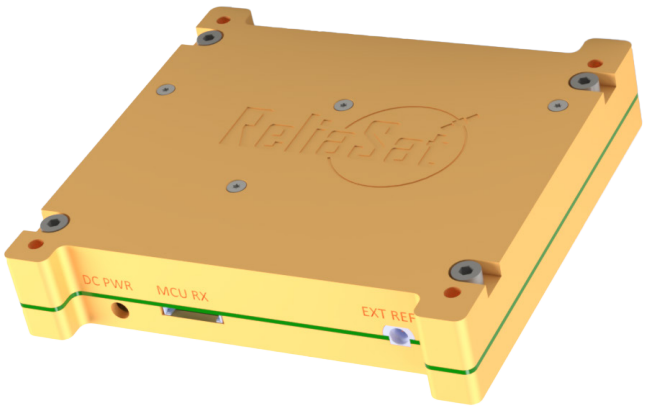
Receive Module
17-21 GHz

Product Datasheet

BDC300
Integrated K/Ka-band Block Downconverter (BDC).

Overview
BDC300 is a fully integrated stand-alone transceiver module designed for K/Ka-band communications It also includes a high-precision clock for LO generation; this clock can be used as a reference for other This transceiver can be used as a stand-alone up/down converter or combined with a modem/Software



Features
- RX Input Frequency 17-21 GHz
- RX IF Frequency: 1-5 GHz
- Noise Figure: <2.5 dB
- Supply Voltage Range: 6-42 Vdc

Applications
- High speed data communications
- Space communications
- IoT
- Security
- 5G
- Satellite communications systems
- Ground and airborne environments

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Specification Overview

Receiver

Parameter	Typical	Unit
RX Input Frequency Range	17-21	(GHz)
RX Input Power Range	-90 to -30	(dBm)
IF Output Frequency Range	1-5	(GHz)
IF Output Power Range	-60 to 0	(dBm)
Reference Frequency	100 (on-board or external)	(MHz)
Reference Phase Noise	-145	(dBc/Hz)
Reference Signal Characteristics	Square input: 0.6 Vpp (min) / 2.5 Vpp (max) - slew rate >0.5 V/ns Sine wave: +5 dBm (min) / +15 dBm (max)	
Reference Stability	5	(PPM)
Conversion Gain	30 (extended 50 dB with SSPA)	(dB)
Gain Flatness Over Typical Channel Bandwidth from SDR (250MHz)	3 (specified over max channel bandwidth (250 MHz) across entire 4 GHz) RX bandwidth. (SDR input channel band)	(dB)
Typical Phase Noise		(dBc/Hz)
1 kHz	-70	(dBc/Hz)
10 kHz	-80	(dBc/Hz)
100 kHz	-100	(dBc/Hz)
1 MHz	-123	(dBc/Hz)
10 MHz	-140	(dBc/Hz)
Spurious	-60	(dBc)
Noise Figure	<2.5	(dB)
Supply Voltage Range	6-42	(Vdc)
DC Current	<1.5	(Amps)
DC Power	<6	(Watts)

Mechanical and Environmental

Mechanical

Parameter	Typical	Unit
PCB Dimensions	80 x 80 x 2 (max)	(mm)
Mechanical Enclosure Required	Yes	
Mechanical Enclosure Dimensions	95.89 x 90.17 x 90.03	(mm)
Total Mass	<2	(kg)
Form Factor Requirement	Enclosure	
Enclosure Material Requirement	>2.54 mm Aluminium	(mm)
Enclosure Planting Requirement	Gold	
RF Connector Types	2.92	(mm)
DC Connector Types	DC feedthrough or alt. high rel. panel mount	
IF Signal Connector Types	SMA	

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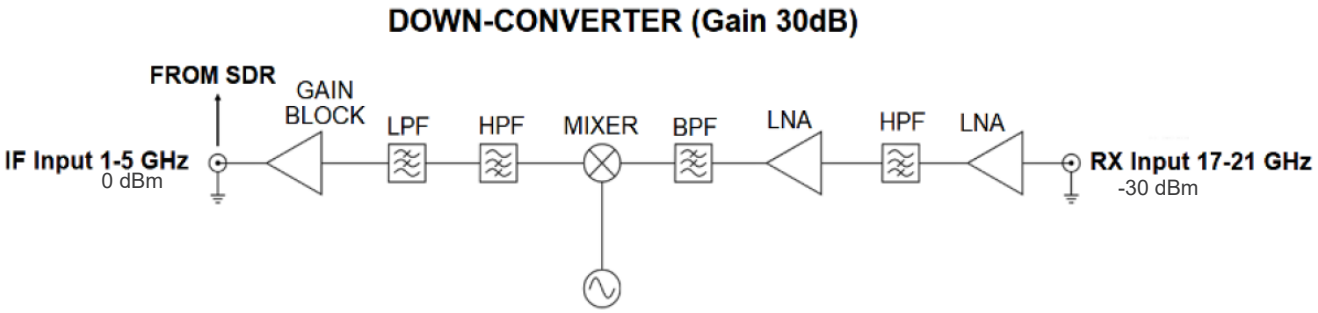
Environmental

Parameter	Typical
Operating Temperature Range	-40 °C to +70 °C
Storage Temperature Range	-40 °C to +85 °C
Operating Environment	Terrestrial; IP65 enclosures standard
Vibration Requirement	MIL-STD-810
Compliance Standards	1) ETSI EN 301 459 2) ETSI EN 301.489-12 (EMC standard for satellite earth stations)

Simplified Schematic Diagram



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