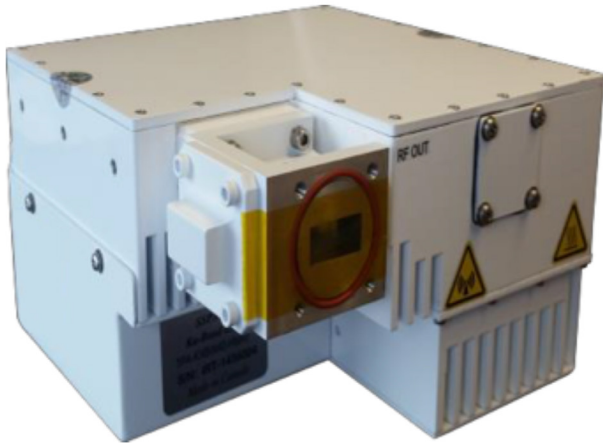


# Compact Ku-Band GaN BUC

40/50/60 W



Lightweight (8.8 lbs) and compact (6.5" x 7.6" x 4.2")

Low power – 290 W power consumption at 60 W output

Superior RF performance

Optional remote monitor and control panel

## Overview

General Dynamics SATCOM Technologies' compact Ku-Band GaN BuC / SSPA series are revolutionary in size, weight and power density and offer superior performance in an extremely compact package. Weighing only 8.8 pounds, our feature-rich GaN BUC is exceptionally powerful for its size: up to 60 W  $P_{SAT}$ . The built-in AC power supply provides the customer with the simplest and least expensive plug-into-the wall solution. The GaN BUC features best-in-class RF characteristics, embedded WG circulator, extensive monitor and control capabilities enabled via Ethernet, serial and / or analog Interfaces. The remarkably small size and low power consumption results in better heat extraction that leads to overall system size and cost reduction making it the ideal candidate for portable, mobile and VSAT on-the-move applications. Its small size and weight allows direct feed horn mounting, which makes it a most economical solution for fixed VSAT applications.

## Features

- Up to 60 W  $P_{SAT}$  output power
- 200 W power consumption at 3 dB back off
- Superior RF performance:
  - Phase noise 6 dB better than IESS308/309
  - High Linearity
  - Spurious below -60 dBc
  - Wide dynamic range of Gain Control
- Switchable LO option—Standard and extended Ku- Band in one unit
- RF overdrive protection
- Internal/Autosense 10 MHz reference options
- Output power measurement—True RMS detector (optional)
- Built-in waveguide output circulator provides full output VSWR protection
- Configuration via RS-232 serial console, packet protocol RS-485 and user-friendly Ethernet HTTP-based GUI and SNMP support
- 48 VDC isolated power supply
- Built-in auto-ranging AC power supply (optional)
- Redundant ready with no external controller
- Field upgradable software
- Antenna mounting kit (optional)
- Status LED

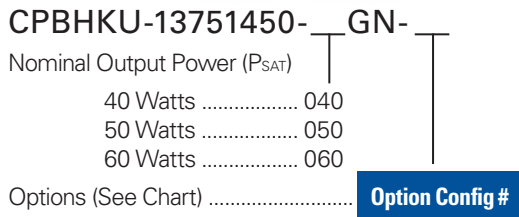
## Compact Ku-Band GaN BUC 40/50/60 W

### Specifications

| Parameter                            | Notes                       | 40 W  | 50 W               | 60 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                      |                             | 46 dBm typ.   | 47 dBm typ.        | 48 dBm typ.        |
| Linear Power                         |                             | 43 dBm min.   | 44 dBm min.        | 45 dBm min.        |
| Conversion Gain                      |                             | 72 dB min., 75 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<br>-140 dBc/Hz @ 1 kHz<br>-150 dBc/Hz @ 10 kHz<br>-155 dBc/Hz @ 100 kHz                     |                    |                    |
| Upconverter Phase Noise              | dBc/Hz @ Offset             | -70 dBc/Hz @ 100 Hz<br>-80 dBc/Hz @ 1 kHz<br>-90 dBc/Hz @ 10 kHz<br>-95 dBc/Hz @ 100 kHz<br>-115 dBc/Hz @ 1 MHz |                    |                    |
| Linearity                            | 2-tone IMD                  | -25 dBc at 3 dB total power back off from rated power<br>-30 dBc at 6 dB total power back off from rated power  |                    |                    |
|                                      | Spectral Regrowth           | -30 dBc for QPSK at 1.5x symbol rate<br>at 3 dB back off from rated power                                       |                    |                    |
| Noise Power Density                  | Transmit Band               | -85 dBm/Hz max.   |                    |                    |
|                                      | Receive Band                | -140 dBm/Hz max.  |                    |                    |
| Output Spurious                      | Non-signal-related          | -60 dBc   |                    |                    |
|                                      | Signal-related              | -55 dBc   |                    |                    |
| <i>Power</i>                         |                             |   |                    |                    |
| 48 Vdc Range / 28 Vdc Range (option) |                             | 36-72 Vdc Isolated / 24-75 Vdc Isolated (option)  |                    |                    |
| AC Voltage Range                     | Optional                    | 90-265 VAC 50-60 Hz; Auto-Ranging   |                    |                    |
| Power Consumption, DC Power In       | @ PSAT / PLIN               | 225 W / 160 W typ.  | 280 W / 220 W typ. | 290 W / 230 W typ. |
| Power Consumption, AC Power In       | @ PSAT / PLIN               | 250 W / 180 W typ.  | 260 W / 200 W typ. | 270 W / 210 W typ. |
| <i>Mechanical</i>                    |                             |   |                    |                    |
| Size                                 |                             | 6.5" x 7.6" x 4.2"  |                    |                    |
| Weight                               |                             | 8.8 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   |                    |                    |

## Compact Ku-Band GaN BUC 40/50/60 W

### 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-13751450-040GN-0: Compact BUC/SSPB, Outdoor, Ku-Band, 13.75-14.50 GHz Output, 40 W ( $P_{SAT}$ ), GaN, with Option Configuration 0: 90-265 VAC Power, Full Set M&C, External Reference, and WR75 Waveguide Output.

# Compact Ku-Band GaN BUC 40/50/60 W

## 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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