

BTE SERIES Ku-BAND FREQUENCY SYNTHESIZER

BTE SERIES:

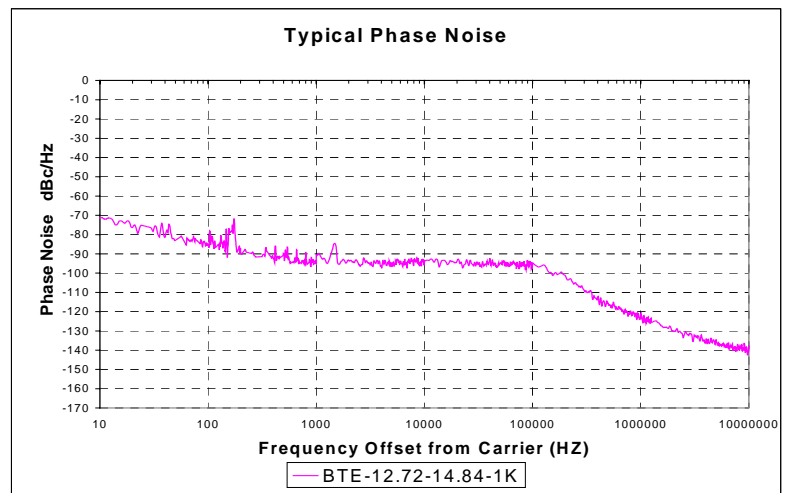
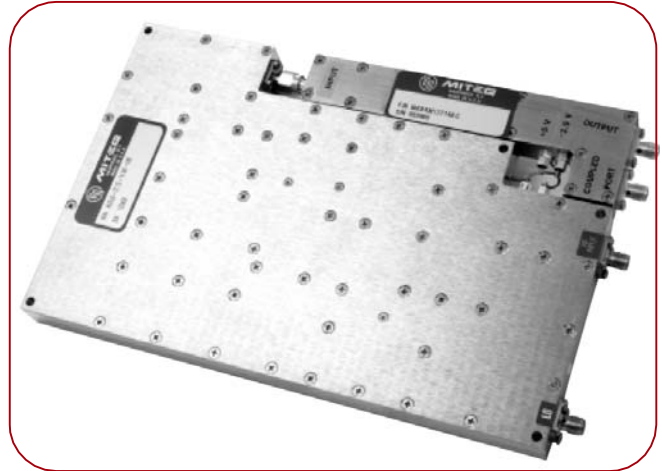
12.72 – 14.84 GHz

FEATURES

- 20dB below INTELSAT phase noise mask
- Ideal for use in dual conversion Up and down converters
- 1 kHz standard step size
- Error free operation
- Wide bandwidth
- Large selection of fixed LO frequencies
- MIL-STD-188-164A microphonic compliant
- ETSI300019-1-4 shock and vibe compliant

OPTIONS

- Custom frequency bands
- Wide selection of fixed LO frequencies
- High output power
- Custom step size
- Custom packing



MITEQ's BTE series of high spectral purity synthesizers offer a low price alternative for Ku-band INTELSAT satellite communications applications offering 20dB below INTELSAT phase noise mask. With standard 1kHz step size output at Ku-band with no error, the BTE series synthesizers are ideal for dual conversion up and down converters. With +13 dBm output power and 70 dBc spurious suppression, the BTE series will support the most stringent system applications. Low power dissipation leads to higher MTBF.

MECHANICAL SPECIFICATIONS

Outline drawing	180990
Size	8"x5"x0.7"
Weight.....	2 pounds typical
RF connectors.....	SMA female
DC power/control connector.....	JST 7pin header
Control connector	20-pin header 34-pin header (optional)

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating.....	-10 to +65°C (Note 5)
Storage.....	-55 to +95°C
Humidity.....	Up to 95% at 40°C noncondensing
Shock (nonoperational).....	30 Gs, 10 ms pulse
Vibration (survival).....	20 to 2000 Hz random to .04 G ² /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



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ELECTRICAL SPECIFICATIONS

Output frequency range (Note 1)	Tunable	Fixed LO (Note 2)
	12.72 – 14.84 GHz	1150 MHz 1080 MHz 2160 MHz
Step size	1 kHz	
Output power	+13 dBm minimum	+13 ±2 dBm
Output power variation	±2 dB maximum	
Input reference frequency	10 MHz (Note3)	
Input power level	0 ±3 dBm	
Spurious outputs		
In-band	-70 dBc minimum	-80 dBc minimum
Out-of-band	-65 dBc minimum	-70 dBc minimum
Phase noise	See graph (Note 4)	See graph
Offset from carrier		@ 2160 MHz
10 Hz	-62 dBc	-68 dBc
100 Hz	-70 dBc	-88 dBc
1 kHz	-87 dBc	-93 dBc
10 kHz	-91 dBc	-100 dBc
100 kHz	-91 dBc	-100 dBc
1 MHz	-111 dBc	-135 dBc
10 MHz	-135 dBc	-145 dBc
Harmonic output	-15 dBc	-20 dBc
Output impedance	50 ohm nominal	
Load VSWR	1.5:1 maximum, all phases	
Summary alarm	In-lock TTL 1	
VCO lock voltage	1 – 14 volts	
Frequency control	Serial RS485 (4 wire), Parallel BCD	
Acquisition time (to phase lock)	40 ms typical 100 ms maximum	
DC power requirements	+15.3 volts, 0.5 amps typical +5.3 volts, 1.0 amps typical	
Regulation	±5%	
Noise and ripple	10 mV p-p maximum	
Outline drawings	180990	

Note:

1. Custom frequency bands available, consult factory.
2. Optional fixed LO frequencies available from 600 to 3000 MHz in 10 MHz integers.
3. Other reference frequency option available, consult factory.
4. Close in phase noise dependent on reference.
5. Wider operating temperature ranges available.

ORDERING INFORMATION:

BTE - - - - - **M**

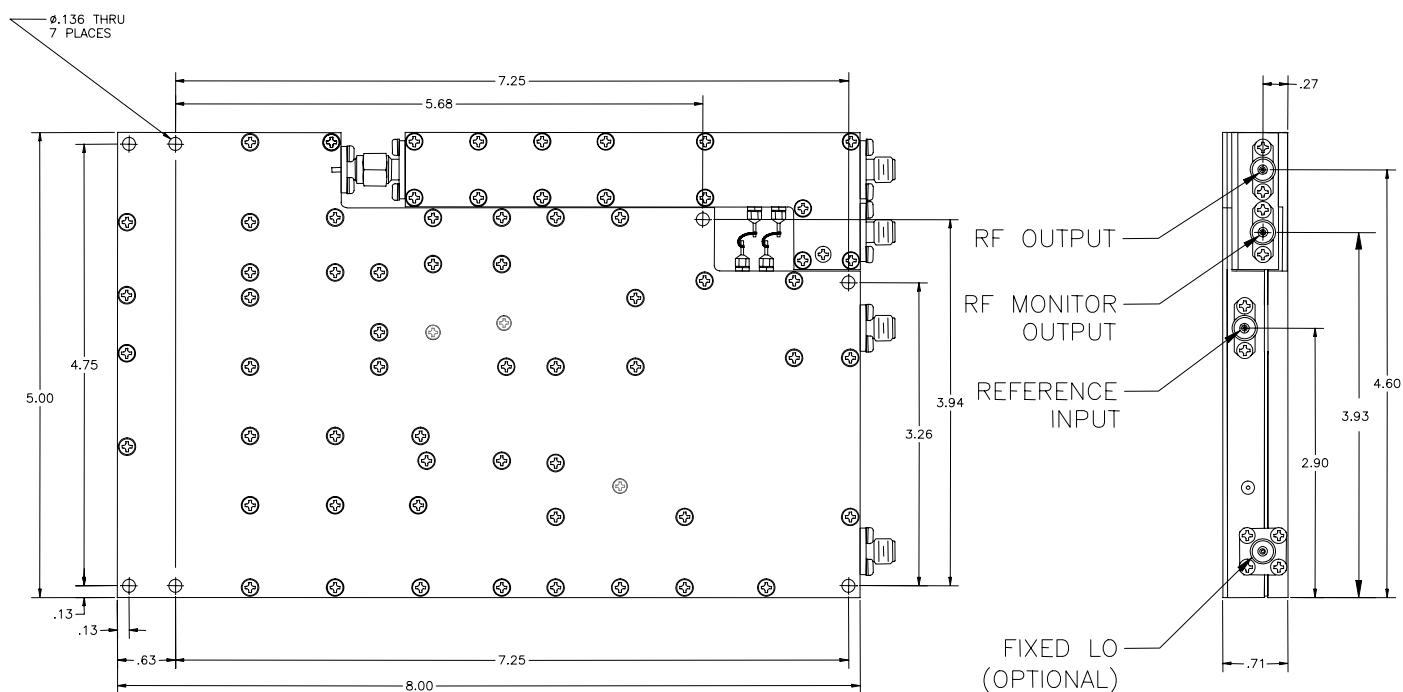
Start Freq.	Stop Freq.	Step Size	M or K (MHz/KHz)	Lo Freq. (MHz)	Ref. Freq. (MHz)
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Example: BTE-12.720-14.480-1K-1150-010M part number for frequency synthesizer covering 12.720 to 14.480 GHz with a step size of 1 KHz, a LO of 1150, and a reference frequency of 10MHz.



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BTE SERIES OUTLINE



J2 7 PIN CONNECTOR
DC POWER CONNECTIONS

PIN #	SIGNAL
1	+5.2V
2	GND
3	+15V
4	GND
5	PHASE VOLTAGE
6	GND
7	TTL ALARM

J1
OPTIONAL 34 PIN
PARALLEL CONNECTOR

DATA CONNECTION		DATA CONNECTION		DATA CONNECTION	
PIN 1	10 GHZ (8)	PIN 17	1 MHZ (8)	PIN 33	STROBE
PIN 2	10 GHZ (4)	PIN 18	1 MHZ (4)	PIN 34	GND
PIN 3	10 GHZ (2)	PIN 19	1 MHZ (2)		
PIN 4	10 GHZ (1)	PIN 20	1 MHZ (1)		
PIN 5	1 GHZ (8)	PIN 21	100 KHZ (8)		
PIN 6	1 GHZ (4)	PIN 22	100 KHZ (4)		
PIN 7	1 GHZ (2)	PIN 23	100 KHZ (2)		
PIN 8	1 GHZ (1)	PIN 24	100 KHZ (1)		
PIN 9	100 MHZ (8)	PIN 25	10 KHZ (8)		
PIN 10	100 MHZ (4)	PIN 26	10 KHZ (4)		
PIN 11	100 MHZ (2)	PIN 27	10 KHZ (2)		
PIN 12	100 MHZ (1)	PIN 28	10 KHZ (1)		
PIN 13	10 MHZ (8)	PIN 29	1 KHZ (8)		
PIN 14	10 MHZ (4)	PIN 30	1 KHZ (4)		
PIN 15	10 MHZ (2)	PIN 31	1 KHZ (2)		
PIN 16	10 MHZ (1)	PIN 32	1 KHZ (1)		

J1
34 PIN CONN
OPTIONAL PARALLEL
CONNECTOR

J2
7 PIN CONN.
JST P/N S7B-PH-KL

J1
20 PIN CONN
AMP P/N 104069-1

J1
20 PIN
DATA CONNECTOR

DATA CONNECTION	
PIN 2	WAKE UP
PIN 4	DATA OUT +
PIN 5	DATA OUT -
PIN 8	DATA IN +
PIN 9	DATA IN -
PIN 10	ALARM

