

# Ku-Band Power Amplifier

SSPA/SSPB, 16-25 Watts



**SATCOM**  
*Ku Band SSPA / SSPB*

## FEATURES

- ❖ Full range of output power up to 25W in a single package
- ❖ High linearity
- ❖ Redundant ready with no external controller
- ❖ Full M&C capability via RS485 or Ethernet port
- ❖ Forward and Reflected power monitoring
- ❖ Output Sample Port
- ❖ Redundant Systems shipped fully tested, assembled and tested
- ❖ Infinite VSWR protection with automatic high reflected power shutdown
- ❖ Built-in Receiver Reject Filter
- ❖ Weatherproof construction

## **ACCESSORIES**

- ❖ **Antenna Mounting kits**
- ❖ **External Receive Reject Filter**
- ❖ **Remote M&C panel**
- ❖ **Handheld terminal**

## **OPTIONS**

- ❖ **1:1 or 1:2 Redundant configuration**
- ❖ **Phase combined systems for higher power**
- ❖ **L-Band input (SSPB/BUC operation)**

This Ku-Band line of Amplifiers and BUCs are intended for satellite up-link applications. The design of these units is based on proven techniques resulting in high linearity and operating efficiency. Conservative thermal design contributes to the high MTBF for these units. Full monitor and control is provided via the serial or Ethernet ports.

Special features such as automatic over-temperature shutdown and high-reflected power protection contribute to trouble free operation.

They are available in output power from 16W to 500W. Higher power operation may be provided using external phase combining techniques offering an output power up to 800W.

Can be configured to operate in 1:1 or 1:2 redundancy mode. No extra controller is required for the redundancy operation as the built-in controller in each unit provides this function.

For 1:1 redundancy operation, in addition to the two units (operating and standby) a special redundancy kit is required.

For 1:2 redundancy operation another redundancy kit is needed in addition to the three units. The kits include the waveguide switches, terminations, splitter, interconnecting cable assemblies and mounting frames. All redundancy systems are delivered fully assembled, integrated, and tested.

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code-j4

**Table A**

Band*	RF Band (GHz)	L-Band Input for BUC (MHz)	LO for BUC (GHz)	Output Power (W)
KS	14.00 - 14.50	950-1450	13.05	16 - 25
KX	13.75 - 14.50	950-1700	12.80	16 - 25
KL	12.75 - 13.25	950-1450	11.80	16 - 25

**Table B SSPA/SSPB (BUC)**

Rated Power W	Psat dBm	P1dB dBm	Gain (dB) Minimum		Power Consumption W (nominal)	Weight	Dimensions
			SSPA	BUC			
16W	+42	+41	+52	+62	170	36 lbs (16 kg)	16x10x9 in 406x254x229 mm
20W	+43	+42	+53	+63	200		
25W	+44	+43	+54	+64	220		

General Specifications	
Operating Frequency	See table A
L-Band input (BUC)	See table A
Output Power	See table B
Gain	See table B
Gain adjustment range	20 dB in 0.1 dB steps
Gain flatness over full band	± 1dB max
Gain slope over 40 MHz	± 0.3 dB max
Gain variation over temperature	± 1 dB max
Input Impedance and VSWR	50 Ω SSPA 1.3:1 SSPB (BUC) 1.4:1
Output VSWR	1.25:1
Noise power density	-70 dBm/Hz in Transmit Band, -145 dBm/Hz in Receive band (10.95 – 12.75 GHz)
Spurious at P1dB	-65 dBc max
Harmonics	-40 dBc @ P1dB, -50 dBc @ P1dB -3 dB max
AM/PM conversion	2.5°/dB at P1dB
Third order intermod (two tones)	-25 dBc at 3 dB total back-off from rated P1dB
Group delay	Linear 0.02 nsec/MHz max Parabolic 0.003 nsec/MHz <sup>2</sup> max Ripple 1 nsec p-p max
Residual AM Noise	0 – 10 kHz -45 dBc 10 kHz – 500 kHz -20 (1.25 + log F) dBc F = Frequency in kHz 500 kHz – 1 MHz -80 dBc
SSPB (BUC)	
Local Oscillator frequency	See table A
Reference frequency	10 MHz
Phase Noise	-50 dBc/Hz at 10Hz -85 dBc/Hz at 10 kHz -65 dBc/Hz at 100Hz -95 dBc/Hz at 100 kHz -75 dBc/Hz at 1000Hz

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code-j4

General Specifications	
External Reference Frequency phase noise (max)	-115 dBc/Hz at 10Hz -150 dBc/Hz at 10 kHz -135 dBc/Hz at 100Hz -160 dBc/Hz at 100 kHz -148 dBc/Hz at 1000Hz
Weight & Dimensions	See table B
AC input voltage	110/220 VAC auto-ranging 47-63 Hz, option 48V DC
Interfaces	Input (RF or L-Band) N type female Output Sample Port N type female RF output WR75 cover AC line MS3102 type RS232 serial port MS3112E10-6P RS485/Ethernet MS3112 type
Environmental	Temperature Operating -30°C to +55 °C option 1 -40°C to +55 °C option 2 -50°C to +50 °C Storage -55°C to +85 °C Humidity 100% condensing Altitude 10,000' AMSL, derated by 2 °C/1000' from AMSL

