

ASNT5090-PQC is available on two evaluation boards: one with negative supply and one with positive supply. Application notes for these two evaluation boards are presented in order of:

- Negative supply on ASNT05_12
- Positive supply on ASNT05_11

By default, ADSANTEC will ship the positive supply evaluation board. Please send us a message through the DigiKey marketplace website if you would like to receive the negative supply version.

The datasheet for ASNT5090-PQC can be accessed through the following [LINK](#).



ASNT5090-PQC on ASNT05_12 Evaluation Board DC-32Gbps Broadband Digital 1:2 Demultiplexer Application Note

Part Description

The ASNT5090-PQC 1 to 2 demultiplexer accepts a serial broadband data signal at its differential input port **dp/dn** and delivers two parallel data signals running at half the input data rate at its two differential output ports **q0p/q0n** and **q1p/q1n**. Demultiplexing of the input data is accomplished by applying a half rate input clock signal to the differential input port **cp/cn**.

The part is mounted on an ASNT05_12 evaluation board with 50Ω transmission lines to transfer signals to/from the chip to 8 high-speed edge-mount female connectors (Southwest or similar) as shown in Fig. 1. The board has a MOLEX connector for the power supply, as well as signal filters, supply filters, and decoupling networks. The board measures approximately 2.0x2.0 inches, without connectors.

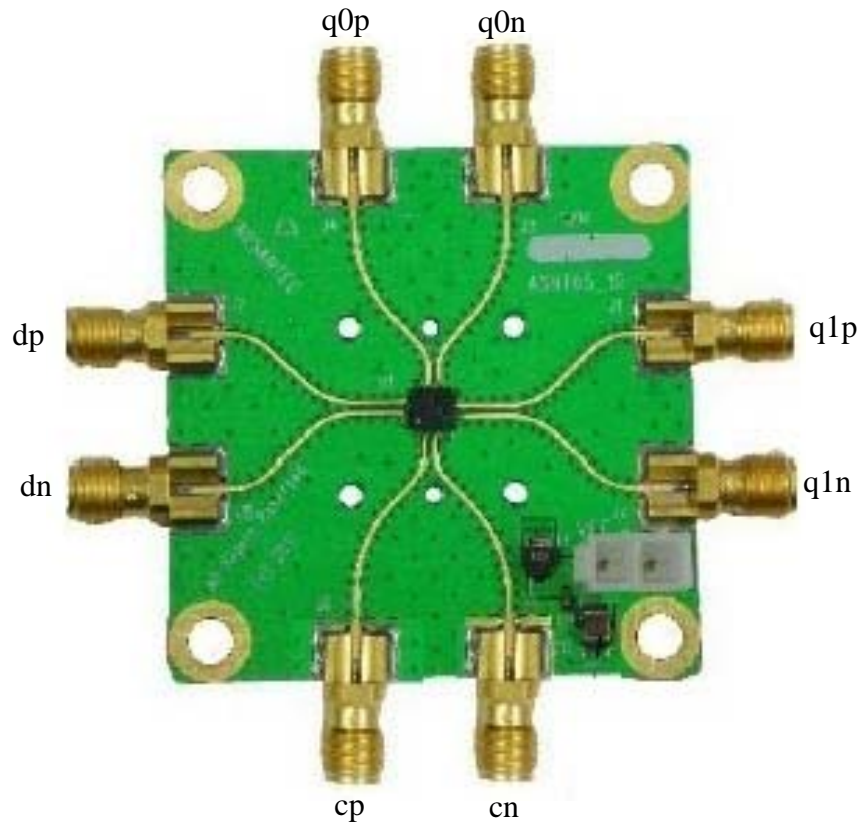


Fig. 1. Layout of ASNT05_12 PCB

The signal and power connectors are described in Table 1 and Table 2 below.

Table 1. Signal Connectors

Name on PCB	Name on Chip	Signal description	Signal polarity	I/O type
J7	dp	Differential data inputs with internal SE 50Ohm termination to VCC	Direct	CML input
J8	dn		Inverted	
J4	q0p	Differential outputs with internal SE 50Ohm termination to VCC; require external SE 50Ohm termination to VCC	Direct	CML output
J3	q0n		Inverted	
J1	q1p	Differential outputs with internal SE 50Ohm termination to VCC; require external SE 50Ohm termination to VCC	Direct	CML output
J2	q1n		Inverted	
J6	cp	Differential clock inputs with internal SE 50Ohm termination to VCC	Direct	CML input
J5	cn		Inverted	

Table 2. Power Supply Connectors

Name on PCB	Name on Chip	Supply type	Supply voltage, V
GND	vcc	External ground	0
VEE	vee	Main negative power supply	-3.3

Initial Setup and Basic Functionality

1. The part is static sensitive. [Please observe anti-static protection procedures!](#)
2. Measure the resistance of all connector pins to VCC, including the power supply, while making sure the board is grounded. All I/O ports should measure 50Ohms while on the power supply connector, VEE should be high impedance and GND should be a short. Fig. 2 shows the resistance values of the described I/O connectors.

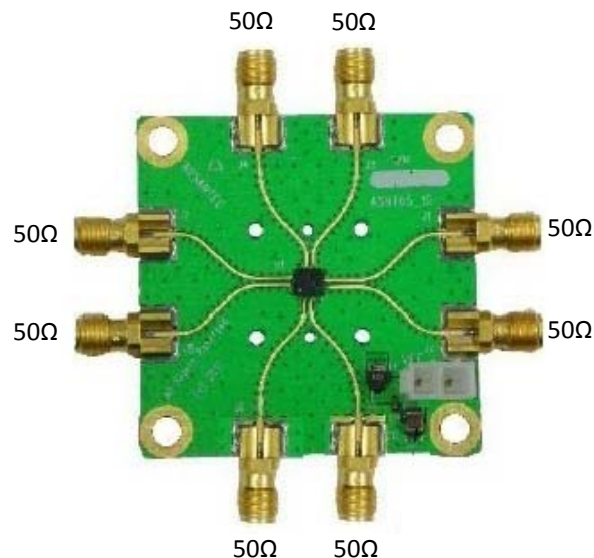


Fig. 2. Impedance of I/O Connectors



ASNT5090-PQC on ASNT05_11 Evaluation Board DC-32Gbps Broadband Digital 1:2 Demultiplexer Application Note

Part Description

The ASNT5090-PQC 1 to 2 demultiplexer accepts a serial broadband data signal at its differential input port **dp/dn** and delivers two parallel data signals running at half the input data rate at its two differential output ports **q0p/q0n** and **q1p/q1n**. Demultiplexing of the input data is accomplished by applying a half rate input clock signal to the differential input port **cp/cn**.

The part is mounted on the ASNT05_11 evaluation board with 50 Ω transmission lines to transfer signals to/from the chip to 8 high-speed edge-mount female connectors (Southwest or similar) as shown in Fig. 4. The board has a MOLEX connector for the power supply, as well as signal filters, supply filters, and decoupling networks. The board measures approximately 2.0x2.0 inches, without connectors.

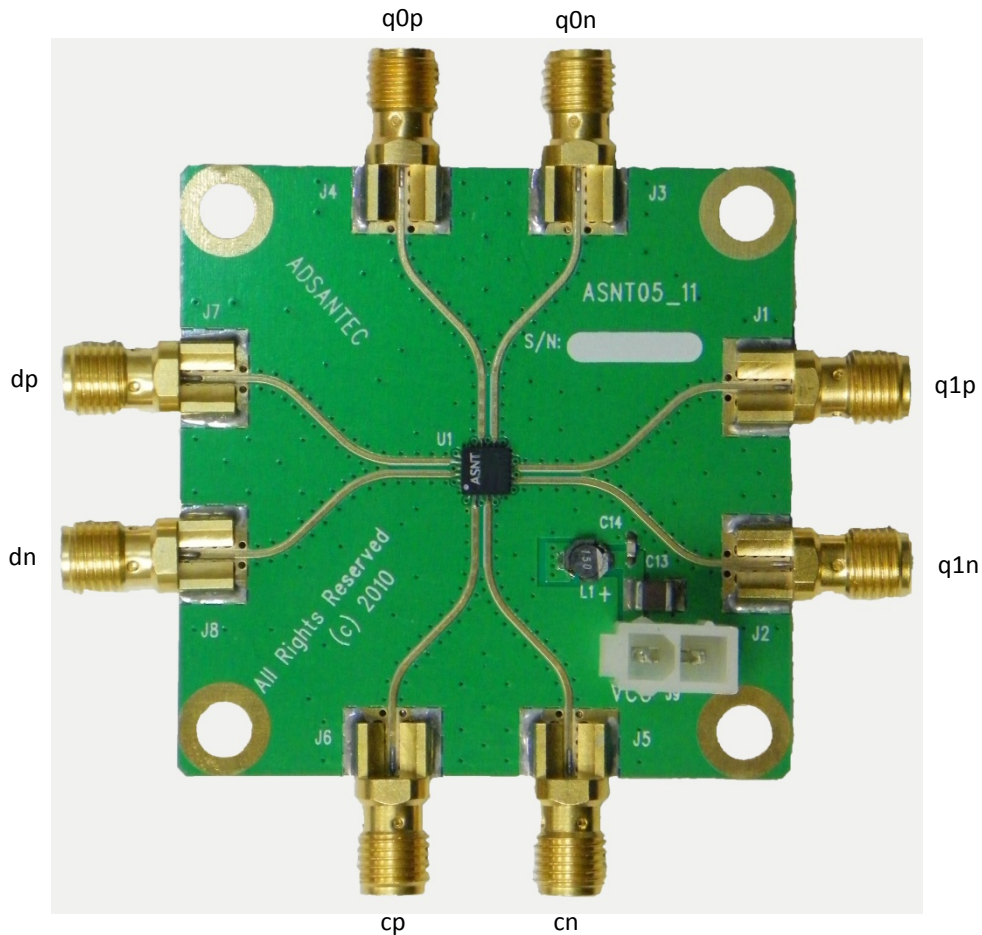


Fig. 4. Layout of ASNT05_11 PCB

The signal and power connectors are described in Table 1 and Table 2 below.

Table 3. Signal Connectors

Name on PCB	Name on Chip	Signal description	Signal polarity	I/O type
J7	dp	Differential data inputs with internal SE 50Ohm termination to VCC	Direct	CML input
J8	dn		Inverted	
J4	q0p	Differential outputs with internal SE 50Ohm termination to VCC; require external SE 50Ohm termination to VCC	Direct	CML output
J3	q0n		Inverted	
J1	q1p	Differential outputs with internal SE 50Ohm termination to VCC; require external SE 50Ohm termination to VCC	Direct	CML output
J2	q1n		Inverted	
J6	cp	Differential clock inputs with internal SE 50Ohm termination to VCC	Direct	CML input
J5	cn		Inverted	

Table 4. Power Supply Connectors

Name on PCB	Name on Chip	Supply type	Supply voltage, V
VCC	vcc	Main positive power supply	+3.3
GND	vee	External ground	0

Initial Setup and Basic Functionality

- The part is static sensitive. [Please observe anti-static protection procedures!](#)
- Measure the resistance of all connector pins to VCC, including the power supply, while making sure the board is grounded. All I/O ports should measure 50Ohms while on the power supply connector, VCC should be a short, and GND should be high impedance. Fig. 5 shows the resistance values of the described I/O connectors.

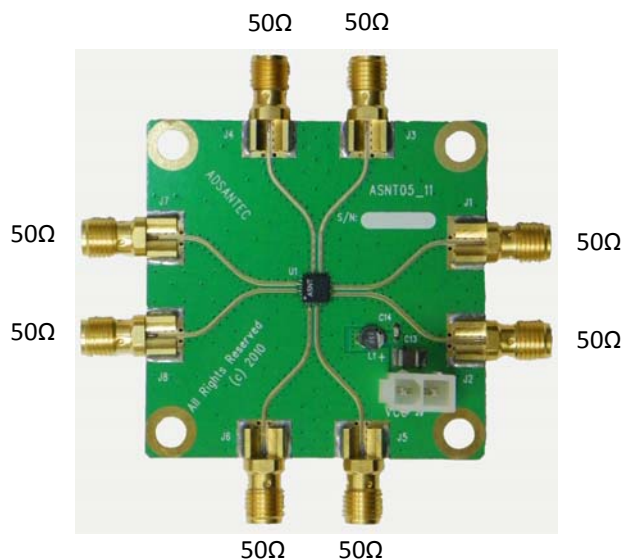


Fig. 5. Impedance of I/O Connectors

12. Switch on the first external power supply unit and set it to a positive supply voltage with a value of +0.0V (negative output pin of the unit must be shorted to ground).
13. Connect the supply unit's output pins to the PCB's Molex connector marked VCC GND so that the positive output pin is connected to VCC connector pin.
14. Gradually increase the positive supply voltage to +3.3V.
15. Monitor the supply current in accordance with the part's specifications. Current should be approximately 220mA.
16. Apply a differential or SE high-speed data signal to connectors J7/J8. DC blocks or the appropriate shift of voltage levels may be required!
17. Apply a differential or SE high-speed half rate clock signal to connectors J6/J5. DC blocks or the appropriate shift of voltage levels may be required!
18. Observe a half rate data streams at connectors J4/J3 and J1/J2. Connect them to an oscilloscope or similar device with 50Ohm termination to ground through DC blocks. Ensure proper alignment of the input data and clock signals to produce the correct parallel data outputs.

Board Dimensions

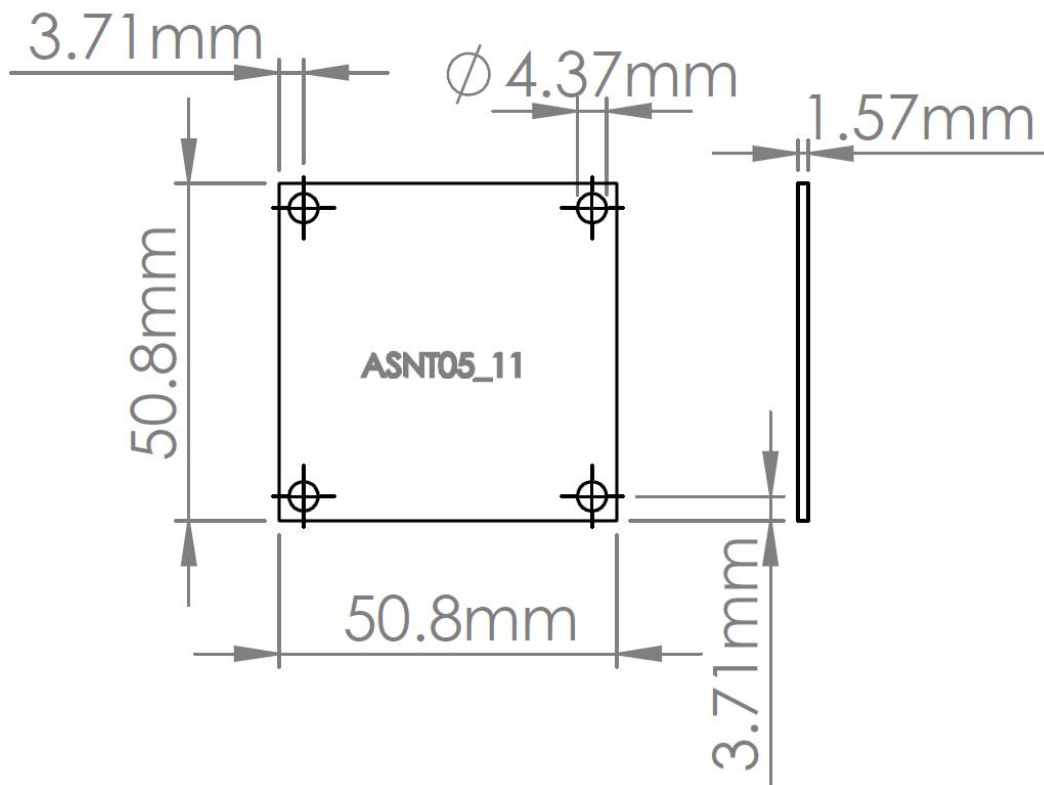


Fig. 6. ASNT05_11 Board Dimensions



ADSANTEC

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Revision History

Revision	Date	Changes
1.0.1	09-2020	Initial Release