. V_{th} is applied to the complementary input when operating in single-ended mode.

Table 2. DIFFERENTIAL INPUTS DRIVEN DIFFERENTIALLY (IN, INB) (Note 3)

Symbol	Characteristic	Min	Typ	Max	Unit
V_{IHD}	Differential Input High Voltage	V_{EE} + 1100	–	V_{CC}	mV
V_{ILD}	Differential Input Low Voltage	V_{EE}	–	V_{IHD} – 100	mV
V_{ID}	Differential Input Voltage ($V_{IHD} - V_{ILD}$)	100	–	1200	mV
I_{IH}	Input High Current	−150	40	+150	μA
I_{IL}	Input Low Current	−150	5	+150	μA

3. V_{IHD}, V_{ILD}, V_{ID} and V_{CMR} parameters must be complied with simultaneously.

If the input signals to the NB7L1008 require termination, internal 50-Ω resistors are provided via the VT pin and grounded using a SMA grounding plug then and should be stimulated with the appropriate voltage levels.

NOTE: For this evaluation board, VT is connected to ground, thus it can only be used for LVPECL inputs.

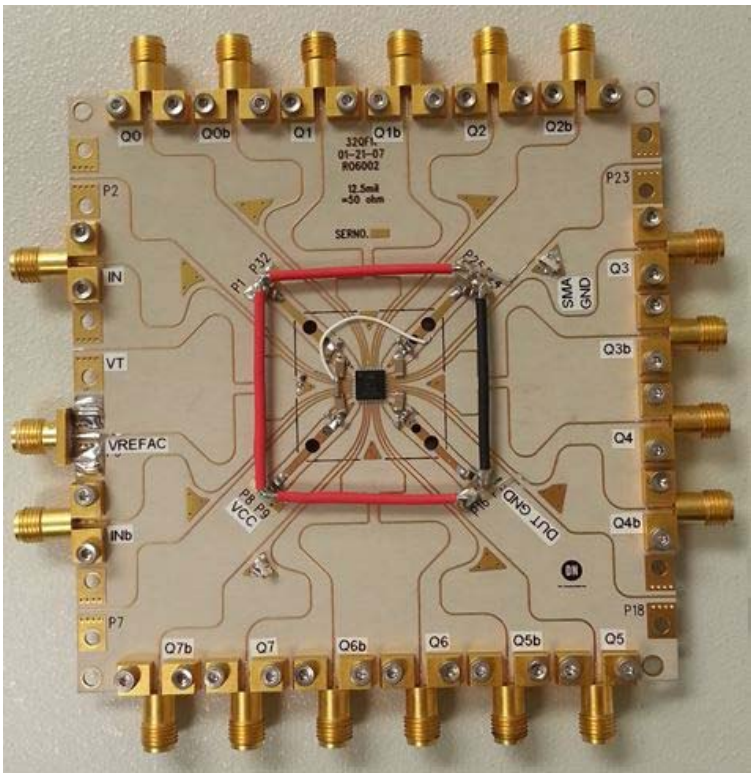

Figure 1. Test Board

1. Connect the appropriate power supplies to V_{CC}, DUTGND.
2. Connect a signal generator to the input SMA connectors. Setup input signal levels according to the device data sheet.
3. Connect a test measurement device to the device's output SMA connectors.

NOTE: The test measurement device must contain 50-Ω termination.

Table 3. NB7L1008, LVPECL INPUTS AND LVPECL OUTPUTS

Device Pin Power Supply Connector	Power Supply
V_{CC}	V_{CC} = 2 V
50 Ω Input	VT = 0 V
DUTGND	DUTGND = V_{EE} = −0.5 V (for 2.5 V) and −1.3 V (for 3.3 V)

Table 4. NB7L1008, CML INPUTS AND LVPECL OUTPUTS

Device Pin Power Supply Connector	Power Supply
V_{CC}	V_{CC} = 2 V
50 Ω Input	VT = V_{CC}
DUTGND	DUTGND = V_{EE} = −0.5 V (for 2.5 V) and −1.3 V (for 3.3 V)

Table 5. NB7L1008, LVDS INPUTS AND LVPECL OUTPUTS

Device Pin Power Supply Connector	Power Supply
V_{CC}	V_{CC} = 2 V
50 Ω Input	VT = Open
DUTGND	DUTGND = V_{EE} = −0.5 V (for 2.5 V) and −1.3 V (for 3.3 V)

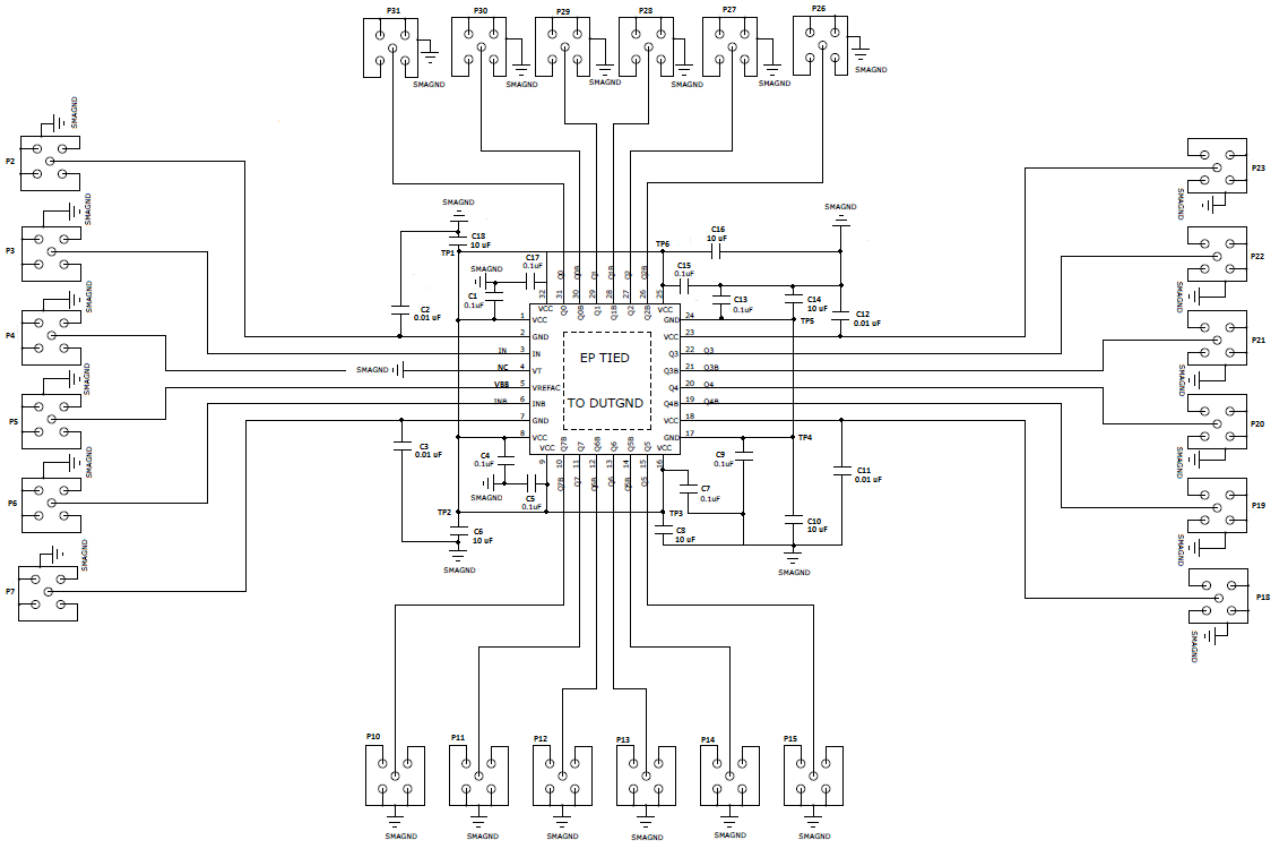

Figure 2. Schematic Drawing

Table 6. BILL OF MATERIALS

Components	Manufacturer	Description	Manufacturer Part Number	Web Site
SMA Connector	Rosenberger	High Performance SMA Connector, Side Launch, Gold Plated	32K243-40ME3	http://www.rosenberger.de http://www.rosenbergerna.com
SMA Connector	Johnson-Emerson	SMA Connector, Side Launch, Gold Plated	142-0701-801	http://www.digikey.com
Surface Mount Test Points	Keystone*	SMT Compact Test Point	5016	http://www.keylco.com
Chip Capacitor	AVC Corporation*	0603 0.1 μF ±10%	0603C104KAT2A	http://www.avxcorp.com
Chip Capacitor	Kemet	1206 0.01 μF ±10%	C1206C103K5RACTU	http://www.newark.com
Chip Capacitor	TDK	0603 0.1 μF ±10%	C3216X5R1H106K160AB	http://www.newark.com
Evaluation Board	ON Semiconductor	QFN 32 Evaluation Board	NB7VQ1006MMNGEVB	http://www.onsemi.com
Device Samples	ON Semiconductor	NB7L1008	Various	http://www.onsemi.com

*Components are available through most distributors, i.e. www.newark.com, www.Digikey.com

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5817−1050

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

EVBUM2241/D

LifeElectronics
Живое партнерство

ООО «ЛайфЭлектроникс» **“LifeElectronics” LLC**

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru

www.lifeelectronics.ru