



16W / 20W / 25W C-Band Block Up Converter GaN Technology

16W / 20W / 25W GaN-based C-Band BUC
SSPBg-210C™ series



Features

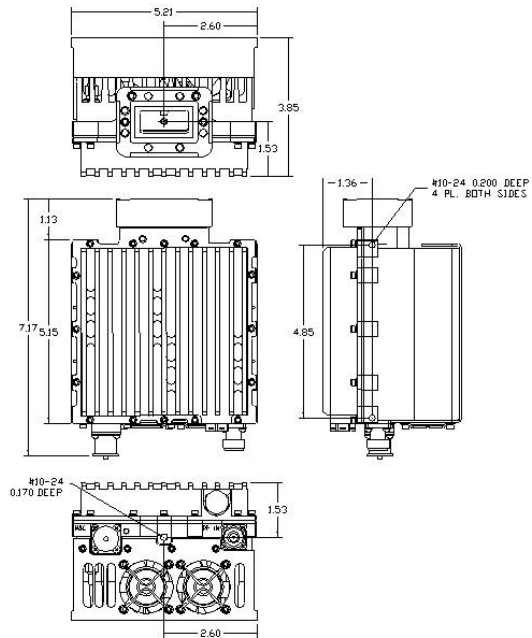
- Up-converts an L-Band input frequency 950 – 1525 MHz to the C-Band frequency of 5.85 – 6.425 GHz (5.85 - 6.725GHz option)
- Rated Output Power from 16W, 20W or 25W
- Phase-locked local oscillator locks directly to an external 10 MHz reference
- Exceeds IESS 308/309 Phase/Noise requirements by 3 dB
- Robust, weatherproof package
- Protection against thermal runaway and out-of-lock conditions
- CE Marking

Overview

The SSPBg-210C™ series is hub-mount up-converter transmitters, using GaN Technology, operating in the C-Band. The SSPBg-210C™ is an integrated unit, complete with power supply, phase-locked oscillator, mixer, filter and cooling mechanism. Intended for outdoor operation, the SSPBg-210C™ provides the utmost in convenience and efficiency. Other SSPBs are also available for higher powers or for operation at other up-link frequencies.

The hub-mount SSPBg-210C™ is constructed in a compact cooling enclosure for outdoor operation. The units are weatherproof. They are the smallest fully integrated units on the market today.

The design of these units is based on Advantech's industry proven reliable solid-state high power amplifiers. Built-in design features result in a product with exceptional linearity and operating efficiency. The use of high efficiency power supply and conservative thermal designs contribute to the trouble-free operation of the unit.



Application

The SSPB's convert an L-Band signal (950 - 1525MHz) to the C-band frequency of 5.85 – 6.425 GHz. Designed for C-Band satellite up-link applications the SSPBg-210C™ series is fully integrated units with up to 16W, 20W or 25W output power designed for mounting outdoors, near the hub of an antenna.

The size and weight of this very compact design makes is especially attractive for man-pack terminal applications.

C-Band SSPB is available in output power of up to 1250W.

Accessories

- Mounting kit
- External Harmonics reject filter (-65dBc)

C-Band Block Up Converter

Technical Specifications	16W	20W	25W
Electrical Characteristics			
Rated Output power	+42 dBm min.	+43 dBm min.	+44 dBm min.
Linear Power: P_{LINEAR} is the power at which the IMD=-25 dBc for two CW signals 5 MHz apart and the spectral regrowth is <-30 dBc @ 1.0 x symbol rate for a single QPSK/OQPSK/8PSK signal	+38 dBm	+39 dBm	+40 dBm
Conversion gain nominal	64 dB		
Input /Output frequency range	950-1525MHz/C-Band 5.850 – 6.425 GHz (950 – 1825MHz /Cx-Band 5.85 – 6.725 option)		
Input Level	-22 dBm for rated output power		
Gain flatness	4.0 dB p-p, typical over any 575 MHz segment, 1.0 dB p-p /40 MHz		
Gain variation over temperature	3.0 dB p-p max over full operating range		
Input VSWR, in-band	1.4: 1		
Output VSWR	1.5: 1		
Input impedance	50 Ω		
Noise Power Density	-75 dBm/Hz max in Tx band (-150dBm/Hz max in Rx band 3.4- 4.2Ghz)		
Spurious at rated power	-55 dBc, max		
Harmonics	-35 dBc at P_{LINEAR}		
AM/PM conversion	1°/dB at 3db output back off from rated power, 3°/dB max (at rated power)		
Third order intermod.	-25 dBc at P_{LINEAR}		
Spectrum Regrowth	-26 dBc, max at 15W output power @ 1.0 x symbol rate offset for QPSK/OPQSK/8PSK modulation		
Local Oscillator frequency (LO)	4.9 GHz		
LO leakage	-20 dBm max		
Phase noise	-55 dBc/Hz at 10Hz -73 dBc/Hz at 1000Hz -105 dBc/Hz at 100 kHz	-65 dBc/Hz at 100Hz -83 dBc/Hz at 10 kHz -110 dBc/Hz at 1 MHz	
Integrated (SSB) Phase Noise	2° RMS typical		
Group Delay (over any 40 MHz): Linear Parabolic Ripple	0.03 ns /MHz, max 0.01 ns/MHz ² , max 1 nsec p-p, max		
External reference			
Reference frequency	10 MHz		
Recommended reference frequency phase noise	-115 dBc/Hz at 10 Hz -135 dBc/Hz at 100 Hz -148 dBc/Hz at 1000 Hz	-150 dBc/Hz at 10 kHz -160 dBc/Hz at 100 kHz	
Reference frequency level	0 dBm \pm 5 dB		
Power Requirements			
Supply voltage	20 V to 65 V DC via L-band connector		
Power consumption (@ P_{LINEAR})	80 W	90 W	100 W
Power consumption max (@ P_{SAT})	120 W	120 W	120 W
Mechanical Characteristics			
Cooling	Mini-fan		
Dimensions (L x W x H)	15.95 x 13.2 x 9.8 cm (6.28" x 5.21" x 3.85")		
Weight	2.5 kg (5.5 lbs)		
Finish	White (option NATO Green)		
Interfaces:	RF input Type N (F) RF output CPR137 grooved / Type N (F) optional		
Environmental Conditions			
Temperature:	Operating Storage	-30°C to +55°C -55°C to +85°C	Option -40°C to +55°C
Humidity	100%, condensing		
Altitude	10,000' AMSL, de-rated 2°C/1,000' from AMSL		

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