

Synthesizers

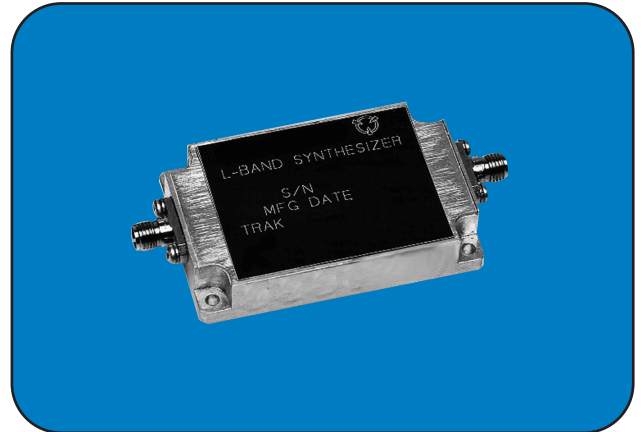
Catalog, Indirect Synthesizers 0.4 - 4.95 GHz

Model: SYN 60-000 Series



Features:

- Small Size
- Versatile Design
- Wide Range of Options



Electrical Specifications

Frequency Range:	0.4 to 4.95 GHz
Operating Bandwidth:	See Table 1
Output Power:	+ 8 dBm, minimum
Frequency Stability:	Same as Ref. input
Input Reference: ^{Note 1}	
Frequency –	10 to 100 MHz
Power –	+ 3 to + 9 dBm
	(Sine or TTL, 50 ohm)
Step Size:	200 kHz to 50 MHz
Switching Speed:	See Table II
Phase Noise:	See Figure 1
Output VSWR:	2.0:1, typical
Harmonics:	- 15 dBc, maximum
Spurious:	See Table II
Power Supply:	+ 14 to 18 volts
DC Current:	See Table I
BITE Scheme:	Phase Lock ("0" = lock)
Digital Control:	Parallel, TTL

Note 1: K is a ratio of the input reference signal divided by the selected step size as defined below:

Group A: $K = \frac{\text{Ref. Signal}}{\text{Step Size}}$

Group B: $K = 1/2 [\text{Ref. Signal}/\text{Step Size}]$

Group C: $K = 1/4 [\text{Ref. Signal}/\text{Step Size}]$

K must be an even divisible and be a number over the range of 1 to 1023.

The output noise will degrade if $K < 10$.

Environmental Specifications

Standard Operating Temperature: 0 to + 70 °C
(See Options)

Mechanical Specifications

Size: See Packages
RF Connectors: SMA or GPO

Options

Extended Operating Temp.: - 54 to + 85 °C

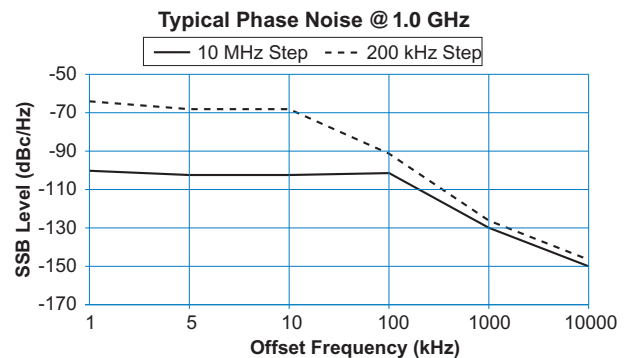


Figure 1

Specifications subject to change without notice.

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TABLE I – MODEL NUMBER SELECTION GUIDE

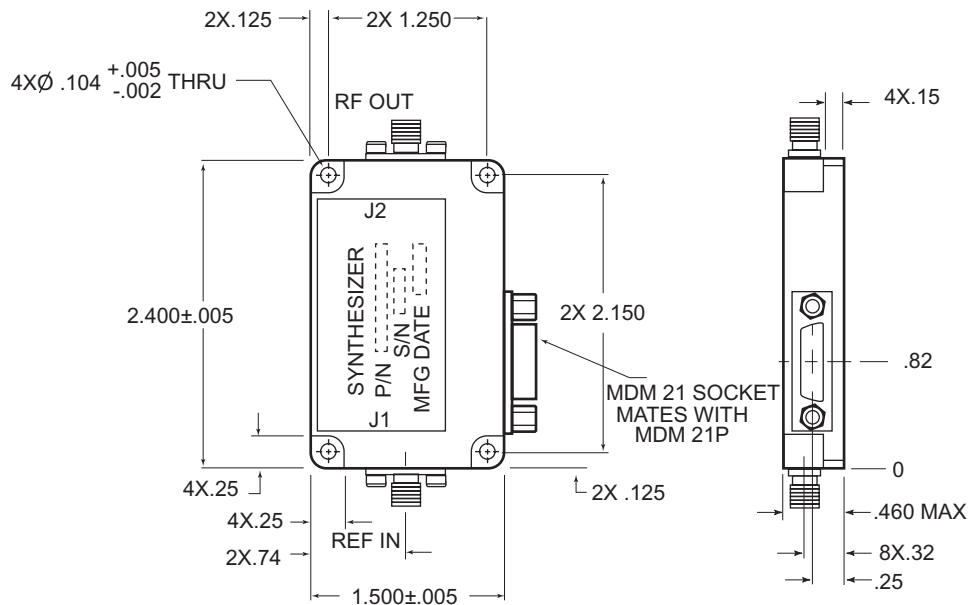
Frequency Range (GHz)	Model Number	Current (mA, maximum)	Group
0.4 to .6	60-000-9X00-000	320	A
.6 to .9	60-000-9X01-000	320	A
.9 to 1.25	60-000-9X02-000	320	A
1.25 to 1.6	60-000-9X03-000	320	A
1.6 to 2.1	60-000-9X04-000	340	B
2.1 to 2.5	60-000-9X06-000	340	B
2.2 to 2.8	60-000-9X07-000	380	C
2.7 to 3.25	60-000-9X08-000	380	C
3.1 to 3.75	60-000-9X09-000	380	C
3.75 to 4.35	60-000-9X10-000	380	C
4.35 to 4.95	60-000-9X11-000	380	C

TABLE II – STEP SIZE DESIGNATOR

Step Size (MHz)	Switching Speed (μs, maximum)			Spurious (dBc, maximum)	Designator Number
	Group A	Group B	Group C		
.2	1200	2400	4800	- 55	1
.5	600	1200	2400	- 55	2
1	300	600	1200	- 55	3
2	150	300	600	- 60	4
5	100	200	400	- 60	5
10	50	100	200	- 60	6
20	25	50	100	- 65	7
50	25	50	100	- 65	8

TABLE III - PIN Descriptions

Pin No.	Description
1	BIT 1
2	BIT 2
3	BIT 3
4	BIT 4
5	BIT 8
6	No Connection
7	BIT 10
8	No Connection
9	No Connection
10	No Connection
11	BIT 12
12	+ 15 Vdc
13	Ground
14	BIT 0
15	LOCK (Logic 0 = Lock)
16	BIT 5
17	BIT 6
18	BIT 7
19	BIT 9
20	BIT 11
21	BIT 13



Ordering Information:

Specify the Model Number from Table I by replacing the "X" with the desired step size designation number from Table II. Designate extended operating temperature option by changing the last three digits of the model number from -000 to -002. Example: Model 60-000-9100-002 is a .4 to .6 GHz synthesizer with 0.2 MHz step size and extended operating temperature option.

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