ADSANTEC
Ultra High-Speed Mixed Signal ASICs
Advanced Sience And Novel Technologies Company, Inc.
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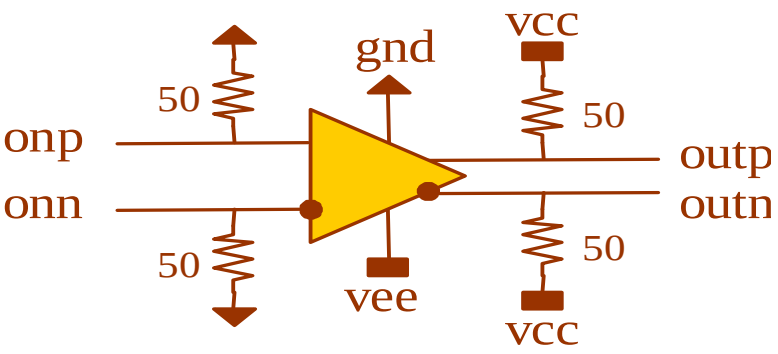
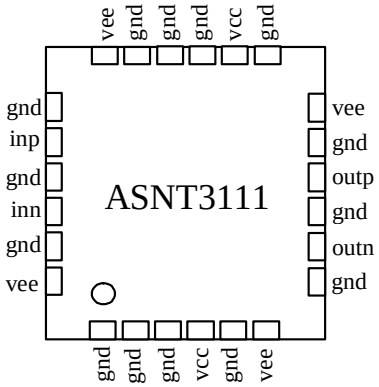
ASNT3111-PQC
20*Gbps* Single-Channel CML Level Shifter

- High-speed broadband CML data Level Shifter for signal distribution.
- Fully differential input and output buffers with on-chip 50*Ohm* termination.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- Fabricated in SiGe for high performance, yield, and reliability.
- Power consumption: 260*mW*.
- Standard 24-pin QFN package.

DESCRIPTION



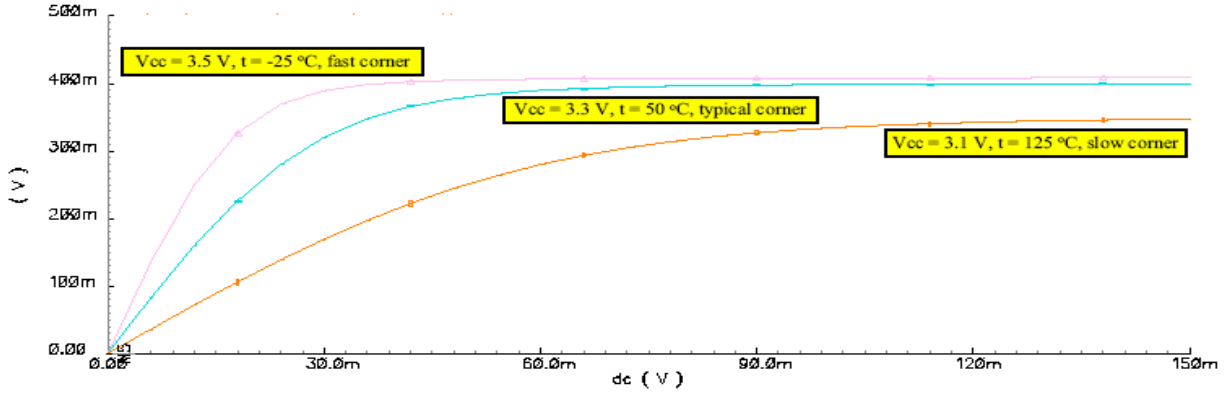
Functional Block Diagram



Package View

The ASNT3111-PQC SiGe IC provides a signal voltage shift from CML levels in devices operating with negative power supply to PCML levels in devices with positive power supply. The part's I/Os support the CML logic interface with on chip 50*Ohm* termination to ground ("gnd") for input pins, on chip 50*Ohm* termination to positive "vcc" for outputs, and can be used differentially, AC/DC coupled, or single-ended.

The chip operates from two independent 3.3V power supplies: one negative ("vee") and one positive ("vcc"). The diagram below demonstrates the chip's simulated performance.



DC Transfer Function (Simulation).

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TERMINAL FUNCTIONS

TERMINAL NAME	TERMINAL (NO.)	TYPE	DESCRIPTION
vcc	4, 14	PS	Power Supply: +3.3*V*
gnd	1, 2, 3, 5, 7, 9, 11, 13 15, 16, 17, 19, 21, 23	PS	Power Supply: 0*V*
vee	6, 12, 18, 24	PS	Power Supply: -3.3*V*
inp	20	Input	Differential CML high-speed inputs
inn	22	Input	
outp	10	Output	Differential CML high-speed outputs
outn	8	Output	

ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
Vee	-3.1	-3.3	-3.5	V	
Ground		0		V	
Vcc	3.1	3.3	3.5	V	
Ivcc		18		mA	
Ignd		42		mA	
Power		260		mW	
Junction Temp.	-40	25	125	°C	
Inputs					
Data rate	0.0		20.0	Gbps	
CM Level	Half of the SE swing below ground power supply				
SE Swing	50	300		mV	Peak-to-peak
Outputs					
CM Level	Half of the SE swing below positive power supply vcc				
SE Swing	360	440		mV	Peak-to-peak
Jitter		< 1.5		ps	Peak-to-peak

PACKAGE INFORMATION

The chip is packaged into the standard 24-pin QFN package. The package mechanical information is available on the company's website.