

# Ku-Band 40W Solid State Power Amplifiers

## THE INTEGRAL DIFFERENCE



COMMAND  
+ CONTROL



SIGNAL PROCESSING  
+ DATA COMM.



ENTERPRISE  
NETWORK MGMT.



COMM. INFO  
ASSURANCE



SERVICES

### Overview

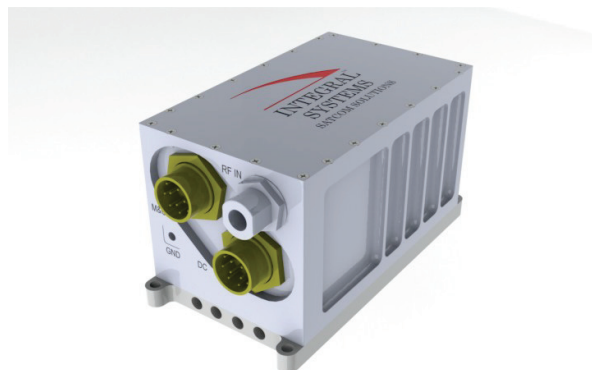
Integral Systems SATCOM Solutions division's family of Solid State Power Amplifiers and Block UpConverters are a breakthrough in size and weight reduction. This new series takes our already industry-leading size and weight and reduces it significantly; allowing very compact systems for commercial transportable, satellite on-the-move, and also any size/weight-constrained systems.

The frequency band is extremely flexible, with versions available to cover any band from 12.6 GHz to 18.5 GHz. The highest performance is available from 13.75 to 14.5 GHz; however the power output and efficiency are still industry leading throughout the 12.6 to 18.5 GHz band. This makes this unit an excellent choice for both standard 13.75-14.5 GHz communication applications, but also for unusual or non-standard frequency bands such as 14.4-14.8 GHz, 14.5-15.0 GHz, 15.1-15.5 GHz, and 16.0-17.0 GHz.

The outstanding efficiency of SATCOM Solution's SSPAs and BUCs greatly reduce heat generation and power consumption, simplifying system integration challenges. Further, the smaller size, lower power, and less demanding heat management can lead to significant reductions in system cost and development effort.

### Fan Cooling and Integrated Power Supply

The base component-type configuration is a component-only configuration which requires external cooling and power supply. An optional fan-cooling accessory, when combined with the integrated 18V-60VDC power supply, forms a complete, plug-and-play outdoor unit. In all cases this component unit is also fully environmentally sealed and ready for outdoor use. Due to the extremely low power consumption and heat dissipation, the cooling and power supply are tiny and very low cost. Total weight with these all accessories is still under 6 pounds, significantly less than the nearest competitive solution.



### Features

- Remarkably Small Size:
  - 5.25" x 3.15" x 3.25", 3 lbs. (component configuration)
  - 6.61" x 3.46" x 7.07", 6 lbs. (outdoor configuration)
- Extremely flexible technology with versions for any frequency band from 12.6 GHz to 18.5 GHz; useful for unusual or non-standard bands
- Good performance over entire 13-17.5 GHz band (best at 13.75-14.5 GHz)
- Ultra efficient:
  - 232W consumption (@40W RF out)
- Forward/Reverse Power Monitor & Control processor
- Gain vs. Temp. compensation
- Integrated heat-pipe baseplate
- Environmentally sealed

SPECIFICATIONS SUBJECT TO CHANGE

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## Ku-Band 40W SSPA Electrical and Mechanical Specifications

RF Parameters	Specification					
Frequency Band (GHz)	13.0-13.75	13.75-14.5	14.5-15.0	15.0-16.0	16.0-16.5	16.5-17.5
Rated Power Output*	35W	40W	40W	35W	30W	20W
AM/PM Conversion @ 2dB below rated power	2.5°/dB					
F&R Pwr Mon (15 dB Range) @CF	+/- 0.25dB					
Gain (min.)	53dB	56dB	50dB	46dB	45 dB	40dB
Gain Variation over 1GHz	8dB max.	5dB max.	6dB max.	7dB max.	7dB max.	10dB max.
Gain Variation over any 40MHz	2dB max.	1.5dB max.	1.5dB max.	3dB max.	3dB max.	3dB max.
Gain Variation over Temperature	3 dB max.					
Gain Variation over Time	0.5dB per day					
Noise Figure in-band	12dB	12dB	12dB	12dB	12dB	12dB
Input VSWR	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	2:1
Output VSWR with optional output isolator (derate power by 0.4dBm)	2:1 1.4:1	2:1 1.4:1	2:1 1.4:1	2:1 1.4:1	2.3:1 1.4:1	2.3:1 1.4:1
Spurious	-60dBc					
2nd Harmonic @ 3dB below rated pwr.	-45dBc					
3rd Order IMD @ 3dB max. backoff from rated pwr.	-25dBc					
Monitor & Control Parameters			Specification			
Discrete Mute Control Voltage ranges			mute:0-1.0V; enable:4.0-5.0V; has internal 10kohm pull-up to +5V			
Thermal Shutdown Control Threshold			+85°C			
Temperature Monitor Accuracy			+/- 3°C			
Input Power Parameters			Specification			
With 28VDC integrated power supply			20-36 VDC			
With 48VDC integrated power supply			36-56 VDC			
Power consumption of 40W unit:			257 Watts at 40W out, 227 Watts at 3dB backoff			
Environmental/Physical Parameters			Specification			
Operating Temperature			-40°C to +70°C in SSPA bottom surface			
Humidity			100% condensing			
Storage Temperature			-54°C to +105°C			
RF input connector			Type N			
RF output connector			WR-75 (WR-62 above 15.5GHz)			
Power Connector			MIL-26482 Series 1 receptacle, Shell size 12, 4 pins			
Monitor/Control Connector			MIL-26482 Series 1 receptacle, Shell size 12, 10 pins			
Outline Dimensions			5.25" x 3.15" x 3.75" with integrated power supply 6.61" x 3.46" x 7.07" with supply and fan cooling			
Weight			3.5 lbs. with integrated power supply 6 lbs. with supply and fan cooling			