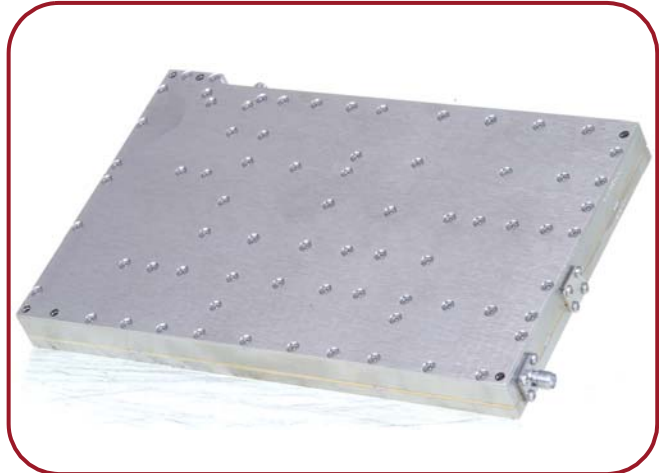


# ULTRA WIDE BAND FREQUENCY SYNTHESIZER

## UWB SERIES: 4.5–13 GHz

### FEATURES

- Multi-octave wide operation
- Fast Switching Speed
- Low power dissipation
- Wide selection of fixed LO
- MIL-STD-188-164A microphonic compliant
- ETSI 300019-1-4 compliant
- Ideal for YIG replacement
- Superior phase noise without YIG heat



MITEQ's UWB series synthesizers are designed as a replacement for YIG based synthesizers, without the power dissipation and microphonics. Available in 4.5 – 13 GHz range, the ultra wide synthesizer is ideal for ELINT, test translation and instrumentation. Fast switching time coupled with low power dissipation makes this series an ideal replacement for YIG based broadband synthesizers.

### ELECTRICAL SPECIFICATIONS

	Tunable	Fixed LO (Note 2)
Output Frequency Range (Note 1)	4.5 – 13 GHz	2160 MHz
Step Size	1 kHz (Note 3,4)	
Output Power	+13 dBm minimum	+13 ±2 dBm
Output Power Variation	±2 dB maximum	
Input Reference Frequency	10 MHz (Note 5)	
Input Power Level	0 ±3 dBm	
Spurious Outputs		
In-band	-65 dBc typical	-80 dBc typical
Out-of-band	-70 dBc typical	-70 dBc typical
Phase Noise	See Graph (Note 6)	
Offset from carrier	Typical @ 12 GHz	@ 2160 MHz
10 Hz	-60 dBc	-68 dBc
100 Hz	-71 dBc	-95 dBc
1 kHz	-80 dBc	-100 dBc
10 kHz	-90 dBc	-100 dBc
100 MHz	-96 dBc	-110 dBc
1 MHz	-105 dBc	-135 dBc
10 MHz	-130 dBc	-145 dBc
Output Harmonic	-15 dBc typical	-20 dBc typical
Output Impedance	50 ohm nominal	
Load VSWR	1.5:1 maximum, all phases	
Regulation	±5%	
Noise and Ripple	10 mV, p-p maximum	
Frequency Control	Parallel BCD with strobe	
Acquisition time (to phase lock)	250 µs typical (While In Band) 750 µs maximum (Band Switching)	

# ULTRA WIDE BAND FREQUENCY SYNTHESIZER

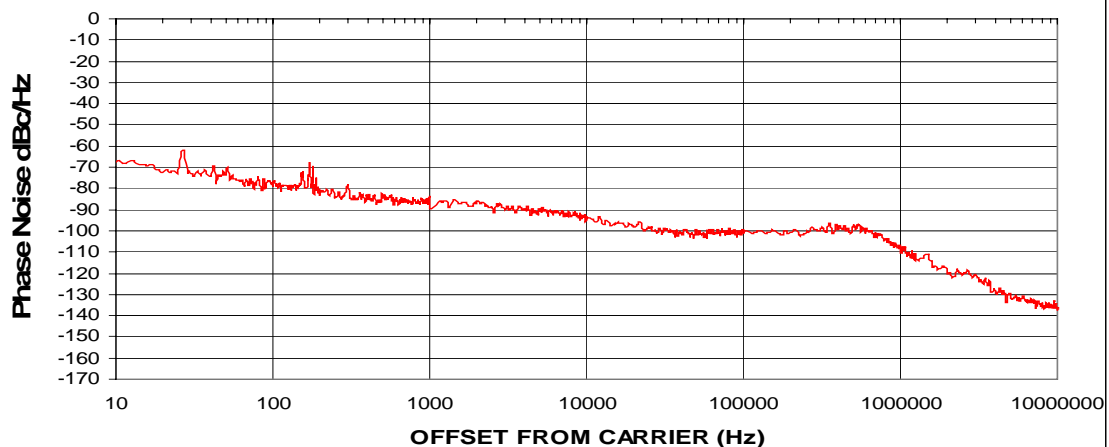
## ELECTRICAL SPECIFICATIONS (CONT.)

	Tunable	Fixed LO (Note 2)
Summary alarm	In lock TTL 1	
VCO lock voltage	1 – 15 volts	
DC power	+15 volts, 0.4 amps typical +5.2 volts, 1.6 amps typical	
Outline Drawing	164794	

### Notes:

1. Custom frequency bands available, please contact MITEQ.
2. Fixed LO frequencies available from 2,000 to 3,000 MHz in 10 MHz intervals.
3. Frequency accuracy  $\pm 17\text{Hz}$
4. Custom step size available, consult MITEQ.
5. Other reference frequency options available, please contact MITEQ.
6. Close in phase noise dependent on reference.
7. Wider operating temperature ranges are available, please contact MITEQ.

## UWB NOISE AT 12 GHz



UWB \_   .    \_   .    \_ \_ \_ \_

Series

Start Frequency

Stop Frequency

Step Size kHz (from 1k)

Step Size Units M or K (MHz or KHz)

LO Frequency MHz (2000 – 3000)

Reference Frequency MHz (10 or 20)/I (INTERNAL)

**EXAMPLE:** Part Number UWB – 4.5 – 12.5 – 1k – 2160 – 10M for frequency synthesizer covering 4.5 to 12.5 GHz with a step size of 1 kHz having a fixed LO of 2160 MHz with 10 MHz external reference.



# ULTRA WIDE BAND FREQUENCY SYNTHESIZER

## MECHANICAL SPECIFICATIONS

Outline drawing ..... 164794  
 Size ..... 8" x 5" x 0.71"  
 Weight ..... 1.5 pounds typical  
 RF connectors ..... SMA female  
 DC power connector ..... JST™ 7-pin header  
 Control connector ..... 34-pin header

## ENVIRONMENTAL SPECIFICATIONS

Temperature  
 Operating ..... -10 to +65°C (Note 7)  
 Storage ..... -55 to +95°C  
 Humidity ..... Up to 95% at 40°C  
 noncondensing  
 Shock (nonoperating) ..... 30 g's, 10 ms pulse  
 Vibration (survival) ..... 20 to 2000 Hz  
 random to .04 G<sup>2</sup>/Hz  
 Altitude ..... Up to 13,500 feet  
 100% testing ..... Frequency range  
 Output power  
 Discrete power  
 Spectral purity  
 Phase bursts  
 Alarm and monitors  
 100% screening ..... Temperature cycle/monitor

## OUTLINE DRAWING

### 164794 UWB SERIES

