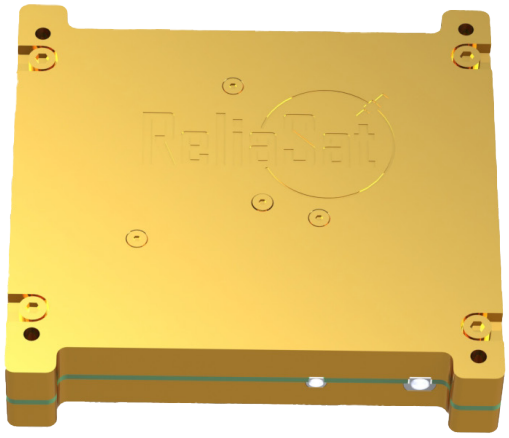
Transmit Module
27-30 GHz

Product Datasheet

BUC300
Integrated K/Ka-band Block Upconverter (BUC).

Overview
BUC300 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
- TX Output Frequency: 27 - 30 GHz
- TX IF Frequency: 1 - 4 GHz
- TX Output Linear Power: 20 dBm

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

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Specification Overview
Transmitter

Parameter	Typical	Unit
TX Output Frequency Range	27-30	(GHz)
TX Output Linear Power	20	(dBm)
IF Input Frequency Range	1-4	(GHz)
IF Input Power	-10 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 (250 MHz)	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)
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	

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)

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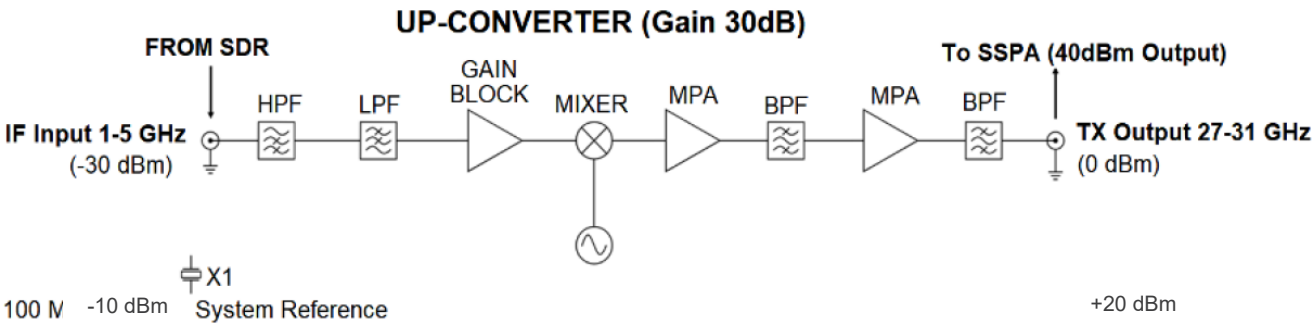
Simplified Schematic Diagram



Contact Information

ReliaSat European Offices

e: sales@reliasat.com

www.reliasat.com

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