Receiver Module
12.75-14.75 GHz

Product Datasheet

BDC200
Integrated Ku-band Block Downconverter (BDC).

Overview
The BDC200 Receiver Module is engineered for high performance in Ku-band frequencies ranging from 12.75 to 14.75 GHz. This receiver is part of an integrated stand-alone module designed for efficient operation in space applications, particularly within LEO environments.

The receiver has an IF output frequency range of 1 - 3 Ghz with an input range of 12.75 - 14.75 GHz, having an LO Frequency of 11.7 GHz and LO Power of >15dBm.

Features

- Input Frequency Range: 12.75 - 14.75 GHz
- IF Output Frequency Range: 1 - 3 GHz
- LO Frequency: 11.75 GHz
- LO Power: > 15 dBm
- Noise Figure: < 2.5 dB
- Reference Phase Noise: -100 dBc/Hz
- Spurious Levels: -60 dBc
- Power Requirements: Supply Voltage
- 8 - 42 Vdc, DC Power <6 Watts

Applications

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

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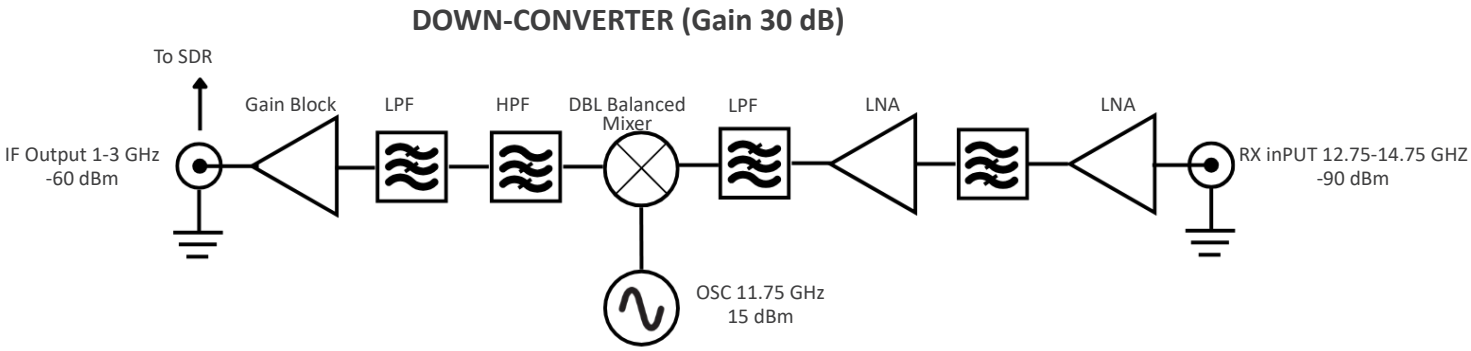
System Diagrams



Requirements Specification

Receiver

Parameter	Typical		Units
RX Input Frequency Range	12.75 - 14.75		GHz
RX Input Power Range	-90 to -300 (LNA dependant)		dBm
IF Output Frequency Range	1 - 3		GHz
IF Output Range	-60 to 0		dBm
Reference Frequency	100	(onboard or external)	MHz
Reference Phase Noise	-100		dBc/Hz
Reference Signal Characteristics	Square Input: 0.6Vpp (min)/ 2.5Vpp (max)- Slew Rate>0.5V/ns Sinewave:+5dBm (min)/+15dBm (max)		
Reference Stability	< 25		PPM
Conversion Gain	30	(extended 50 50dB with SSPA)	dB
Gain Flatness Over Typical 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	-40		dBc/Hz
1kHz	-70		dBc/Hz
10kHz	-80		dBc/Hz
100kHz	-100		dBc/Hz
1MHz	-123		dBc/Hz
10MHz	-140		dBc/Hz
Spurious	-60		dBc
Noise Figure	<2.5		dB
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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