

2,500W Ku-Band Modular BUC/ SSPB/ SSPA Second Generation GaN Technology

SSPA
SSPB (BUC)

AWMAg-K
SSPBMg-K

7000-SapphireBlu™ Series
7000-SapphireBlu™ Series

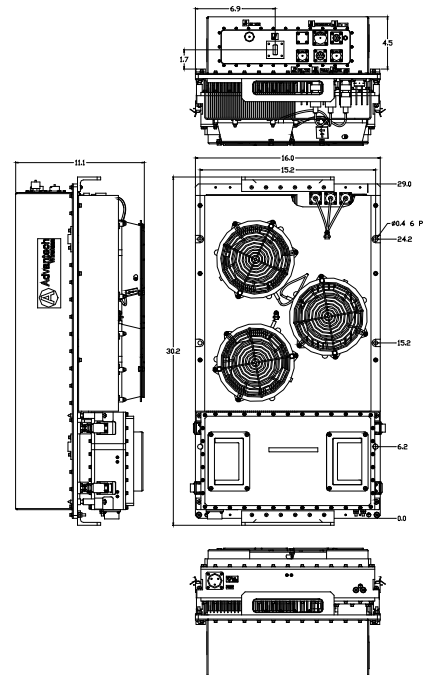


UltraLinear™ SapphireBlu™

- High power density in a compact, rugged, weatherproof package
- UltraLinear™, designed for Multi Carrier Operations
- High Performance GaN Technology SSPA Outdoor design concept
- High Reliability, High Linearity, Low Energy Consumption

The Ultimate Solution for Direct to Home TV

- Save 8 to 10 dB power compared to Indoor Klystron
- Save Millions of dollars in Energy Cost, Satellite Bandwidth, CAPEX
- Can cover multiple transponders, full DVB-S2 enabled
- Rugged, Weatherproof Outdoor Package,
- MIL-STD-188-164A Compliant
- Built in Redundancy, Field replaceable RF or Power Supplies Modules



- The Highest Linear Power Available. Exceeds all barriers between Klystrons, TWTs and SSPAs
- We can now saturate all transponders of an entire satellite and obtain maximum bandwidth/power efficiency
- 2 years warranty, due to increased GaN Technology reliability
- Backed by over 25 years of Outdoor SSPA design and manufacturing

2500W Ku-Band Modular BUC/ SSPB/ SSPA Second Generation GaN Technology

Specifications	KS / KX	
Operating Frequency	14.0 – 14.5 GHz / 13.75 – 14.5 GHz	
L-Band input (BUC)	950 – 1450 MHz / 950 – 1700 MHz	
Output Power	2500W	
PSAT, PA Module	+64.0 dBm nominal	
PSAT, at Flange	+63.5 dBm nominal	
P _{LINEAR}	+60.5 dBm minimum	
	P _{LINEAR} is the power at which the IMD=-25 dBc for two CW signals 5 MHz apart versus total power, and the spectral regrowth is <-30 dBc @ 1.0 x symbol rate for a single QPSK/OQPSK/8PSK signal.	
Gain	SSPA SSPB (BUC)	68 ± 3 dB 78 ± 3 dB
Gain adjustment range	20 dB in 0.1 dB steps	
Gain flatness over full band	SSPA 2dB p-p max SSPB (BUC) 4 dB p-p max (KS); 4dB p-p (KX)	
Gain slope over 40 MHz	± 0.3 dB max SSPB (BUC) ± 0.5 dB max	
Gain variation over temperature	± 1.5 dB max	
Input Impedance and VSWR	50 Ω SSPA 1.3:1 SSPB (BUC) 1.4:1	
Output VSWR	1.3:1	
Noise power density	-70 dBm/Hz in Transmit Band, -145 dBm/Hz in Receive Band (10.95 GHz – 12.75 GHz)	
Spurious at P _{LINEAR}	SSPA: -65 dBc max SSPB (BUC): -55 dBc max	
Harmonics	-50 dBc @ P _{LINEAR}	
AM/PM conversion	<1.0°/dB P _{LINEAR}	
Third order intermod (two tones)	-25 dBc two signals 5 MHz apart versus total power (60.5 dBm Plinear)	
Group delay	Ripple	1 nsec p-p max over any 40 MHz band
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 freq.	13.05 GHz	12.8 GHz
Internal Reference frequency (optional)	10 MHz	Aging/day ±2 × 10 ⁻¹⁰ Aging/year ±5 × 10 ⁻⁸ Stability ±2 × 10 ⁻⁸ over temp range
Phase Noise	-53 dBc/Hz at 10Hz -63 dBc/Hz at 100Hz -73 dBc/Hz at 1000Hz	-83 dBc/Hz at 10 kHz -93 dBc/Hz at 100 kHz
External Reference Frequency phase noise (max)	10 MHz -120 dBc/Hz at 10Hz -135 dBc/Hz at 100Hz -150 dBc/Hz at 1000Hz	-155 dBc/Hz at 10 kHz -160 dBc/Hz at 100 kHz
Weight & Dimensions		
Dimensions	L x W x H 81.00" x 63.00" x 47.00" (206 x 160 x 120 mm)	
Weight	1320 lbs (600 kg)	
AC input voltage	190 – 265 VAC (47-63 Hz)	
Power consumption	20,000W at P _{LINEAR} 25,000W at P _{SAT}	
Interfaces	Input (RF or L-Band) - N type female AC line - MS3102 type Output Sample Port - N type female RF output - WR75 Cover 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

Ref.: PB-SAPPH-2G-Ku-2500W-18145

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