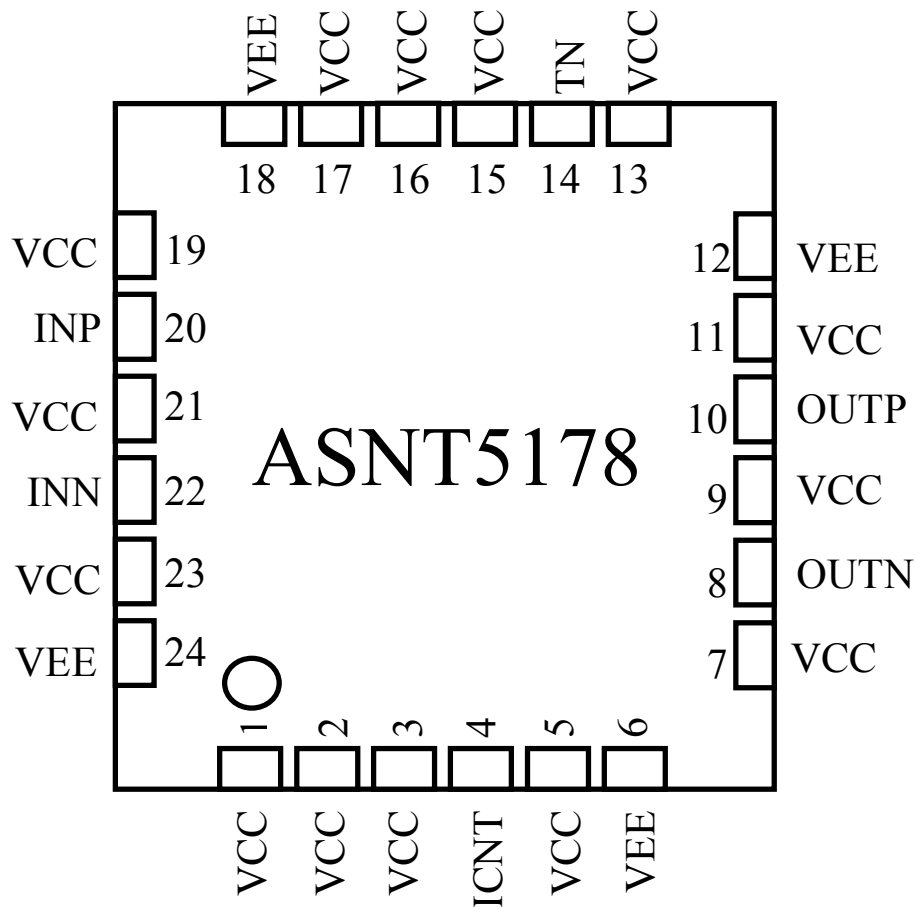


ASNT5178-PQC (ASNT6001)

15GHz Phase Shifter with Output Signal Amplitude Control

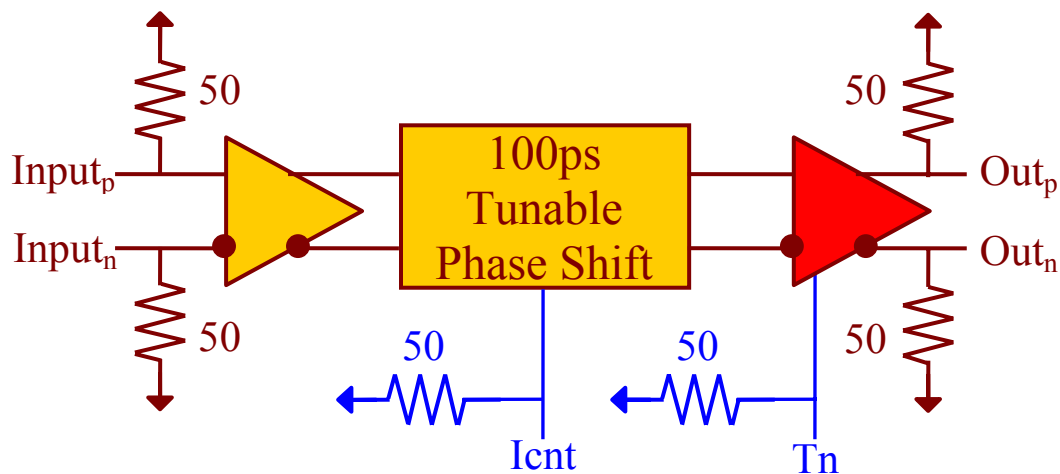
- Narrowband (11GHz-15GHz) tunable clock phase shifter with 120ps of delay variation.
- Output signal amplitude adjustment from 0.2V to 1.0V single ended.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- 1GHz of bandwidth for the phase and amplitude adjustment tuning ports.
- Ideal for high speed proof-of-concept prototyping.
- Fully differential input and output buffers with on-chip 50Ω termination.
- Single -4.5V power supply.
- Power consumption: 900mW.
- Fabricated in SiGe for high performance, yield, and reliability.
- Standard MLF/QFN 24-pin package.



DESCRIPTION

The temperature stable ASNT5178-PQC SiGe IC provides extremely low jitter narrowband signal phase shifting and amplitude control capability between its input and output signal ports and is intended for use in high-speed measurement / test equipment. ASNT5178-PQC can process an up to 15GHz RF clock signal and deliver both 0-120ps of adjustable phase delay and output signal amplitudes between 0.2V-1.0V through two up to 1GHz external adjustment single ended tuning ports. The part's I/Os support the CML logic interface with on chip 50Ω termination and may be used differentially, AC/DC coupled, single-ended, or in any combination. It operates from a single -4.5V power supply.

FUNCTIONAL BLOCK DIAGRAM



TERMINAL FUNCTIONS

TERMINAL NAME (NO.)	TYPE	DESCRIPTION
vcc 1-3,5,7,9,11 13,15-17,19,21,23	PS	Power Supply: 0V (GND)
vee 6,12,18,24	PS	Power Supply: -4.5V
inp 20 inn 22	Input	Differential CML high-speed signal inputs
outp 10 outn 8	Output	Differential CML high-speed signal outputs
icnt 4	Input	Single ended low-speed phase adjustment tuning input
tn 14	Input	Single ended low-speed amplitude adjustment tuning input



ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
VEE	-4.2	-4.5	-4.8	V	±6%
VCC		0.0		V	
IEE		200		mA	
Power		900		mW	
Junction Temp.	-25	50	125	°C	
Input (in)					
Frequency	0.0		15	GHz	
CM Level	V _{cc} -0.8	V _{cc} -0.3	V _{cc} +0.3	V	
SE Swing	50	300	800	mV	Peak-to-peak
Output (out)					
Frequency	0.0		15	GHz	
CM Level	V _{cc} -0.4	V _{cc} -0.3	V _{cc} -0.2	V	
SE Swing*	570	600	630	mV	Peak-to-peak
Amplitude Variation	200	600	1000	mV	
Rise/Fall Times	13	15	17	ps	20%-80%
Additive Jitter			<1	ps	Peak-to-peak
Duty Cycle	45%	50%	55%		
Tuning Port (icnt)					
S.E. Swing	-1.0		0.0	V	Peak-to-peak
Phase Shift	0		120	ps	
Shift Stability	-2		2	ps	0-125°C
Bandwidth	0.0		1000	MHz	
Tuning Port (tn)					
S.E. Swing	-1.0		0.0	V	Peak-to-peak
Bandwidth	0.0		1000	MHz	
* Tn pin is N/C					

PACKAGE INFORMATION

The chip is packaged in a standard 24-pin QFN package. The package's mechanical information is available on the company's [website](#).