

# Ka-Band Low Noise Amplifiers

*LKKC20120.0001*

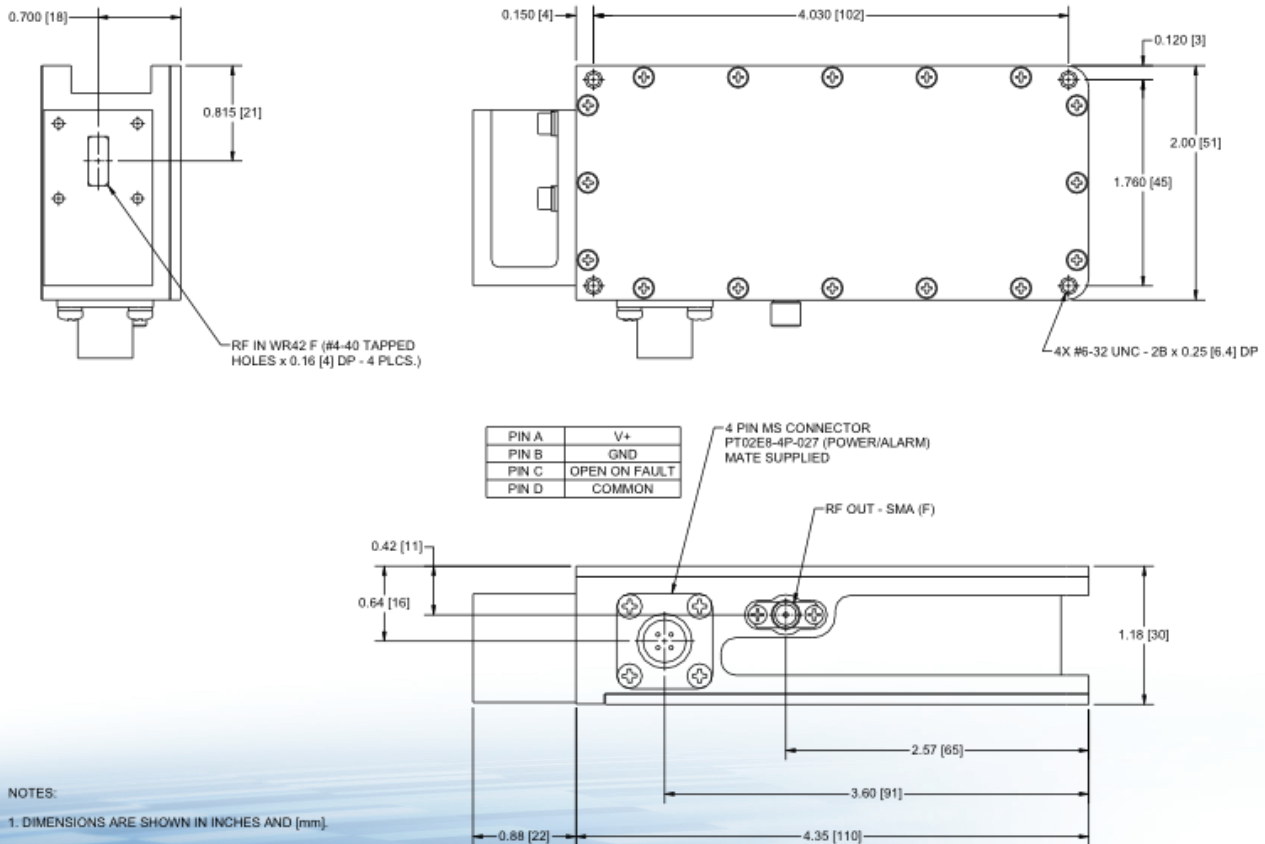


LKKC-20120 Ka-Band Ultra Low Noise Amplifier is specially designed for satellite earth station and other telecommunications applications. Utilizing state-of-the-art HEMT and GaAs MMIC technology, this amplifier has been designed for both fixed and transportable applications. The noise temperature specification is guaranteed over the full bandwidth of the LNA, and measured using a cryogenic hot/cold load test setup.

## Features

- Wideband coverage, 17.7-21.2 GHz
- Gain Level, 50 dB
- Low noise temperature, 120 K
- High Output power, P1 dB = +20 dBm
- Temperature compensated gain
- High reliability HEMT design
- Input/output isolators
- Reverse polarity protection
- Wide operating temperature range,
  - -40 °C to +70 °C
- Form 'A' alarm (deviation from nominal current)
- Weatherized design for outdoor applications

## Outline Drawing



# Ka-Band Low Noise Amplifiers

Parameter	Notes	Min.	Nom./Typ.†	Max.	Units
Frequency		17.7		21.2	GHz
Gain		50		54	dB
Gain Flatness	Full band Sub-band, 18.3-21.2 GHz Per 40 MHz		±0.75 ±0.5	±1.0 ±0.75 ±0.2	dB dB dB
VSWR	Input Output		1.25 1.40	1.30 1.50	:1 :1
Noise Temperature <sup>A</sup>	At +23 °C			120	K
Power Output at 1 dB compression (P <sub>1</sub> dB)		+20	+22		dBm
3rd Order Output Intercept Point, OIP3		+27	+29		dBm
Group Delay per 40 MHz	Linear Parabolic Ripple			0.01 0.001 0.20	ns/MHz ns/MHz <sup>2</sup> ns p-p
AM/PM Conversion	-5 dBm Output			0.05	°/dB
Gain Stability (Constant Temp.)	Short term (10) Medium term (24 hrs) Long term (1 week)			±0.1 ±0.2 ±0.5	dB dB dB
Gain Stability	Versus temperature over operational temp range			5	dB pk-pk
Maximum Input Power	Damage threshold Desensitization threshold, 27.0–31.0 GHz			0 -15	dBm dBm
Connectors	Input Output Power/Alarm		WR42 Cover Flange (#4-40 THD holes) SMA Female PT02E-8-4P-027 (mate supplied)		
Waveguide Pressure	Dry Air		0.5	5.0	psig
Power Requirements	Voltage Current, @ P <sub>1</sub> dB	11		15 600	Vdc mA
Operating Conditions Temperature Relative Humidity Altitude Solar Radiation	TAMB Condensing Above AMSL	-40 0		+70 100 10000 1100	°C % ft kCal/m <sup>2</sup> /h
Non-Operating Conditions Temperature Relative Humidity Altitude Seismic Shock	TAMB Condensing Above AMSL Horizontal, Along In/Out Axis Vertical	-50 0		+70 100 45000 0.3 0.15	°C % ft g g
MTBF Dimensions Weight Exterior Finish	+23C, Ground Fixed L x W x H (Including Connectors) Painted		129,000 5.23 (133) x 2.50 (63.5) x 1.18 (30) 0.75 (0.34) Commercial White		hrs in (mm) lb (kg)

†When there is only one value on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

<sup>A</sup> Maximum noise temperature at Tcase=+23 °C at any frequency in the specified band.

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