

High Power Density Ku-Band GaN BUC

80/100/125 W



Lightweight (18 lbs) and compact (14.4" x 8.4" x 3.9")

Extremely high power density – Up to 125W P_{SAT}

Superior RF performance

Optional remote monitor and control panel

Overview

General Dynamics SATCOM Technologies' high power Ku-Band GaN BUC / SSPA series are compact, lightweight, and extremely powerful. Weighing only 18 pounds, it is the most powerful and feature rich for its size, with up to 125W at saturated power. The high power GaN BUC features best-in-class RF characteristics, true RMS power measurements, extensive monitor and control capabilities enabled via Ethernet, serial and/or analog interfaces. The remarkably compact size and high thermal efficiency results in overall system size and cost reduction, making it the ideal candidate for mobile and fixed VSAT applications.

Features

- Superior RF performance:
 - Phase noise 8-10 dB better than IESS308/309
 - P_{SAT} up to 51 dBm
 - Spurious below -60 dBc
 - Wide dynamic range of Gain Control
 - High linearity
- RF overdrive protection
- Field replaceable unit power supply and fans
- 48VDC isolated power supply option
- Internal / autosense 10 MHz reference (optional)
- Switchable LO option - Standard and extended Ku-Band in one unit
- Input and output true RMS power detection
- Configuration via RS-232 serial console, packet protocol RS-485, user friendly HTTP-based GUI and SNMP
- Automated Level Control (ALC) option
- Field upgradable software
- Status LED
- Redundant ready with no external controller required
- Antenna mounting kit (optional)

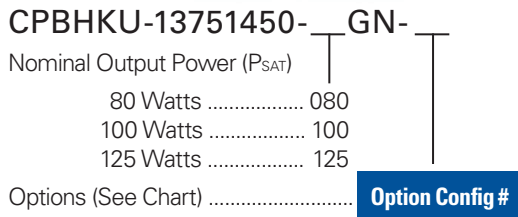
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Specifications

Parameter	Notes	80 W	100 W	125 W
<i>RF Performance</i>				
RF Frequency Range	Available in/switched	14-14.5 GHz / 13.75-14.5 GHz		
IF Frequency Range	Available in/switched	950-1450 MHz / 950-1700 MHz		
LO Frequency	Switchable	13.05 GHz / 12.8 GHz		
Conversion		Single-conversion, non-inverting		
Saturated Power		49 dBm typ.	50 dBm typ.	51 dBm typ.
Linear Power		46 dBm min.	47 dBm min.	48 dBm min.
Conversion Gain		75 dB min., 77 dB typ.		
Gain Flatness	Over full band	±1 dB typ. ±1.5 dB max.		
	Over any 40 MHz segment	±0.5 dB max.		
Gain Stability	Over full temperature range	±1.5 dB		
Gain Control	Dynamic range	20 dB min.		
External Reference Frequency	Multiplexed with IF In	10 MHz		
Ext. Ref. Required Phase Noise	dBc/Hz @ Offset	130 dBc/Hz @ 100 Hz -140 dBc/Hz @ 1 kHz -150 dBc/Hz @ 10 kHz -155 dBc/Hz @ 100 kHz		
Upconverter Phase Noise	dBc/Hz @ Offset	-68 dBc/Hz @ 100 Hz -80 dBc/Hz @ 1 kHz -90 dBc/Hz @ 10 kHz -95 dBc/Hz @ 100 kHz -115 dBc/Hz @ 1 MHz		
Linearity	2-tone IMD	-24 dBc at linear power (P_{LIN})		
	Spectral Regrowth	-30 dBc for QPSK at 1.5x symbol rate at $P_{LIN} + 1$ dB		
Noise Power Density	Transmit Band	-85 dBm/Hz max.		
	Receive Band	-148 dBm/Hz max.		
Output Spurious	Non-signal-related	-60 dBc		
	Signal-related	-55 dBc		
<i>Power</i>				
AC Voltage Range (48 Vdc Isolated optional)		90-265 VAC 50-60 Hz; Auto-Ranging		
Power Consumption	@ rated power	450 W typ.	580 W typ.	600 W typ.
	@ 3 dB backoff	380 W typ.	500 W typ.	520 W typ.
<i>Mechanical</i>				
Size		14.4" x 8.4" x 3.9"		
Weight		18 lb		
Cooling		Forced Air		
Operating Temperature		-40 °C to +55 °C		
Relative Humidity		Up to 100% Condensing		
<i>Interfaces</i>				
IF Input Connector		Type N Female		
RF Output Connector		WR75 Grooved		
AC Power In		MS3112E10-8P		
RS-485/RS-232/Ethernet/SNMP		MS3112E14-19S		
Redundancy Interface		MS3112E14-19P		

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Part Number/Ordering Information



PS Type	Option	PS Type (3 pin)		M&C		Reference			RF Output Interface		Option Config #	
		DC Via IFL	Transmit Key Line	DC Via Line	AC	No	Full Set	Int	Auto	Ext		WG
					X					X		0
				X						X		1
				X			X				X	2
				X			X			X		3
				X			X			X		4
X							X			X		5
X							X	X		X		6
					X					X	X	7
				X						X	X	8
					X		X				X	9
				X			X			X	X	10
				X			X		X	X		11
					X		X		X	X		12
	X		X (6pin)				X			X	X	13
	X			X (6pin)			X			X	X	14
X	X						X			X	X	15

Example:

CPBHKU-13751450-080GN-0: Compact BUC/SSPB, Outdoor, Ku-Band, 13.75-14.50 GHz Output, 80 W (P_{SAT}), GaN, with Option Configuration 0: 90-265 VAC Power, Full Set M&C, External Reference, and WR75 Waveguide Output.

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Optional Remote Monitor & Control Panel (RCPR)

The RCPR is a 1U, indoor, rack-mount remote panel designed to control the key functions of the amplifier. The RCPR enables remote, real-time monitoring and operation of any single SSPA, making it ideal for installations where the SSPA is located in an inaccessible or inconvenient location. It features extensive monitor and control via front panel, serial ports EIA232/EIA485, and Ethernet TCP/IP interface with SNMP support. The RCPR is available in single-thread, 1:1 Redundant and 1:2 Redundant models.

Key Features

- Serial port RS-485 link uplink and downlink telemetry
- User friendly front panel with menu driven display
- Front panel manual attenuator
- Full featured M&C interface via RS-232 serial console, packet protocol RS-485 and user friendly HTTP based GUI and SNMP:

Part Number/Ordering Information

RCPR-XXXX	Single-Thread Amplifier
RCPR-11XX	1:1 Redundant Amplifier System
RCPR-11AL	1:1 Air/Load Redundant Amplifier System
RCPR-12XX	1:2 Redundant Amplifier System
RCPR-12AL	1:2 Air/Load Redundant Amplifier System

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