Model MFS0218 Low Phase Noise 1μsec Fast Indirect Synthesizer

- **High Speed: 1 μsec**
- **Wide Frequency Range: 2 to 18 GHz**
- **Low Phase Noise**
- **Small Size**
- **High Reliability**
- **Severe Environmental Conditions**

Synthesizer Model MFS0218

developed with Mitron

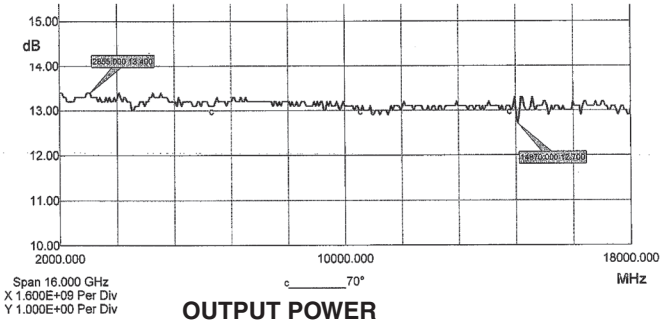
Model MFS0218 Low Phase Noise Fast Indirect Synthesizer

Herley General Microwave and Mitrion have developed the model MFS0218 fast, broadband, low phase noise and small size synthesizer. It started as an IR&D program to meet the needs of a general purpose 1 μsec synthesizer at an affordable price, compared to the very expensive direct synthesizer that are available today. The need for this type of synthesizer exists for both military and non-military applications.

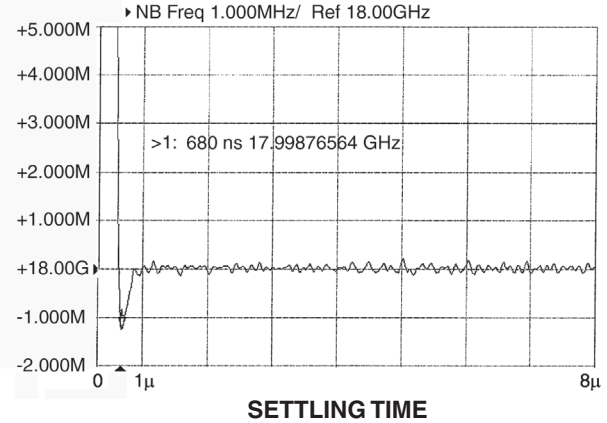
For military applications it can be used for EW systems such as RWR, ESM and SIGINT. It's small size makes it a good choice for compact EW system for UAV applications and for other small size platforms. In non-military applications, it can be used as a test source for test equipment and test systems in laboratories.

It's high speed makes it a good choice for non military applications, such as broadband test streams. Where testing is required at many frequencies

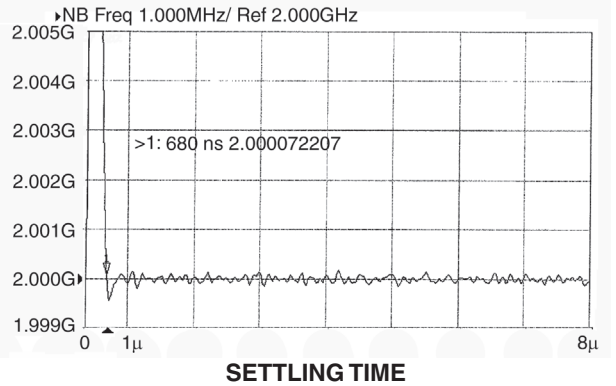
The implementation of this type of synthesizer could be both as the local oscillator of the system and as the source for the BIT subsystem.



OUTPUT POWER



SETTLING TIME
FROM 2 to 18 GHz



SETTLING TIME
FROM 18 to 2 GHz

Model MFS0218 Specifications

MODEL MFS0218 SYNTHESIZER SPECIFICATIONS

		SPECIFICATION
	PARAMETER	**MODEL MFS0218**
1	**FREQUENCY RANGE (GHz)**	2 to 18 (1)
2	**ACCURACY**	Same (PPM) as of the reference crystal oscillator
3	**FREQUENCY AGING**	Same (PPM) as of the reference crystal oscillator
4	**OUTPUT POWER**	
4.1	Min. (dBm) (1)	10
4.2	Variation, over temperature, max. (dB)	±2.5
5	**SETTLING TIME , max. (µsec)**	1
6	**SSB PHASE NOISE, max (dBc/Hz)**	
6.1	@ 100 Hz Offset (2)	–77
6.2	@ 1 kHz Offset (2)	-90
6.3	@ 10 kHz Offset (2)	-105
6.4	@ 100 kHz Offset (2)	-105
6.5	@ 1 MHz Offset	-105
6.6	@ 10 MHz Offset	-110
7	**HARMONICS, max (dBc)**	–20
8	**SUB-HARMONICS, max (dBc)**	–50
9	**SPURIOUS, max (dBc)**	–50
10	**PULLING @ VSWR 2 :1 max (kHz)**	<1
11	**PUSHING, max (kHz/V)**	± 1
12	**FREQUENCY CONTROL**	21 BITS (PARALLEL)
13	**FREQ. STEP SIZE, nominal LSB (kHz)** (1)	10
14	**REFERENCE CRYSTAL OSCILLATOR - EXTERNAL** (3)	
14.1	**INPUT FREQUENCY, (MHz)**	100
14.2	**INPUT POWER, (dBm)**	0 ±2
15	**POWER SUPPLY REQUIREMENT, (mA):**	
	+12V ±5%	1,600
	–12V ±5%	300
	+5V ±5%	1,500
16	**POWER CONSUMPTION, max (W)**	30
17	**OPERATING TEMP.** (°C) (1)	-20 to +70
18	**OTHER ENVIRONMENTAL PARAMETERS**	APPLICABLE FOR AIRBORNE APPLICATIONS
19	**DIMENSIONS, Inches (mm)**	6 x 6 x 1.1, (152.4 x 152.4 x 27.9)

(1) Other Parameters are Optional
(2) With an external reference oscillator with the following phase noise dBc/Hz:
@ 100 Hz Offset: -130
@ 1 kHz Offset: -155
@ 10 kHz Offset: -160
@ 100 kHz Offset: -165
(3) Internal Reference Optional

Model MFS0218 Specifications

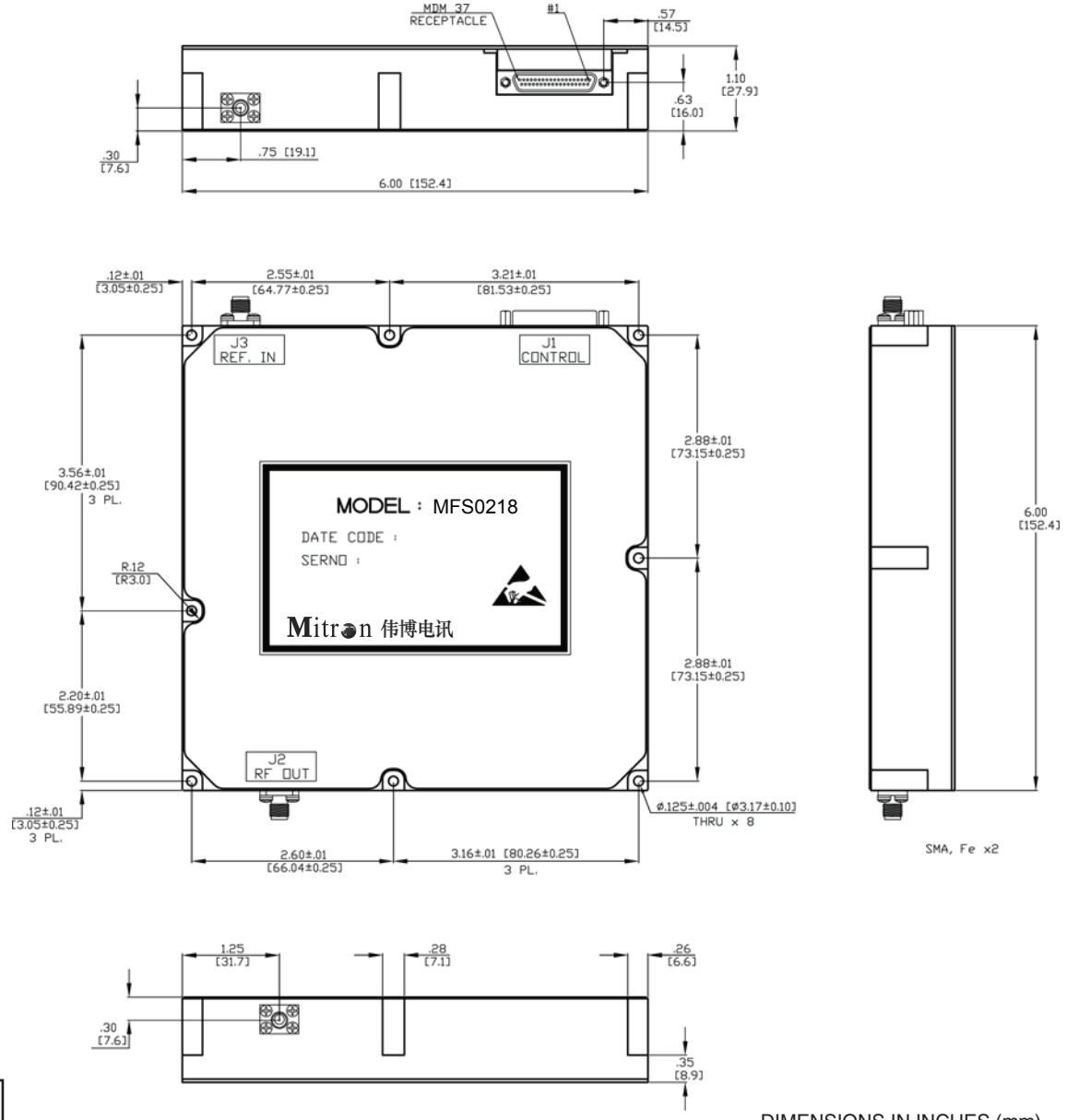
ENVIRONMENTAL CONDITIONS

1. **Storage Temperature** **-40oC to +120oC**
2. **Mechanical Shock** **MIL STD-202F, Method 213B, Cond. B (75G, 6 msec)**
3. **Vibration** **MIL STD-202F, Method 204D, Cond. B (.06" double amplitude or 15G, whitchever is less)**
4. **Humidity** **MIL STD-202F, Method 103B, Cond. B (96 hrs. at 95%)**
5. **Altitude** **MIL-STD-202F, Method 105C, Cond. B (50,000 ft.)**

AVAILABLE OPTIONS

Option No.	Description
G01	Internal Reference Crystal Oscillator
G02	Operating Temparature -40(°C) to +70(°C)

DIMENSIONS and WEIGHT



Weight (Approx.): 1,0 Kg (2.2 Pounds)

DIMENSIONS IN INCHES (mm)

Pin Assignment for Connector J1

Pin Assignment for Connector J1:			
Pin No.	**Signal Name**	**Pin No.**	**Signal Name**
1	Strobe	20	+12V
2	_12V	21	+12V
3	GND	22	GND
4	+5V	23	+5V
5	+5V	24	GND
6	GND	25	-12V
7	-12V	26	Frequency Bit 0
8	Frequency Bit 1	27	Frequency Bit 2
9	Frequency Bit 3	28	Frequency Bit 4
10	Frequency Bit 5	29	Frequency Bit 6
11	Frequency Bit 7	30	Frequency Bit 8
12	Frequency Bit 9	31	Frequency Bit 10
13	Frequency Bit 11	32	Frequency Bit 12
14	Frequency Bit 13	33	Frequency Bit 14
15	Frequency Bit 15	34	Frequency Bit 16
16	Frequency Bit 17	35	Frequency Bit 18
17	Frequency Bit 19	36	Frequency Bit 20
18	N.C. (1)	37	N.C. (1)
19	Lock Indicator		

Note:

(1) For factory use only. All N.C. pins should not be connected