

## SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 25 MHz Step Size, 100 MHz External Ref. Phase Noise -90 dBc/Hz, +5 Vdc, SMA

The FMSN3908 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 25 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  
Control Interface

External  
Serial, TTL

| Description                         | Min  | Typ | Max  | Units  |
|-------------------------------------|------|-----|------|--------|
| Frequency Range                     | 1    |     | 6.4  | GHz    |
| Load Impedance                      |      | 50  |      | Ohms   |
| Output Power                        | 15   | 18  | 20   | dBm    |
| Step Size                           |      | 25  |      | 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 |
| 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%             |



### Features:

- SPI Frequency Synthesizer Module
- Frequency Range 1 GHz to 6.4 GHz
- 25 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:

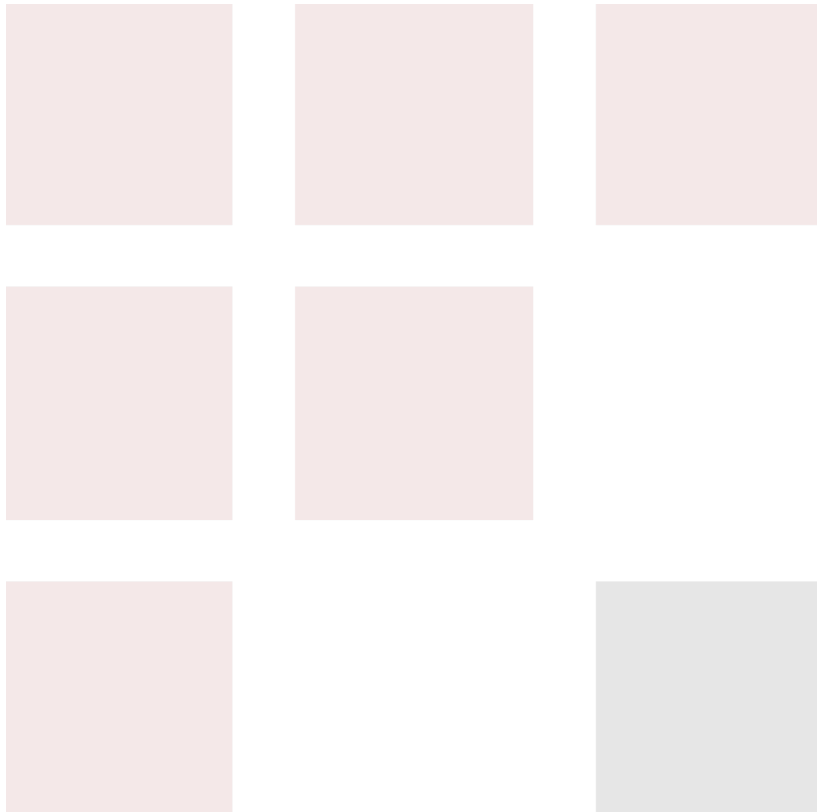
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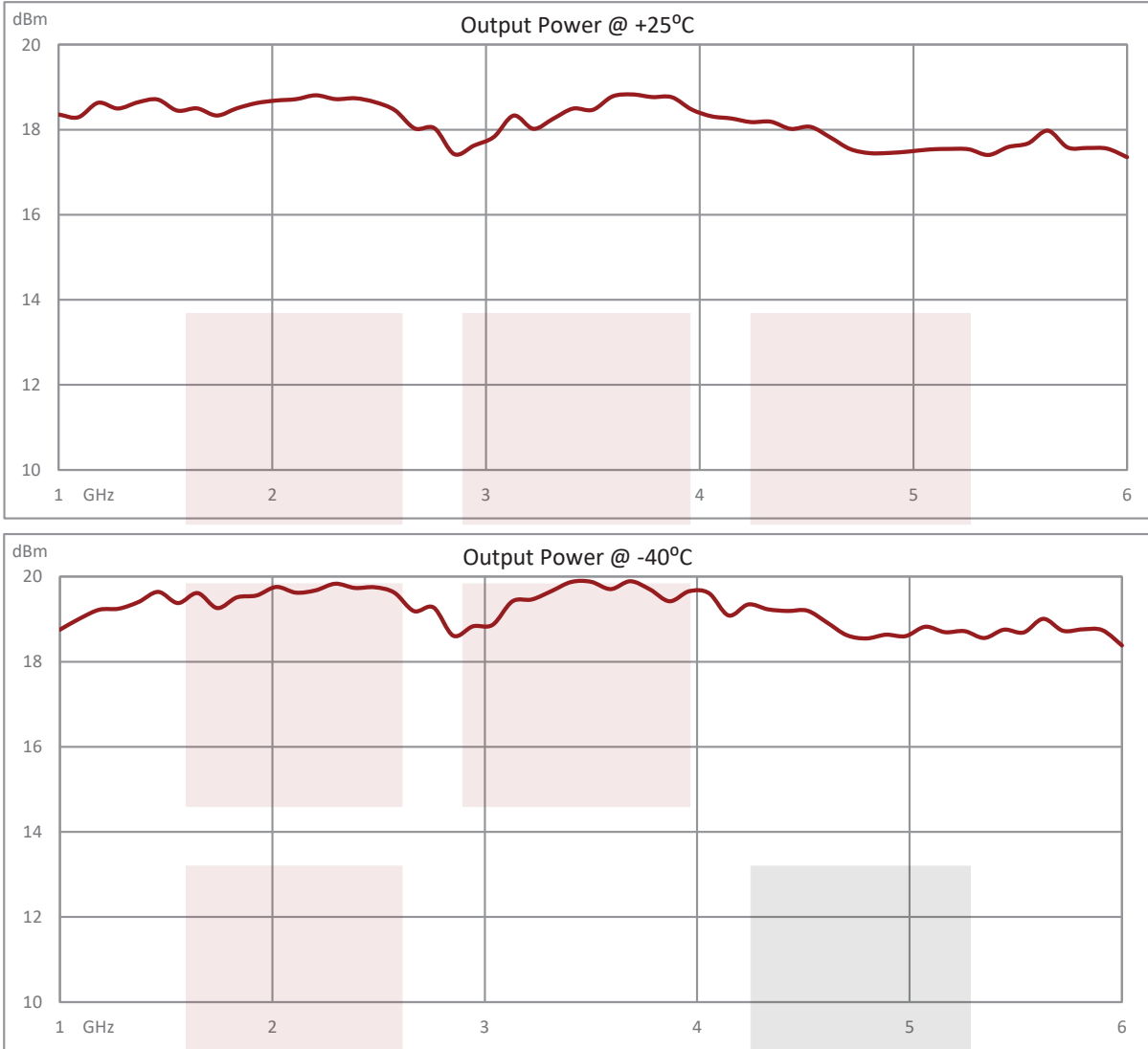
**Compliance Certifications** (see [product page](#) for current document)

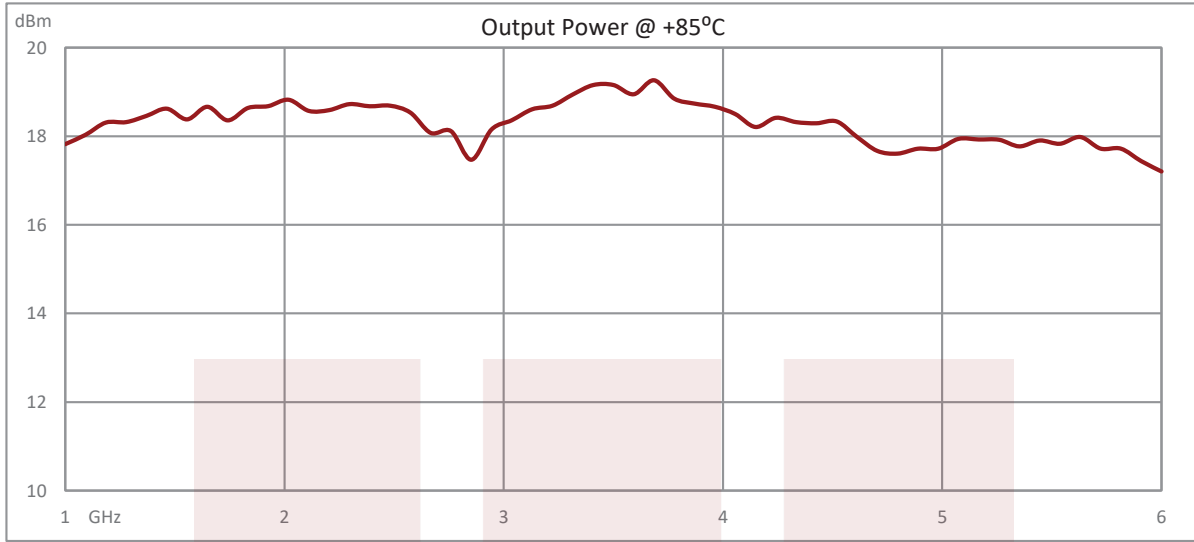
**Plotted and Other Data**

Notes:



**Typical Performance Data**





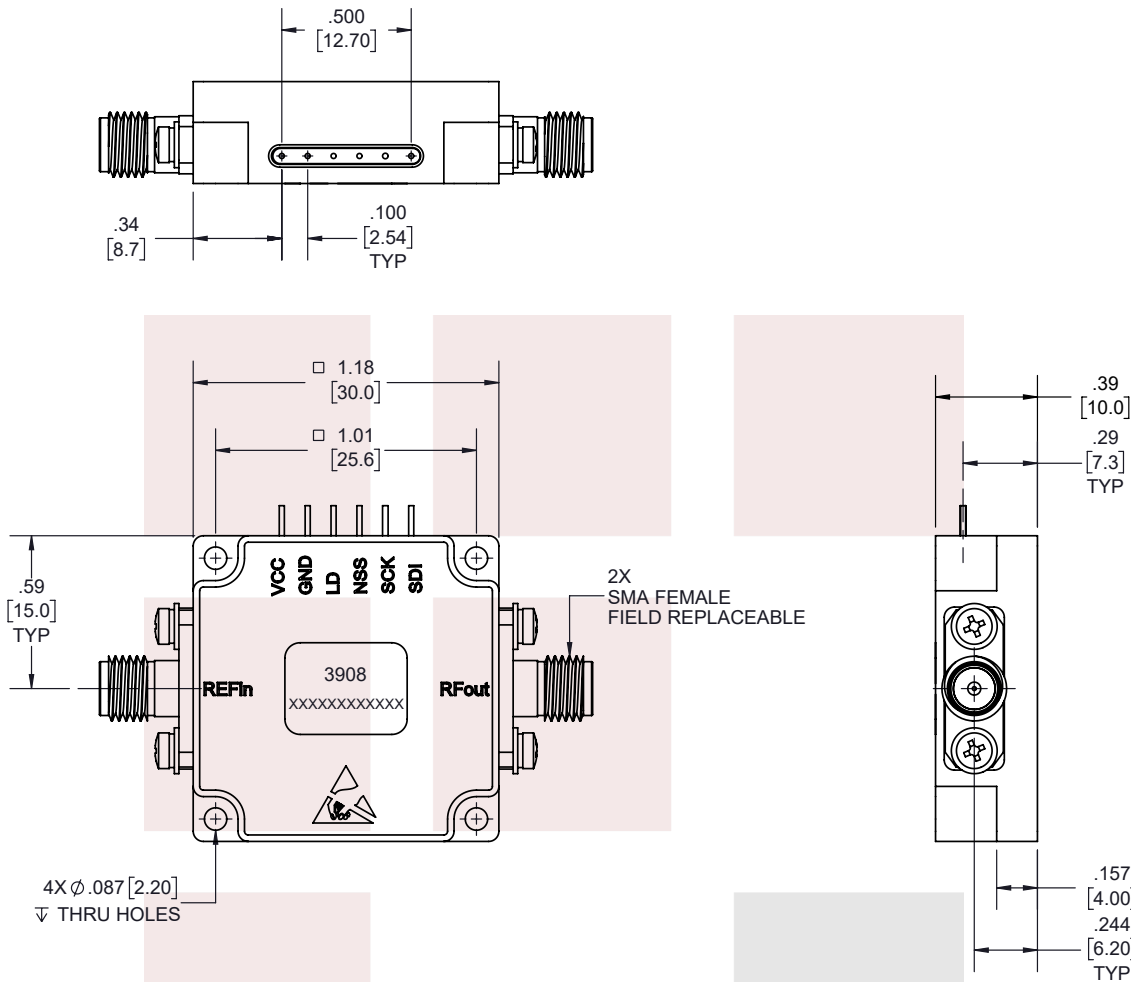
SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 25 MHz Step Size, 100 MHz External Ref. Phase Noise -90 dBc/Hz, +5 Vdc, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SPI Frequency Synthesizer, 1 GHz to 6.4 GHz, +18 dBm Pout, 25 MHz Step Size, 100 MHz External Ref. Phase Noise -90 dBc/Hz, +5 Vdc, SMA FMSN3908](https://www.fairviewmicrowave.com/spi-frequency-synthesizer-pll-1-6.4-ghz-sma-fmsn3908-p.aspx)

URL: <https://www.fairviewmicrowave.com/spi-frequency-synthesizer-pll-1-6.4-ghz-sma-fmsn3908-p.aspx>

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| REVISIONS |                 |          |          |
|-----------|-----------------|----------|----------|
| REV.      | DESCRIPTION     | DATE     | APPROVED |
| A         | INITIAL RELEASE | 5/3/2022 | T. GALLA |



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

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TITLE

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

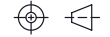
TOLERANCES:

.X = ±.2 [5.08] FRACTIONS  
.XX = ±.02 [.51] ± 1/32  
.XXX = ±.005 [.13] ANGLES ± 1°

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%L / -0

THIRD-ANGLE PROJECTION



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SHEET 1 OF 1

SCALE N/A

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

|           |                    |                    |                      |          |
|-----------|--------------------|--------------------|----------------------|----------|
| SIZE<br>A | CAGE CODE<br>3FKR5 | DRAWN BY<br>K.DANG | ITEM NO.<br>FMSN3908 | REV<br>A |
|-----------|--------------------|--------------------|----------------------|----------|

T-Rev.D