Transmitter Module
10.7-12.7 GHz

Product Datasheet

BUC200
Integrated Ku-band Block Upconverter (BUC).

Overview
The BUC200 Transmitter Module is specifically designed for Ku-band frequency transmission, operating effectively in the 10.7 - 12.7 GHz range. It features a robust design capable of functioning in Low Earth Orbit (LEO) conditions within a 1U stackable enclosure.

The transmitter has an IF input frequency range of 1 - 3 Ghz with an output range of 10.7 - 12.7 Ghz, having an LO Frequency of 13.7 GHz and Output Power of >20 dBm.

Features

- IF Input Frequency Range: 1 - 3 GHz
- Output Frequency Range: 10.7 - 12.7 GHz
- LO Frequency: 13.7 GHz
- Ouput Power: > 20 dBm
- Reference Phase Noise: -145 dBc/Hz
- Spurious Levels: -50 dBc
- Power Requirements: Supply Voltage 8 - 42 Vdc, DC Power <6 Watts

Applications

- High speed data communiactions
- Space communications
- IOT
- Security

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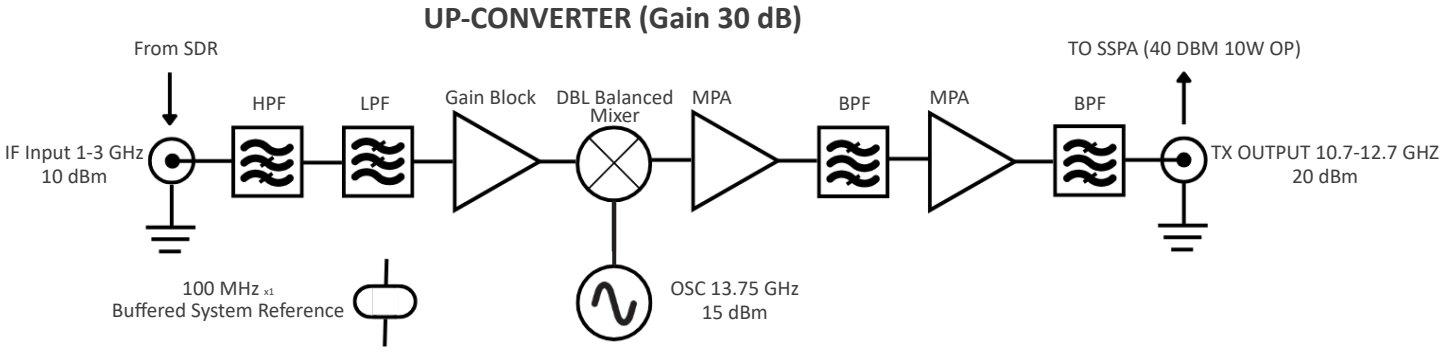
System Diagrams



Requirements Specification

Transmitter

Parameter	Typical	Units
TX Output Frequency Range	10.7 - 12.7	GHz
TX Output Linear Power	20+	dBm
IF Input Frequency Range	1 - 3	GHz
IF Input Power	-30 - 0	dBm
Reference Frequency*	100 (onboard or external)	MHz
Reference Phase Noise	-145	dBc/Hz
Reference Signal Characteristics	Square Input: 0.6Vpp (min)/ 2.5Vpp (max)- Slew Rate>0.5V/ns Sinewave:+5dBm (min)/+15dBm (max)	dB
Reference Stability	< 25	PPM
Conversion Gain	30 (extended 50 50dB with SSPA)	dB
Gain Flatness Overtypical Channel Bandwidth from SDR (250MHz)	3 (speciified over max channel bandwidth (250MHz) accross entire 4GHz) RX bandwidth. (SDR input channel band)	dB
Phase Noise		
10Hz	-40	dBc/Hz
100Hz	-60	dBc/Hz
1kHz	-70	dBc/Hz
10kHz	-80	dBc/Hz
100kHz	-100	dBc/Hz
1MHz	-123	dBc/Hz
10MHz	-140	dBc/Hz
Spurious	-50	dBc
Supply Voltage Range	8 - 42	Vdc
DC Current	1	Amp
DC Power	<6	Watts

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Mechanical and Environmental

Mechanical

Parameter	Typical	Units
PCB Dimensions	92 x 96 x 20 (PC-104 form factor)	mm
Mechanical Enclosure Required	Customer requirement	Yes/No
Mechanical Enclosure Dimensions	1U Cubesat (100 x 100 x 100)	mm
Total Mass	<1	kg
Form Factor Requirement	PC-104	
Enclosure Material Requirement	>2.54mm Aluminium	mm
Enclosure Material Requirement	Gold	
RF Connector Types	SMA	
DC Connector Types	DC Feedthrough or alt. high tel. panel mount	
IF Signal Connector Types	SMA	

Environmental

Parameter	Typical
Operating Temperature Range	-40°C to +70 °C
Operating Environment	-
Radiation Tolerance (kRad)	-
Vibration Requirement	-
Vacuum Requirement	-
Compliance Standards	-

Contact Information

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