

Ku-Band Integrated Duplexer and Low Noise Amplifier (LNA)

Product Overview

e2v technologies have developed a Ku-band Duplexer, with integrated Low-Noise Amplifier (LNA), and integrated monitoring within the receiver sub-system.

The integrated microwave package comprises a two-piece duplexer assembly, with the LNA added at the receiver protector output flange.

The Duplexer line-up incorporates waveguide probes for BITE signal injection and Monitor, a 4-port duplexing circulator, band-pass filter, and a solid-state receiver protector.

The **port 1** connector is a 90°-swept male SMA, **port 2** is identified, **port 3** is a straight SMA female on the LNA output, and **port 4** is a right angled SMA female.

The unit operates from the following DC power supplies:

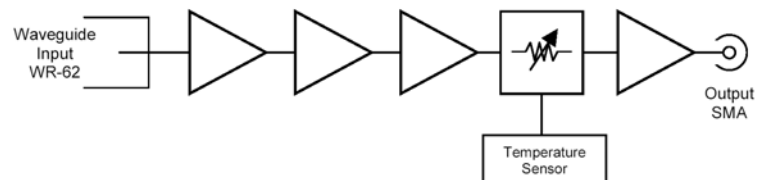
- **+12V** (150mA max.)
- **+5V** (75mA max.)
- **-5V** (25mA max.)

The unit is designed to operate (and is factory tested) over **-40°C to +75°C**.



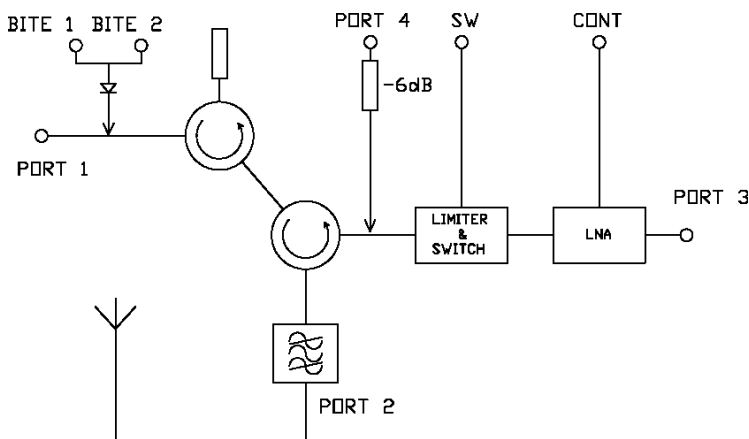
Ku-band Duplexer / LNA

The four-stage LNA incorporates temperature compensation circuitry, as illustrated in the LNA line-up schematic:



Ku-band LNA line-up Schematic

The module package has a 102mm (4.0") x 185mm (7.28") footprint (including connectors), 40mm (1.58") height.



Ku-band Duplexer / LNA Schematic

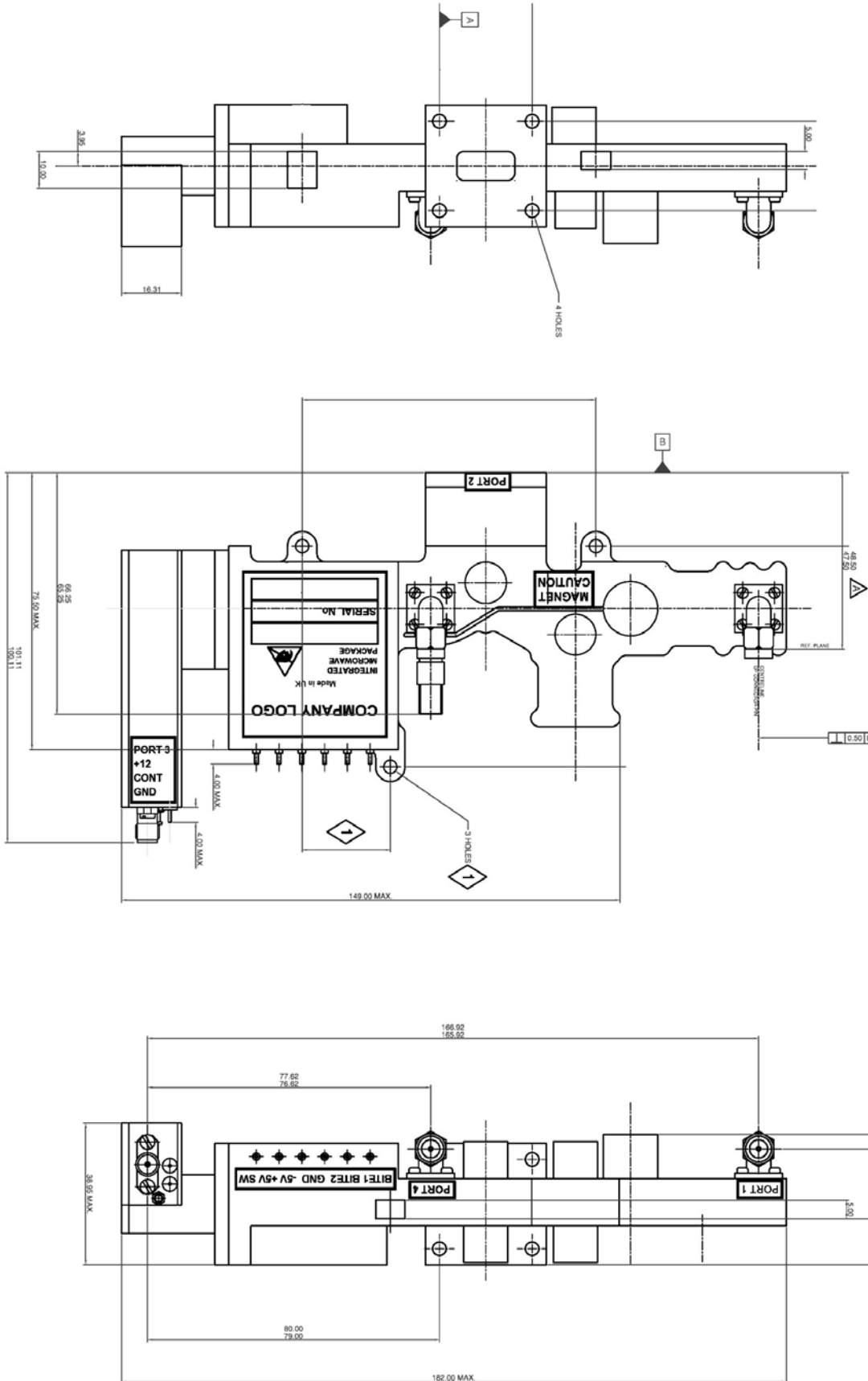
Summary of Design Benefits

- Ku-band integrated Duplexer and LNA
- Low noise figure (<3.7dB at +75°C)
- Low mass (<350g)
- Military ground mobile environment compatible

RF Performance and characteristics

Frequency	Ku-Band	
	Bandwidth	500MHz
Port 2 to Port 3 (Receive)		
Gain	33dB nom.	± 2.5dB
Noise Figure		3.7dB max.
Max. input power level		2W (CW) max. 100W (peak) max. (10µs / 1%)
Input VSWR		1.5:1 max.
Output VSWR		2:1 max.
Port 1 to Port 2 (Transmit)		
Loss		1.5dB max. (25°C)

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General Arrangement of Ku-band Duplexer / LNA