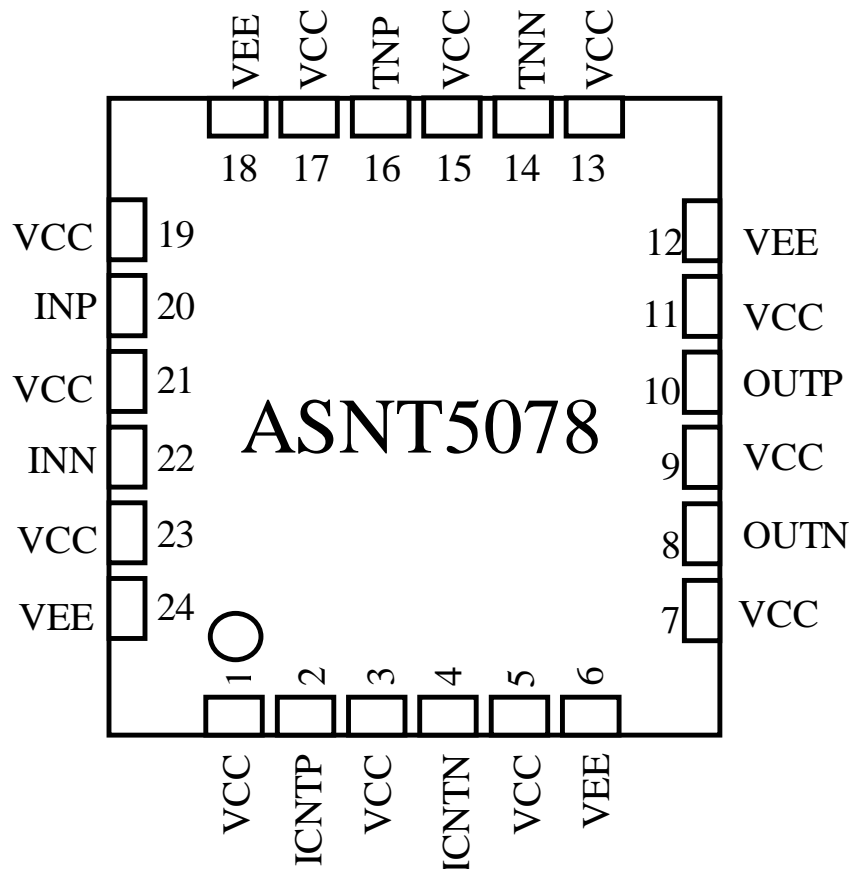


ASNT5078/5178-PQC

15GHz Phase Shifter with Output Signal Amplitude Control

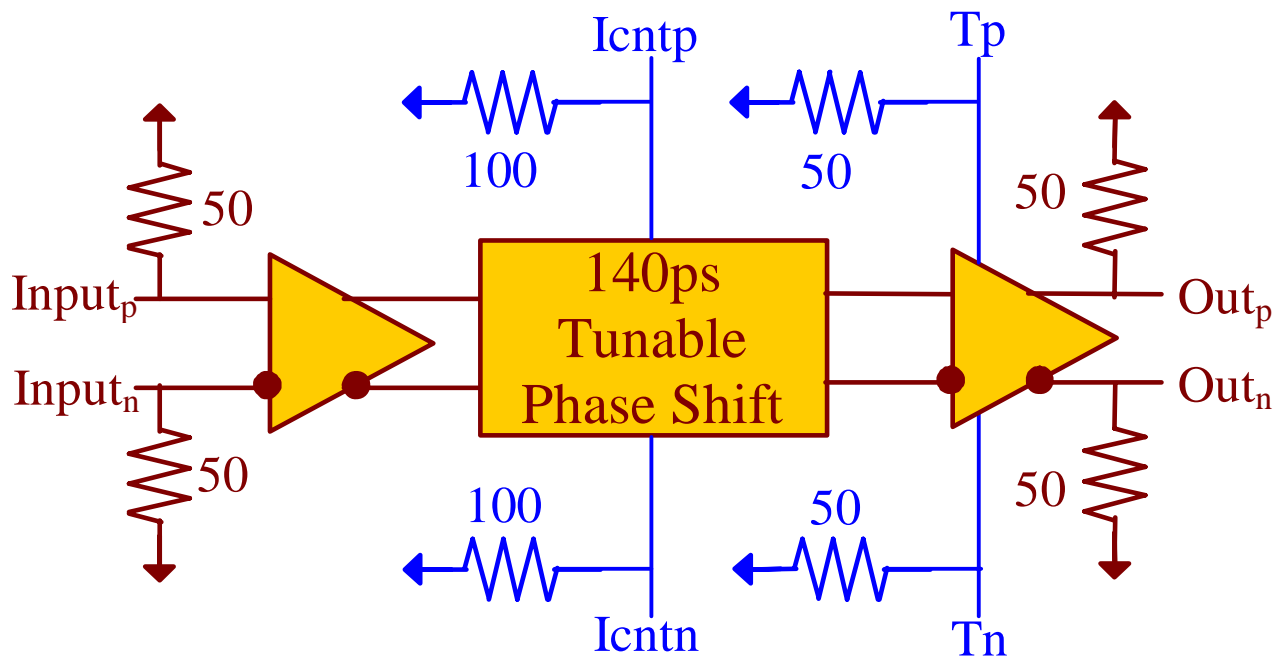
- Narrowband (11GHz-15GHz) tunable clock phase shifter with 140 ps of delay adjustment.
- Output signal amplitude adjustment from 0.2V to 0.9 V single ended.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- 100 MHz of bandwidth for the phase adjustment tuning ports.
- 100 MHz of bandwidth for the amplitude adjustment tuning ports.
- Ideal for high speed proof-of-concept prototyping.
- Fully differential input and output buffers with on-chip 50Ω termination.
- Single ±3.0V power supply.
- Power consumption: 1.15 W.
- Fabricated in SiGe for high performance, yield, and reliability.
- Standard MLF/QFN 24-pin package.



DESCRIPTION

The temperature stable ASNT5078-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. ASNT5078-PQC can process an up to 15GHz RF clock signal and deliver both 0-140 ps of adjustable phase delay and output signal amplitudes between 0.2V-0.9 V through two external adjustment differential 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 ±3.0V 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: 3.0V / 0V
vee 6,12,18,24	PS	Power Supply: 0V / -3.0V
inp 20 inn 22	Input	Differential CML high-speed signal inputs
outp 10 outn 8	Output	Differential CML high-speed signal outputs
icntp 2 icntn 4	Input	Differential low-speed phase adjustment tuning inputs
tnp 16 tnn 14	Input	Differential low-speed amplitude adjustment tuning inputs



ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
VEE	-2.85	0.0 / -3.0	-3.15	V	±6%
VCC	2.85	3.0 / 0.0	3.15	V	±6%
IEE*		385		mA	
Power*		1.15		W	
Junction Temp.	-25	50	125	°C	
Input (in)					
Frequency	DC		15	GHz	
CM Level	V _{cc} -0.8	V _{cc} -0.2	V _{cc}	V	
Swing (Diff or SE)	50	400	1000	mV	Peak-to-Peak
Output (out)					
Frequency	DC		15	GHz	
CM Level*	V _{cc} -0.3	V _{cc} -0.25	V _{cc} -0.2	V	
SE Swing*	475	500	525	mV	Peak-to-Peak
Amplitude Variation	200	500	900	mV	
Rise/Fall Times*	13	15	17	ps	20%-80%
Additive Jitter		TBD		ps	Peak-to-Peak
Duty Cycle	45%	50%	55%		
Tuning Port (icnt)					
Diff. Swing	-1,00 V		0	mV	Peak-to-Peak
CM Level	V _{cc} -1	V _{cc} -0.5	V _{cc}	V	
Phase Shift	0		140	ps	
Shift Stability	-12		12	ps	0-125°C
Bandwidth	0.0		200	MHz	
Tuning Port (tn)					
Diff. Swing	-500		500	mV	Peak-to-Peak
CM Level	V _{cc} -0.5	V _{cc} -0.25	V _{cc}	V	
Bandwidth	0.0		200	MHz	
* Tn pins are not connected (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](#).