



SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 20 MHz Step Size, 100 MHz External Reference, -90 dBc/Hz Phase Noise, +5 Vdc, SMA

Synthesizers Technical Data Sheet

PE11S3909

Features

- SPI Frequency Synthesizer Module
- Frequency Range 1 GHz to 6.4 GHz
- 20 MHz Output Frequency Step Size
- 100 MHz External Reference
- Output Power > +18 dBm
- Spurious Rejection -62 dBc
- Phase Noise -90 dBc/Hz @ 1 kHz offset
- Hopping Time < 300 msec
- DC Bias +5V @ 200 mA
- Operational Temperature Range -40°C to +85°C
- Field Replaceable SMA Female Connectors
- Rugged and small Mil Grade Aluminum Package Design
- Designed to withstand Humidity exposure up to 95% max

Applications

- Signal Generators
- Test & Measurement
- Communication Systems
- EW Systems
- Radar Systems
- Frequency Conversion
- SIGINT
- Microwave Radio Systems
- Research & Development
- SATCOM

Description

The PE11S3909 is a Frequency Synthesizer module that covers a broadband frequency range from 1 GHz to 6.4 GHz and produces > +18 dBm output power. The 50 ohm design provides high resolution with a 20 MHz output frequency step size, and supports a 100 MHz External Reference for design flexibility. Impressive typical performance includes low Spurious Rejection of -62 dBc, and low Phase Noise of -90 dBc/Hz @ 1 kHz offset. Operating Voltage is +5 Vdc with 200 mA current. The rugged ultra small size package design supports field replaceable SMA female connectors and can be drop mounted onto a PWB, with DC bias pins, and a TTL controlled Lock pin. Additional pins for command control functions through a serial peripheral interface (SPI) for signal enable, clock signal, and data. The module operates across a wide temperature range of -40°C to +85°C, and can withstand relative humidity exposure up to 95% maximum.

Electrical Specifications (TA= -40°C to +85°C, Vd1 = 5 V, Id1 = 200 mA)

Reference External
Control Interface Serial, TTL

Description	Minimum	Typical	Maximum	Units
Frequency Range	1		6.4	GHz
Load Impedance		50		Ohms
Output Power	15	18	20	dBm
Step Size		20		MHz
Phase Locked Speed		< 300		us
Phase Noise @1kHz Offset		-90		dBc/Hz
Spurious		-62		dBc
2nd Harmonic		-12		dBc
Reference Frequency		100		MHz
Reference Power (CW)	0	5	8	dBm
Reference Phase Noise @ 1kHz Offset		-150		dBc/Hz

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 20 MHz Step Size, 100 MHz External Reference, -90 dBc/Hz Phase Noise, +5 Vdc, SMA PE11S3909](#)



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Operating DC Voltage 1	4.75	5	5.25	V
Operating DC Current 1		200		mA

Mechanical Specifications

Size

Length	1.18 in [29.97 mm]
Width	1.18 in [29.97 mm]
Height	0.4 in [10.16 mm]
Weight	0.05 lbs [22.68 g]

Configuration

Reference Connector	SMA Female Field Replaceable
Output Connector	SMA Female Field Replaceable

Environmental Specifications

Temperature

Operating Range	-40 to 85 deg C
Storage Range	-55 to 85 deg C

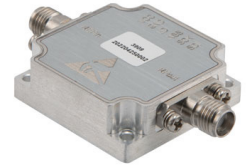
Humidity	95%
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Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

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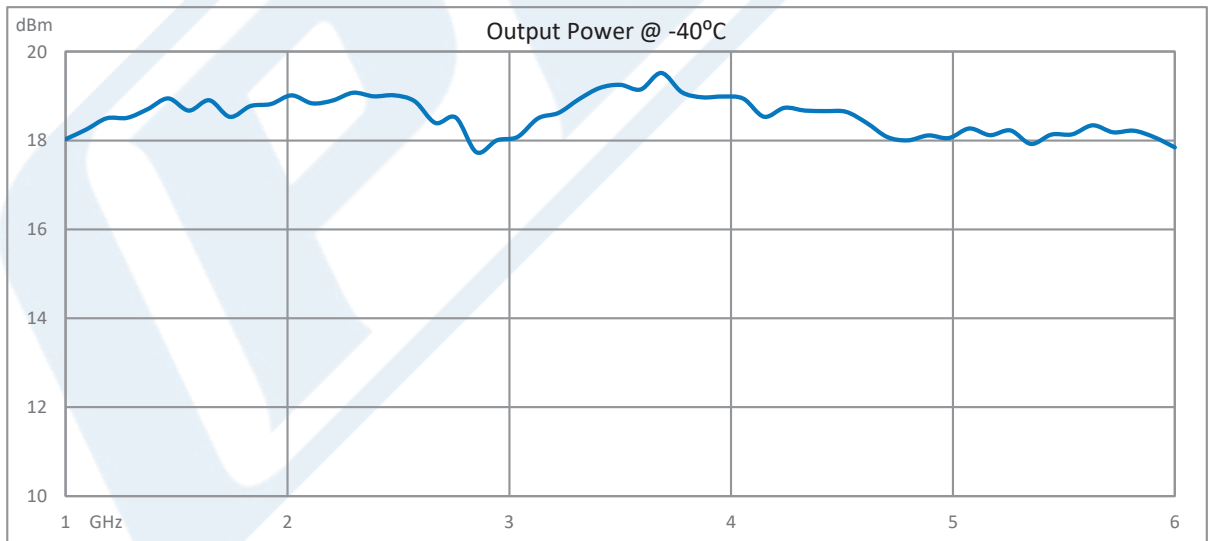
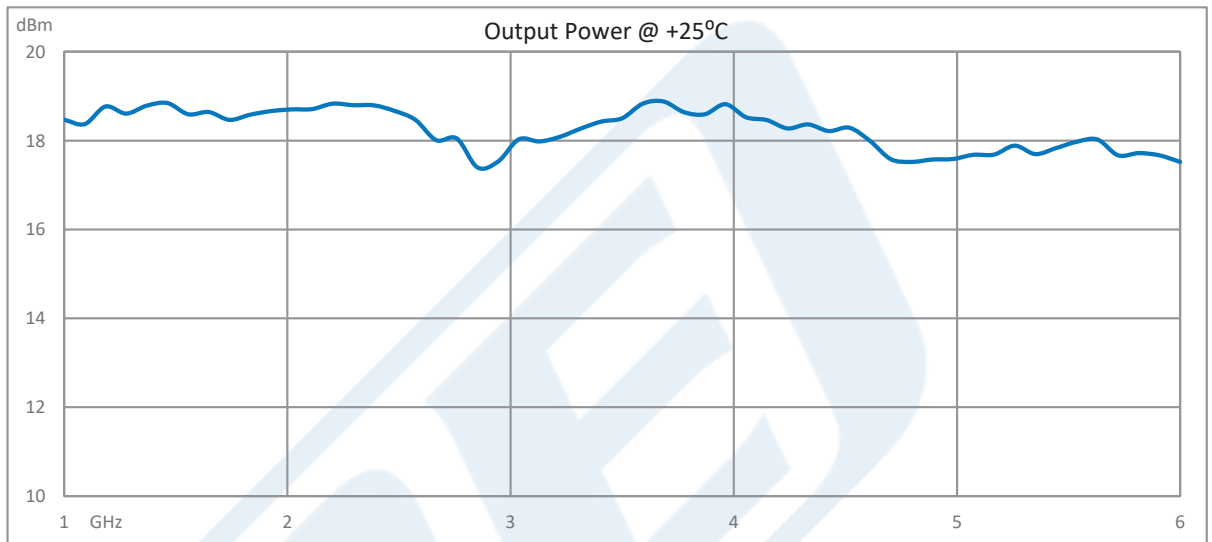


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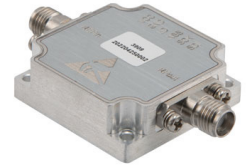
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Typical Performance Data



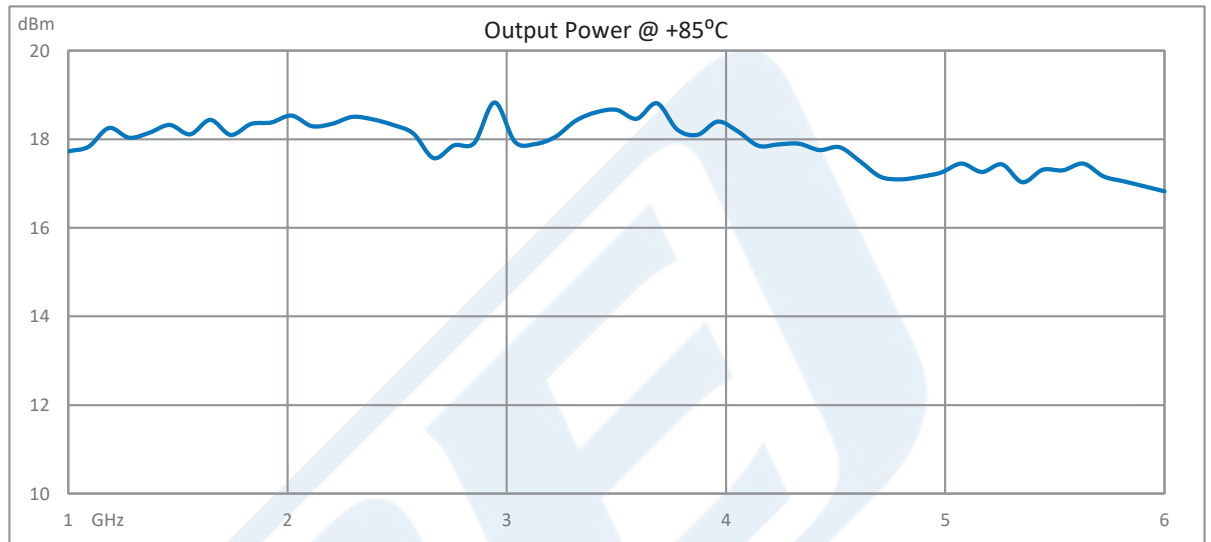
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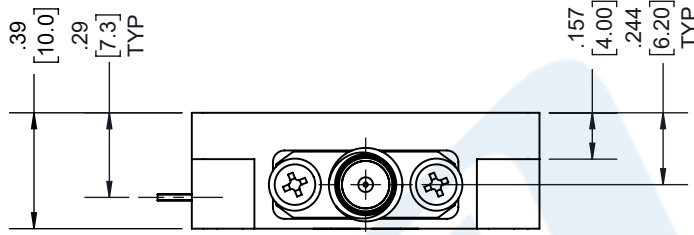
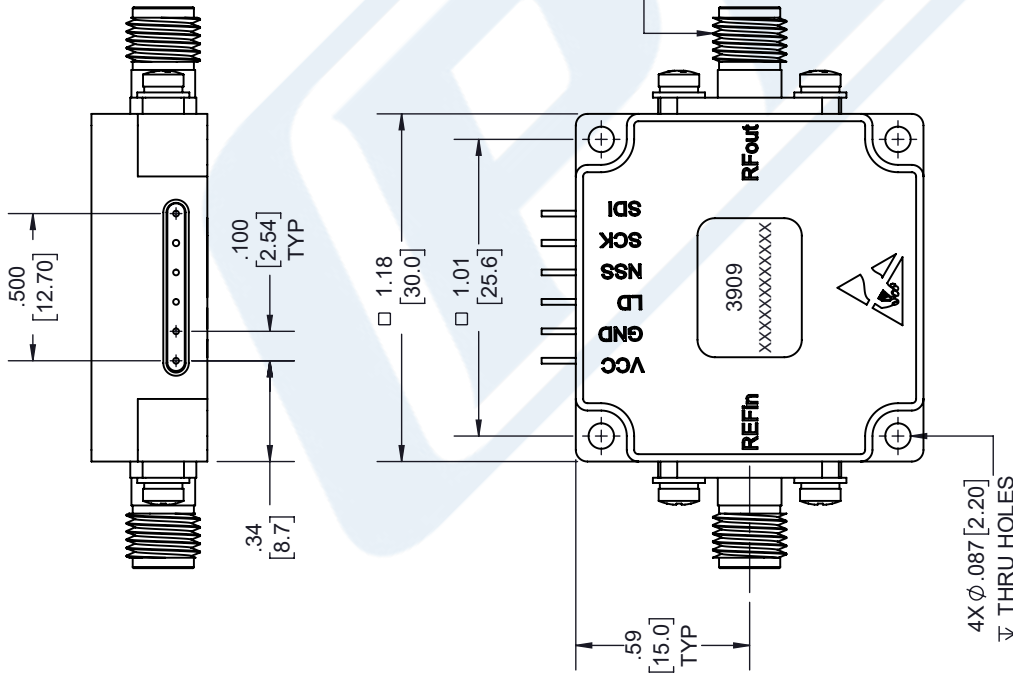
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PE11S3909 CAD Drawing

SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 20 MHz Step Size, 100 MHz External Reference, -90 dBc/Hz Phase Noise, +5 Vdc, SMA

REVISIONS		
REV.	DESCRIPTION	DATE
A	INITIAL RELEASE	5/8/2022
		APPROVED T. GALLA



PIN CONFIGURATION	
1	VCC +5V IN
2	GND
3	LD Lock Directive: High level: Locked Low level: Unlock
4	NSS SPI Enable Signal
5	SCK SPI Clock Signal
6	SDI SPI Data

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:
 .X = ±.2 [5.08] FRACTIONS ±.1032
 .XX = ±.02 [.51] ANGLES ± 1°
 .XXX = ±.005 [.13] CABLE LENGTH (L), TOLERANCES:
 L ≤ 12 [305] = +1 [25] / -0
 12 [305] < L ≤ 60 [1524] = +2 [51] / -0
 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
 300 [7620] < L = +5% / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

THIRD-ANGLE PROJECTION

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SCALE N/A

REV A

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ITEM NO. PE11S3909

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