

TSA-216051

Ka-Band LNB

Airborne
Applications

**19.2 - 21.2 GHz
Low Noise Block**

EXPORT RESTRICTIONS MAY APPLY



Description

This K-Band Low Noise Block (LNB) is designed to meet the extended K-Band Satcom bands and is ideally suited for airborne or SWaP applications where size, weight and power are critical.

The unit provides 1.6dB Noise Figure over the full 2 GHz bandwidth from 19.2 to 21.2 GHz in 1 GHz electronically switchable bands. Options at time of order include internal or external 10 or 50 MHz ref in addition to a wide input voltage range. The unit also includes a digital attenuator and PLL lock indicator.

With a total weight of 1.1 lbs and approximate size of 5.5" x 3.5" x 0.96", the unit is ideal for today's integrated light weight Ka-Band terminals.

Features

- Small Size Weight and Power
- Supports both 10 MHz and 50 MHz Ref
- Internal Low G-Sensitivity Ref Options
- Wide Input Voltage Range
- Operates over 19.2 to 21.2 GHz
- Electronic Gain Control
- Internal Built in Lock Alarm
- Hermetically Sealed

Other Products

- Low Noise Block Converters (Ku & X-Band)
- Block Up Converters (Ku & X-Band)
- Low Noise Amplifiers (Ku & K-Band)
- Solid State Power Amplifiers (X, Ku & Ka-Band)
- Synthesizers (L, C or X-Band)

Teledyne Microwave Solutions
Aerospace & Defense Electronics



Specifications

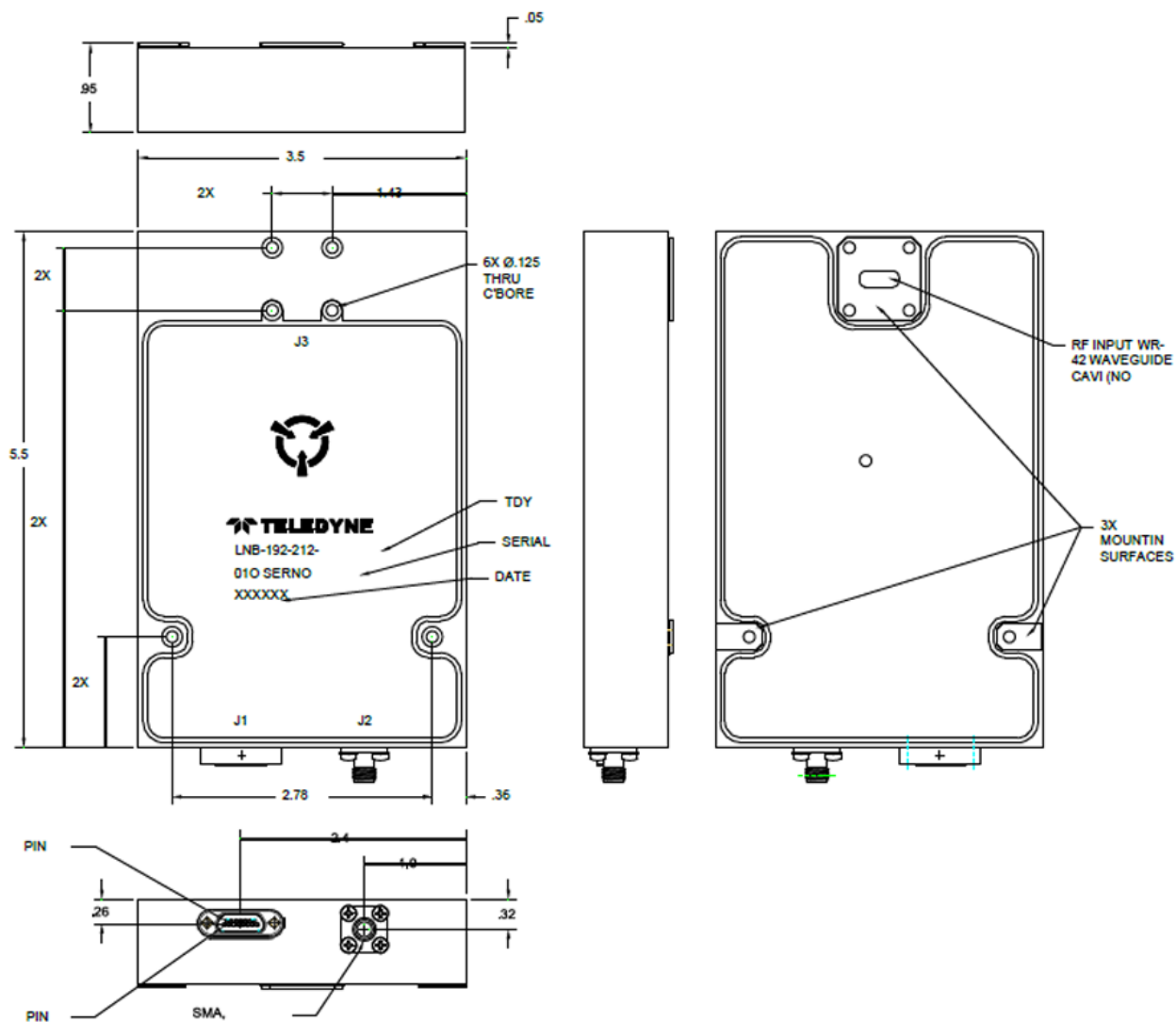
Parameter		Value
Input Frequency Range		(Switchable) 19.2 to 21.2 GHz
Input Power	1.5:1 Source VSWR	-90 to -25 dBm
Maximum Input Power ¹	No damage input	+10 dBm
Output Frequency Range	Switched LO, Low Side	1.0 to 2.0 GHz
Output Power, OP1dB	1.5:1 Load VSWR	+10 dBm min
Gain	Selectable	40, 50 or 60 dB
Spectrum Inversion	Receive	None
VSWR Input		1.5:1
VSWR Output		1.7:1
Noise Figure	+23°C	1.6 dB typ
Gain Variation	Over any 120 MHz IF Bandwidth	2.0 dBp-p
Gain Variation with Temperature	-30 to +60°C	±2.0 dB
OIP3	Linear gain, -5dBm output	+20 dBm
In-Band Spurious @ IF port	≤2.1 GHz, 0.1 GHz, -5 dBm out	-65 dBc min
Out of Band Spurious @ IF port	≤1.1 GHz, ≥2.1 GHz, -5 dBm out	-65 dBc min
LO Leakage @ RF port	18.2 GHz/19.2 GHz	-70 dBm max
LO Frequency	Switched LO, Low side	18.2 GHz
Phase Noise		
• 10 Hz Offset		-32 dBc/Hz
• 100 Hz Offset		-62 dBc/Hz
• 1 kHz Offset		-75 dBc/Hz
• 10 kHz Offset		-82 dBc/Hz
• 100 kHz		-92 dBc/Hz
• 1 MHz Offset		-105 dBc/Hz
• 10 MHz Offset		-112 dBc/Hz
Reference Clock Input Frequency	Option to be specified	10 to 50 MHz
Reference Clock Input Level ¹	25 °C	0 ±3 dBm
Reference Clock Waveform	50 Ohm load	Sinusoidal
External Clock Reference	10 Hz Offset	-120 dBc/Hz
Clock Phase Noise	100 Hz Offset	-150 dBc/Hz
Requirement	1 kHz Offset	-150 dBc/Hz
Input Voltage ¹		+12 to +36 VDC
Input Current	Steady State	600 mA max @ 24V
Output Connector		SMA(F) or N(F)
Input Interface	Waveguide Facing Mounting Surface	WR42
Size	Excluding Connectors	5.5" x 3.5" x 1.1"
Weight	Aluminum Chassis, 6061-T6	1.1 lbs max

Finish	Body Mounting Surface Waveguide Flange Surface	Painted Chem Film Chem Film
Operating Temperature		-55 to +85°C
Altitude²	Operational	≤60,000 ft
Shock²	RTCA DO-160G 6G	11ms Half Sine
Finish	Body	Electroless Nickel
Relative Humidity	Fully Hermetic	100%

Table 1: 15 Pin Micro-D Connector Pinout Description

J1: 15 PIN MICRO-D CONNECTOR PER MIL_DTL-83513/2	
PIN NO.	FUNCTION
J1-1	DC IN 12-32V
J1-2	CHASSIS GND
J1-3	GAIN SET 1
J1-4	GAIN SET 3
J1-5	BRAND SELECT (L=LOW, H=HIGH) TTL
J1-6	REFERENCE SIGNAL SET1
J1-7	REFERENCE SIGNAL SET 2
J1-8	RESERVED OPTIONAL 10 MHZ REF IN)
J1-9	DC IN 12-32V
J1-10	CHASSIS GND
J1-11	GAIN SET 2
J1-12	SYNTHESIZER LOCKOUT: +3.3V
J1-13	RESERVED (FACTORY USE ONLY)
J1-14	RESERVED (FACTORY USE ONLY)
J1-15	RESERVED (FACTORY USE ONLY)

Outline Drawing



Notes (unless otherwise specified):

1. Marking as shown shall be permanent and legible per MIL-STD-130 using black epoxy based ink. Marking to be on top of SSPA and on top cover.
2. Case material: Aluminum
3. Finish: Electroless nickel per MIL-C-26074, Type I, Class 4, Grade B, 200-4-- microinches except for welded cover and mounting surface. Welded cover and mounting surface is chemical film per MIL-DTL-541, latest revision, Type 1, Class 3, Yellow.