

## Ku-Band Compact SSPBs

This compact solid-state power block converter combines an integrated L-band BUC and GaAs IMFET-based output section to provide 25 or 35 watts of saturated power over the standard 14.00–14.50 GHz or extended 13.75–14.50 GHz satellite uplink band. Housed in a lightweight, weatherized enclosure with integral heatsink and fan, the unit is intended for direct integration on small aperture or field-deployable antenna applications. Remote control and status monitoring functions are provided via an RS-422 link.

### Features

- Integrated block upconverter with L-band input
- 25/35 W saturated output power
- Excellent linearity
- 65 dB gain
- Built-in monitor and control
- Temperature-compensated gain from -40 to +60 °C
- Serial interface (RS-422)
- Output power monitor
- Internal OXCO, phase-lockable to external reference
- Extremely light weight, typically 7.5 lb (3.4 kg)
- Mounts on small antennas

### Options

- RF output connector (coaxial or waveguide)
- Frequency range (standard or extended band)
- AC Power Supply, CPS14000AC



*CPKO1435SB with optional AC power supply and waveguide output.*

**Specifications**

**CPKM, CPKO14xxSB**

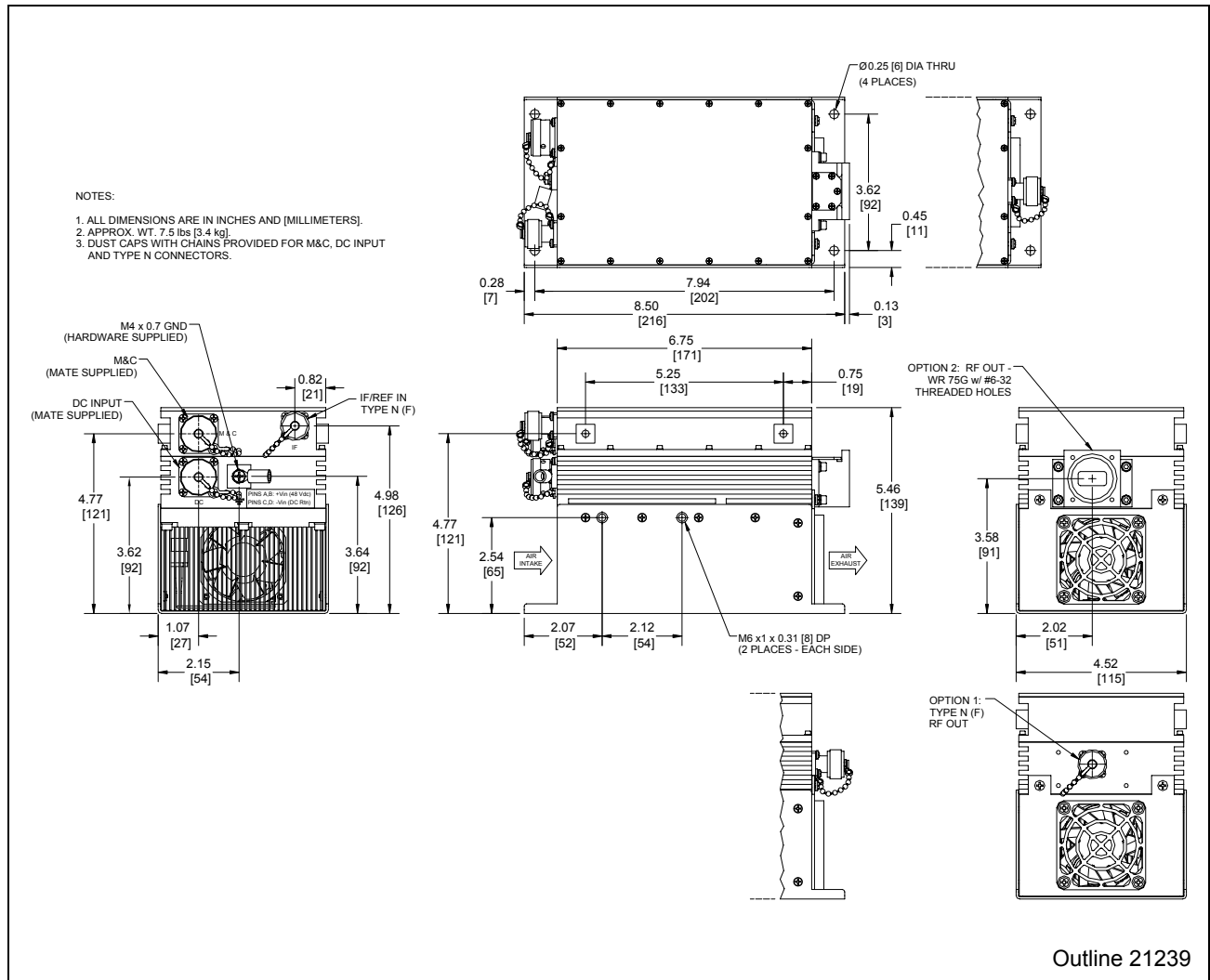
Parameter	Notes	Min.	Nom./Typ. <sup>A</sup>	Max.	Units
Frequency Range, Output	Band "M" Band "O"	14.00 13.75		14.50 14.50	GHz GHz
Frequency Range, Input	Band "M" Band "O"	950 950		1450 1700	MHz MHz
Local Oscillator Frequency	Band "M" Band "O"		13.05 12.80		GHz GHz
LO Phase Noise <sup>B</sup>	100 Hz 1 kHz 10 kHz 100 kHz 1 MHz		-70 -78 -82 -92 -110	-60 -70 -80 -90 -100	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
LO Stability	Internal, vs. temperature			$\pm 1 \times 10^{-7}$	
Reference Frequency <sup>B</sup>	Internal or external		10		MHz
Gain	Minimum	60	65		dB
Gain Flatness	Full band Per 40 MHz			$\pm 1.5$ $\pm 0.5$	dB dB
Gain Stability vs. Temperature	-40 to +60 °C, ambient air			$\pm 1.5$	dB
Gain Adjust Range	0.5 dB steps	15			dB
Saturated Power Output	25 W 35 W		+44 (25) +45.4 (35)		dBm (W) dBm (W)
Power Output at 1 dB Compression	25 W 35 W	+43.5 (22) +44.4 (27.5)			dBm (W) dBm (W)
Linear Power Output	25 W 35 W	+42 (16) +43 (20)			dBm (W) dBm (W)
Spectral Regrowth	Linear P <sub>OUT</sub> 1.5 x SR, QPSK, single carrier		-32	-30	dBc
IMD <sub>3</sub>	2 carriers, composite P <sub>OUT</sub> at 3 dB backoff from P <sub>1 dB</sub>		-30	-25	dBc
Spurious	Linear P <sub>OUT</sub>		-60	-55	dBc
LO Leakage	At RF output			-50	dBm
Group Delay	Linear Parabolic Ripple			0.03 0.003 1.0	ns/MHz ns/MHz <sup>2</sup> ns p-p
AM/PM Conversion	At P <sub>1 dB</sub>		2.0	2.5	°/dB
Noise Figure				20	dB
VSWR	Input (50 ohms) Output (50 ohms, Option 1)		1.35 1.35	1.50 1.50	:1 :1
Connectors	IF In/Ext. Ref. In Output, Option 1 Output, Option 2 M&C, RS-422, Fast Mute Power		Type N Female Type N Female WR75G with #6-32 tapped holes 10-pin MS, mate supplied 4-pin MS, mate supplied		
Power Requirements	Voltage Power, 25 W <sup>C</sup> Power, 35 W <sup>C</sup>	40	48 195 215	52 240 260	Vdc W W
Cooling System			Integrated Heatsink/Forced air		
Operating Temperature Range	Ambient air	-40		+60	°C
Weight			7.5 (3.4)		lb (kg)
Dimensions	See outline drawing		8.63 L x 4.52 W x 5.46 H 219 x 115 x 139		inches mm
Finish			Commercial White DuPont #817A Acrylic Enamel		

<sup>A</sup> When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

<sup>B</sup> External Reference Phase Noise Requirement: -105 dBc/Hz @ 10 Hz offset, -135 dBc/Hz @ 100 Hz offset, -145 dBc/Hz @ 1 kHz offset.  
External Reference Input Level: -5 to +5 dBm.

<sup>C</sup> Typical power consumption at Linear Power output level. Max power consumption at cold start, at -40 °C and P<sub>OUT</sub> in saturation.

## Outline Drawing



## Part Number/Ordering Information

**CPK**  **14**  **SB-X**

14.00-14.50 GHz = M

13.75-14.50 GHz = O

25 watts = 25

35 watts = 35

Options

Output Connector, Type N (F).....1

WR75G Cover Flange.....2

**AC Power Supply**

A universal input AC power supply module is available for the CPKx14xxSB product family. This module can be directly attached to the SSPB, or remotely located depending on user preference. The supply can be factory configured as original equipment or added as a field upgrade.

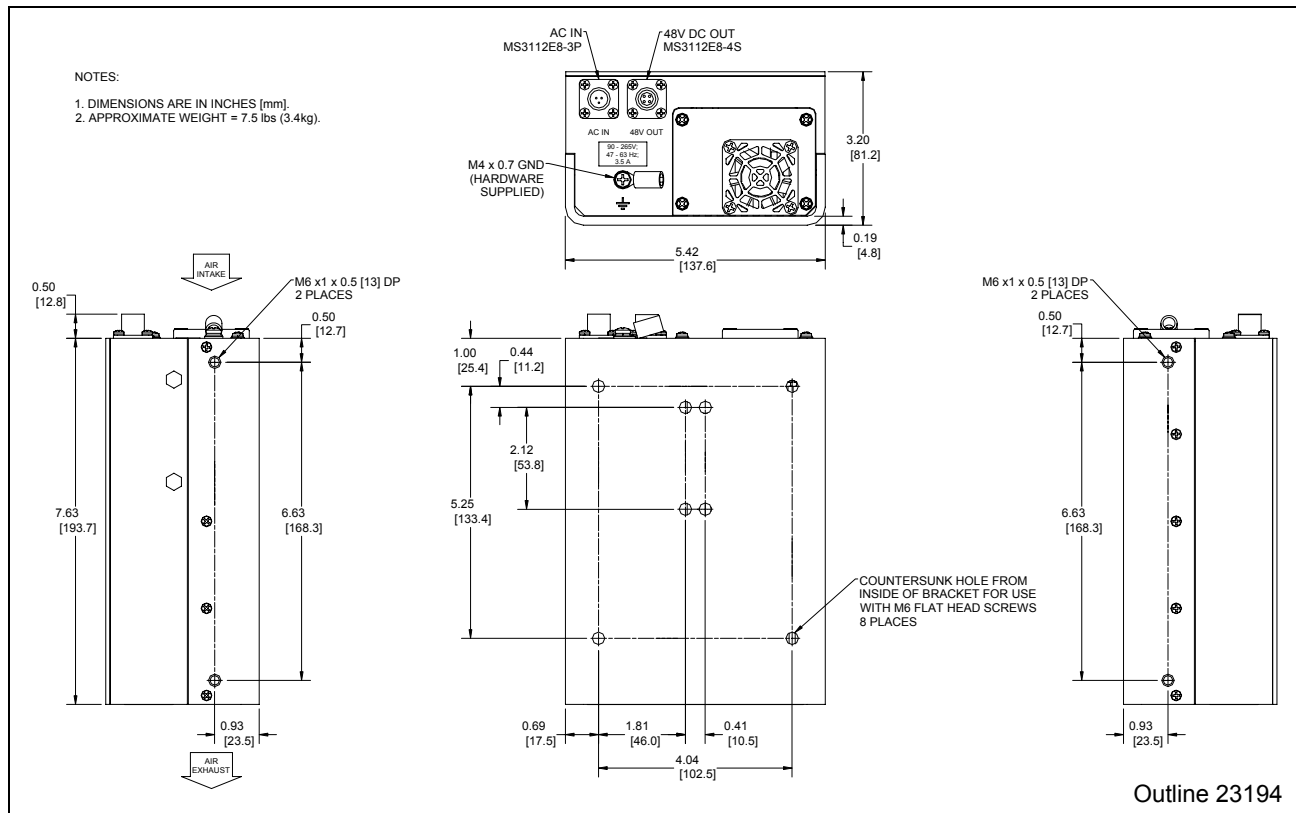
**Specifications**

**CPS14000AC**

Parameter	Notes	Min.	Nom./Typ. <sup>A</sup>	Max.	Units
Input Voltage	Autoranging	90		264	Vac
Input Frequency		47		63	Hz
Output Voltage	Factory set		48		Vdc
Output Power				500	W
Efficiency			85		%
Connectors	AC Input DC Output		3-pin MS 4-pin MS		
Cooling System			Integrated heatsink/forced air		
Operating Temperature Range	Ambient	-40		+60	°C
Dimensions			7.63 L x 5.42 W x 3.2 H 194 L x 138 W x 81 H		inches mm
Weight			7.5 (3.4)		lb (kg)

<sup>A</sup> When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

**CPS14000AC Outline Drawing**



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Specifications subject to change at GD SATCOM's discretion.