

FEATURES

- Superior Integrated Phase Noise (2kHz - 50 MHz)
- 1 kHz Step Size
- External Reference 1-200 MHz (Optional)
- Excellent Error Vector Magnitude (EVM Performance)
- 5 Line Serial & USB Control

DESCRIPTION

The **ML5G-Series** of YIG-Based wideband synthesizers are ideal as the main local oscillators in receiving systems, frequency converters and test and measurement equipment. They provide 1 kHz frequency resolution over the 6 to 21 GHz frequency range. Power levels of +13 dBm are provided through out the series and full band tuning speed is 7 mSec. The units are 5" x 3" x 1" high and fit a 2 slot PXI chassis.

APPLICATIONS

Test Equipment
Local Oscillators
Frequency Converters



PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: 0° to +60° C Baseplate) (Note 1)

Model No.	ML5G-0618	ML5G-0820	ML5G-1021
RF Specifications			
Output Frequency	6 - 18 GHz	8 - 20 GHz	10 - 21 GHz
Output Power Min.	+13 dBm	+13 dBm	+13 dBm
Po Variation over Freq/Temp	6 dB	6 dB	6 dB
Step Size, Min.	1 kHz	1 kHz	1 kHz
Switching Speed, 100 MHz Step, Typ.	1 mS	1 mS	1 mS
1000 MHz Step, Typ.	3 mS	3 mS	3 mS
Full Band Step, Typ.	6 mS	7 mS	7 mS
Warm-up Time ("Lock") @ 0C (Minutes) (with Internal Crystal Reference)	3.0	3.0	3.0
Output Impedance	50 Ohms	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1	2.0:1
Harmonics	-12 dBc	-12 dBc	-12 dBc
Non-Harmonic Spurious			
100 Hz f off ≤500 kHz	-60 dBc	-60 dBc	-60 dBc
> 500 kHz	-80 dBc	-80 dBc	-80 dBc
Phase Noise Performance (dBc/Hz)			
(with Internal Crystal Reference)			
@ 100 Hz Offset	-72	-70	-70
@ 1 kHz Offset	-89	-87	-86
@ 10 kHz Offset	-91	-88	-87
@ 100 kHz Offset	-115	-115	-114
@ 1 MHz Offset	-138	-138	-136
@ 10 MHz Offset	-158	-157	-155
@ 100 MHz Offset	-164	-163	-162

ML5G PERFORMANCE SPECIFICATIONS (Continued)

Model No.	ML5G-0618	ML5G-0820	ML5G-1021
Integrated Phase Noise @ 18/20 GHz			
Performance (2 kHz to 50 MHz)	-53 dBc	-52 dBc	-52 dBc
RMS Jitter	29 f sec	28 f sec	28 f sec
Reference Oscillator Options			
Option A			
External Reference (Note 2)	1 - 200 MHz	1 - 200 MHz	1 - 200 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability (< +/- 20ppm)	Cust Supplied	Cust Supplied	Cust Supplied
Option B			
External Reference with Internal Crystal (Note 3)	1 - 100 MHz	1 - 100 MHz	1 - 100 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability (Note 5)	Cust Supplied	Cust Supplied	Cust Supplied
Option C			
Internal Reference	100 MHz	100 MHz	100 MHz
Frequency Stability	+/- 1 PPM	+/- 1 PPM	+/- 1 PPM
Supply Voltage & Current (Note 4)			
+15 Vdc (± 0.5 Vdc)	1375 mA	1800 mA	1900 mA
+5 Vdc (± 0.25 Vdc)	300 mA	300 mA	300 mA
Power dissipation	22.1 watts	31 watts	33 watts
Supply Voltage Ripple			
(Pk-Pk from 60 Hz to 3 MHz)	<50 mV	<50 mV	<50 mV
Control Format			
	5-Line Serial	5-Line Serial	5-Line Serial
	USB	USB	USB
Phase Lock Alarm (P13) (TTL)			
	1=Locked	1=Locked	1=Locked
Weight			
	15 oz / 426 g	15 oz / 426 g	15 oz / 426 g

ML5G Options:

Option A: External Reference / No Internal Reference

Option B: Internal Reference / External Reference

Option C: Internal Reference / No External Reference, Drawing 181-003 & 181-004

Option D: RF Connectors Front, Drawing 181-001

Option E: RF Connectors Side, Drawing 181-002

Part Number Example: ML5G-0820BD 8 GHz to 20 GHz with Internal Reference and External Reference with RF connectors on front.

Notes:

- 1) Special operating temperature range available.
- 2) 50-100 MHz OCXO recommended for best phase noise performance. External reference directly effects phase noise performance.
- 3) Output phase noise performance is not dependent on external reference phase noise.
- 4) All values stated for units with external reference. For internal reference add 125mA on the +15 Vdc line.
- 5) Frequency accuracy must be within exact reference frequency selected, +/- 5ppm.