

Synthesizers

2126 Fast Switching Synthesizer

AEROFLEX
A passion for performance.



- <100 microsecond switching
- Low phase noise -130 dBc/Hz
- 1 Hz resolution
- Low spurious
- BCD/GPIB programming available

The Aeroflex 2126 RF source represents a milestone in Synthesizer development and reflects years of design experience in Fast Switching Synthesis. Designed specifically to meet the needs of today's Telecommunications industry, this high speed source offers a cost effective solution without sacrificing performance. The source covers a frequency range of 4.5 MHz to 6.0 GHz with a switching speed of 100 Microseconds. Spurious levels are greater than -65 dBc and Phase noise at 1.0 GHz is greater than -130 dBc/Hz at 10 KHz offset.

SPECIFICATIONS

Frequency Range

4.5 to 6010 MHz

Step size

1 Hz - 4.5 to 1999 MHz

2 Hz - 2000 to 3999 MHz

4 Hz - 4000 to 6010 MHz

Power Output

+7 dBm

Flatness

± 1.5 dB

Output Isolation

25 dB minimum between ports

<5 μ s switching time between ports

VSWR

1.8:1

External Reference

10 MHz, 3 dBm ± 4 dB, 50 Ohms

Frequency Stability

Same as Reference Oscillator

Reference Output

10 MHz, +3 dBm ± 2 dB, 50 Ohms

Phase Noise of External Reference

-130 dBc/Hz	100 Hz offset
-140 dBc/Hz	1 kHz offset
-143 dBc/Hz	10 kHz offset
-145 dBc/Hz	50 kHz offset

Switching Time

<100 μ s to within 1.0 radian of final phase

Output Phase Noise

OFFSET	<250 MHz	25 to <.5 GHz	0.5 to <1.0 GHz	1.0 to <2.0 GHz	2.0 to <4.0 GHz	4.0 to <6.0 GHz
	Typ. Guar.	Typ. Guar.	Typ. Guar.	Typ. Guar.	Typ. Guar.	Typ. Guar.
10 KHZ	-125 -122	-135 -132	-131 -127	-125 -122	-119 -116	-113 -110
20 KHZ	-127-124	-137-133	-133 -129	-127 -124	-121 -118	-115 -112
100 KHZ	-128 -125	-138 -134	-134 -130	-128 -123	-122 -118	-116 -113

Noise Floor (10 MHz Offset)

-140 dBc/Hz	4.5 to 180 MHz
-145 dBc/Hz	180 to 1000 MHz
-147 dBc/Hz	1000 to 2000 MHz
-138 dBc/Hz	2000 to 4000 MHz
-134 dBc/Hz	4000 to 6010 MHz

Harmonics

-25 dBc maximum 4.5 to 6010 MHz

Subharmonics

-60 dBc, Typical

-50 dBc Max except for components at FC noted below

@ FC=4.0 to 4.25, 5F/2 may be -45 dBc

@ Offsets = \pm 2.8 MHz from the carrier, spurs will be as follows:

FC <180 MHz: -60 dBc

180 MHz < FC < 1.0 GHz: -66 dBc

1.0 GHz < FC < 2.0 GHz: -60 dBc

2.0 GHz < FC < 4.0 GHz: -54 dBc

4.0 GHz < FC < 6.01 GHz: -48 dBc

For 1.0 GHz < FC < 2 GHz, fixed spurs at the following frequencies may be -60 dBc: 1175, 1225, 1275, 1325, 1375, 1425, 1475, 1525, 1575 & 1625 MHz

Spurious

-65 dBc maximum 4.5 to 2000 MHz

-60 dBc maximum 2000 to 4000 MHz

-55 dBc maximum 4000 to 6010 MHz

For FC less than 180 MHz a spur may exist between 1609 MHz and 1960 MHz at -35 dBc:

A fixed 800 MHz spur may exist at -60 dBc all carrier frequencies

Residual FM

<7 Hz	4.5 to 2000 MHz
<16 Hz	2000 to 4000 MHz
<32 Hz	4000 to 6010 MHz

Frequency Control

Parallel BCD positive or negative true with strobe. Strobe normally low, trigger on trailing edge

GPIO (IEEE-488)

Output Fault

TTL level logic, "1" normal operation

Remote on/off (RF)

0 MHz = Off

On/Off ratio < 25 dBc

Logic Connector

50 Pin receptacle, AMP 554216-3

Initialization

Unit will initialize with RF Off

Random Vibration

10 to 300 Hz @ 1.2G RMS

Power

Autoranging: 50-60 Hz , 100 to 130, 180 to 250 VAC

Dimensions

19.0" W X 3.5" H X 22.28" D (Chassis Width 16.72")

Temperature Range

+10 to +45 $^{\circ}$ C

PROGRAMMING INPUT (BCD CONNECTOR)

SIGNAL	PIN	PIN	SIGNAL
Logic Ground	50	25	NC
400 MHz	49	24	Strobe
NC	48	23	NC
NC	47	22	NC
NC	46	21	Chassis Ground
Fault	45	20	8 MHz
200 MHz	44	19	4 MHz
100 MHz	43	18	2 MHz
1 Hz	42	17	1 MHz
80 MHz	41	16	20 MHz
40 MHz	40	15	10 MHz
MUX	39	14	2 GHz
800 MHz	38	13	1 GHz
8 Hz	37	12	2 Hz
4 Hz	36	11	4 GHz
80 Hz	35	10	20 Hz
40 Hz	34	9	10 Hz
800 Hz	33	8	200 Hz
400 Hz	32	7	100 Hz
8 kHz	31	6	2 kHz
4 kHz	30	5	1 kHz
80 kHz	29	4	20 kHz
40 kHz	28	3	10 kHz
800 kHz	27	2	200 kHz
400 kHz	26	1	100 kHz

Note: Mating Connector is 3M P/N 3564-1001 (50 Pin Ribbon. Bail mount, Plug)

For the very latest specifications visit www.aeroflex.com

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