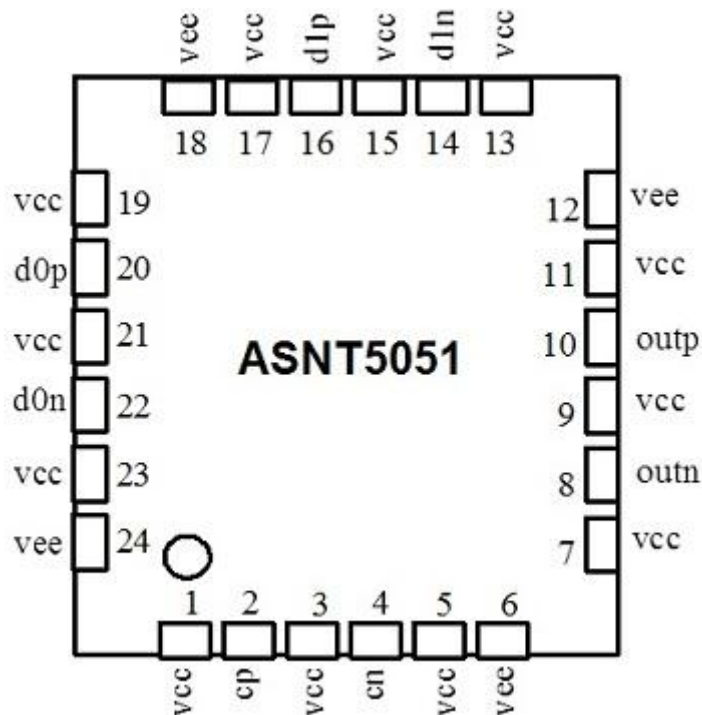




## ASNT5051-PQC 32Gbps 1 of 2 High-Isolation Selector/Switch

- High-speed broadband switch with high isolation for selecting one of two inputs.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- 17GHz analog input bandwidth for both data inputs.
- Up to 1.0GHz of bandwidth for control input.
- Ideal for high speed proof-of-concept prototyping.
- Fully differential CML input interface.
- Fully differential CML output interface with 400mV single-ended swing.
- Single +3.3V or -3.3V power supply.
- Power consumption: 315mW.
- Fabricated in SiGe for high performance, yield, and reliability.
- Standard MLF/QFN 24-pin package.





## DESCRIPTION

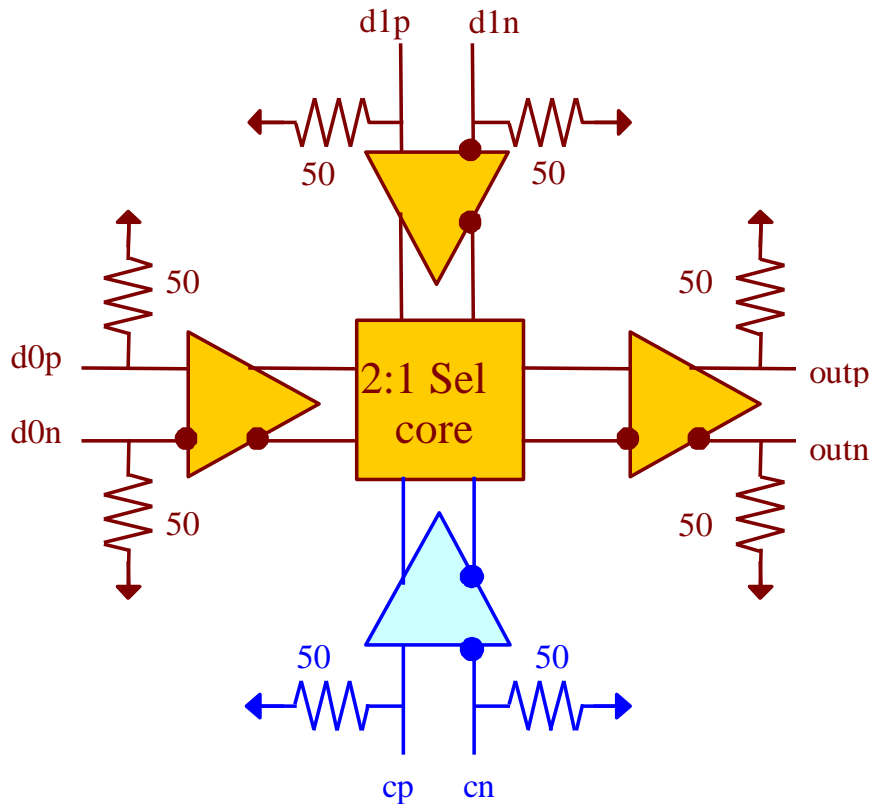


Fig. 1. Functional Block Diagram.

The temperature stable and broadband ASNT5051-PQC SiGe IC can be utilized as a high isolation selector switch and is intended for use in high-speed measurement / test equipment. When The IC shown in Fig. 1 can route one of its differential data input signals (“d0p/d0n” or “d1p/d1n”) to its differential output (“outp/outn”) while effectively blocking the other data input with high isolation. Selection of a specific data input is achieved through appropriate external DC biasing of the selector signal inputs (“cp/cn”). It is also possible to apply up to 1GHz AC signal to the selector signal inputs. The part’s I/Os support the CML logic interface with on chip 50Ohm termination to “vcc” and may be used differentially, AC/DC coupled, single-ended, or in any combination.

## POWER SUPPLY CONFIGURATION

The ASNT5051-PQC can operate with either a negative supply (“vcc” = 0.0V=ground and “vee” = -3.3V), or a positive supply (“vcc” = +3.3V and “vee” = 0.0V=ground). In case of the positive supply, all I/Os need AC termination when connected to any devices with 50Ohm termination to ground. Different PCB layouts will be needed for each different power supply combination.

**All the characteristics detailed below assume “vcc” = 0.0V and “vee” = -3.3V.**



## ABSOLUTE MAXIMUM RATINGS

Caution: Exceeding the absolute maximum ratings shown in Table 1 may cause damage to this product and/or lead to reduced reliability. Functional performance is specified over the recommended operating conditions for power supply and temperature only. AC and DC device characteristics at or beyond the absolute maximum ratings are not assumed or implied. All min and max voltage limits are referenced to ground (assumed “vcc”).

Table 1. Absolute Maximum Ratings.

Parameter	Min	Max	Units
Supply Voltage (“vee”)		-3.6	V
Power Consumption		0.4	W
RF Input Voltage Swing (SE)		1.0	V
Case Temperature		+90	°C
Storage Temperature	-40	+100	°C
Operational Humidity	10	98	%
Storage Humidity	10	98	%

## TERMINAL FUNCTIONS

TERMINAL			DESCRIPTION
Name	No.	Type	
d0p	20	CML input	Differential data inputs with internal SE 50Ω termination to “vcc”.
d0n	22		
d1p	16	CML input	Differential data inputs with internal SE 50Ω termination to “vcc”.
d1n	14		
cp	2	CML input	Differential select inputs with internal SE 50Ω termination to “vcc”.
cn	4		
outp	10	CML output	Differential data output. Require external SE 50Ω termination to “vcc”.
outn	8		

### Supply and Termination Voltages

Name	Description	Pin Number
vcc	Positive power supply. (+3.3V or 0)	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23
vee	Negative power supply. (0V or -3.3V)	6, 12, 18, 24



## ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
<b><u>General Parameters</u></b>					
vee	-3.1	-3.3	-3.5	V	±6%
vcc		0.0		V	External ground
Ivee		95			
Power consumption		315		mW	
Junction temperature	-25	50	125	°C	
<b><u>HS Input Data (d0, d1)</u></b>					
Data Rate / Frequency	0		32	Gbps/GHz	
SE Swing	50	300	800	V	Peak-to-peak
CM Voltage Level	Vcc-0.8	Vcc-0.3	Vcc+0.3	V	
<b><u>Input Select (c)</u></b>					
Frequency	0		1.0	GHz	
SE Swing	50	300	800	V	Peak-to-peak
CM Voltage Level	Vcc-0.8	Vcc-0.3	Vcc+0.3	V	
Duty Cycle	40%	50%	60%		
<b><u>HS Output Data (out)</u></b>					
Data Rate / Frequency	0		32	Gbps/GHz	
SE Swing	380	400	420	mV	Peak-to-peak
CM Level	"vcc"-(SE swing)/2			V	
Rise/Fall Times	15		19	ps	20%-80%
Additive Jitter			<1	ps	Peak-to-peak

## PACKAGE INFORMATION

The chip die is housed in a standard 24-pin QFN package shown in Fig. 2. It is recommended that the center heat slug located on the back side of the package is soldered to ground to help dissipate heat generated by the chip during operation.

The part's identification label is ASNT5051-PQC. The first 8 digits of the name before the underscore identify the bare die including general circuit family, fabrication technology, specific circuit type, and part version while the 3 digits after the underscore represent the package's manufacturer, type, and pin out count.

This device complies with the Restriction of Hazardous Substances (RoHS) per EU 2002/95/EC for all six substances.

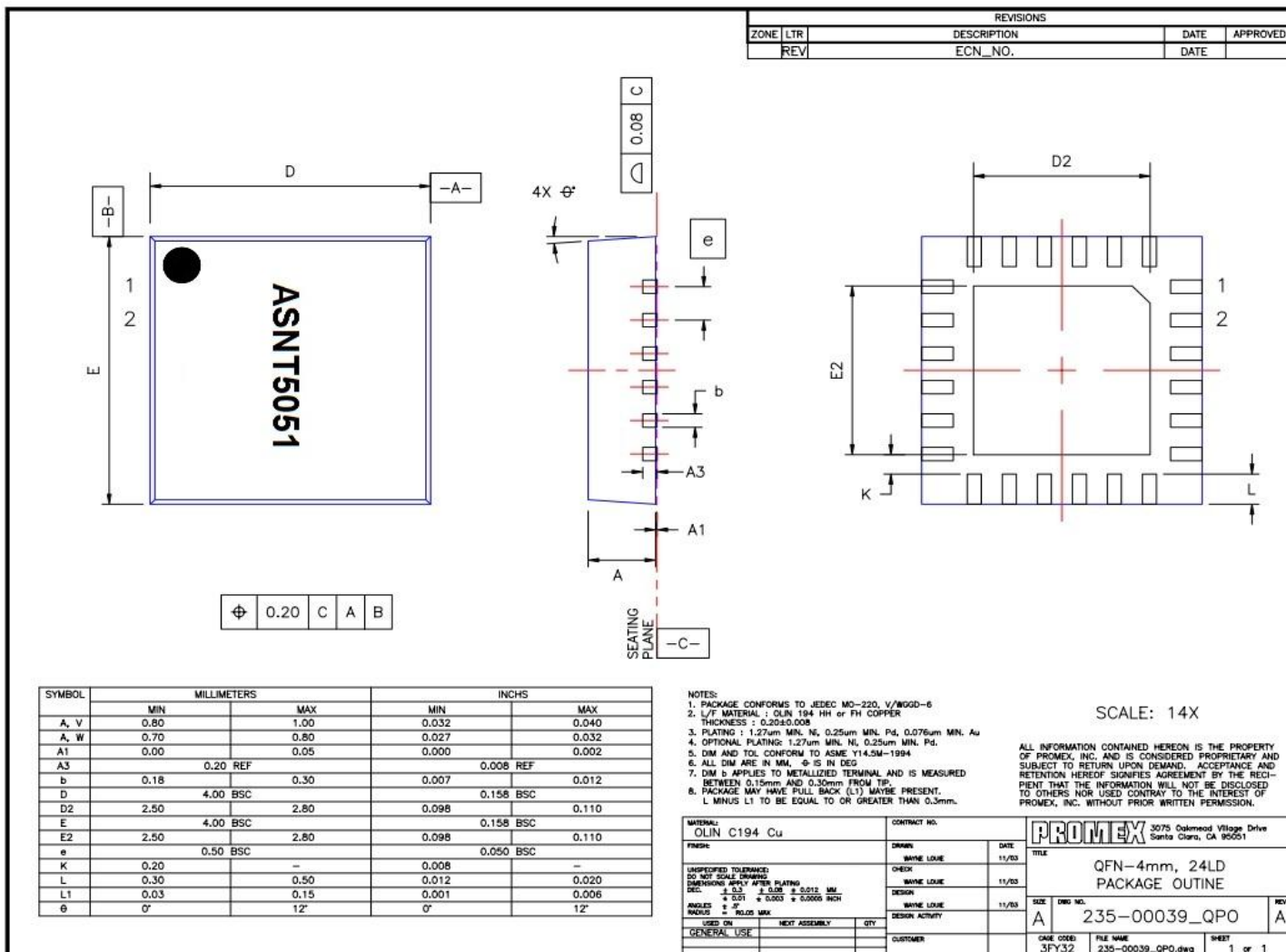


Fig. 2. Package Drawing.

## REVISION HISTORY

Revision	Date	Changes
1.2	3-2012	Revised Pinout drawing Revised tables
1.1	2-2012	Revised Pinout drawing Revised Power Supply Configuration section
1.0	1-2012	Initial Release