



### BLOCK DOWN CONVERTER

**IF Output** 200MHz~400MHz  
**RF Input** 1.70GHz~1.90GHz



### Summary

RFBDC1G2GA down-converter unit uses the phase lock technology, and it uses the crystal oscillator with temperature compensating function as the referenced signal of PLL, what's more, it uses the low phase noise Analog Device ADF4107BRS as the frequency synthesizer chip of PLL. So the frequency of its inner part LO has a good stability in a wider temperature range.

RFBDC1G2GA Down-converter use two band pass filter inside so that It can give better out band rejection.

### General Specification

IF Output frequency: 200MHz~400MHz  
 RF Input frequency: 1.70GHz~1.90GHz  
 External reference 10MHz interface available.  
 Frequency stability  $2 \times 10^{-6}$  / Hour  
 Frequency hopping < 10ms / 5MHz  
 High linearity low spurious in / out band  
 Handle high peak to average ratio signal such as OFDM, QPSK, DSSS signal.  
 Ideal for point to point radio station.  
 Small package, high mobility.

#### Electrical Specifications

<b>RF input range</b>	1.70GHz-1.90GHz	<b>IF Output Frequency</b>	200-400MHz
<b>P1dB</b>	+13dBm	<b>Stability</b>	$2 \times 10^{-6}$
<b>Conversion Gain:</b>	60dB $\pm$ 0.5dB $\Delta G/\Delta T=0.03\text{dB}/^\circ\text{C}$	<b>In/ Out VSWR:</b>	1.5 : 1
<b>Flatness:</b>	+/-2.0dB max.	<b>Frequency step</b>	0.5MHz
<b>In-Band spurious</b>	65dBc min. (-10dBm output)	<b>Out-Band Spurious</b>	50dBc min (-10dBm output)
<b>LO Phase Noise</b>	-110dBc/Hz (100KHz offset)	<b>Reference</b>	10MHz external reference (GPS)
<b>Input Power</b>	-20dBm (Max)	<b>DC Voltage:</b>	+11VDC~+15VDC (2W)

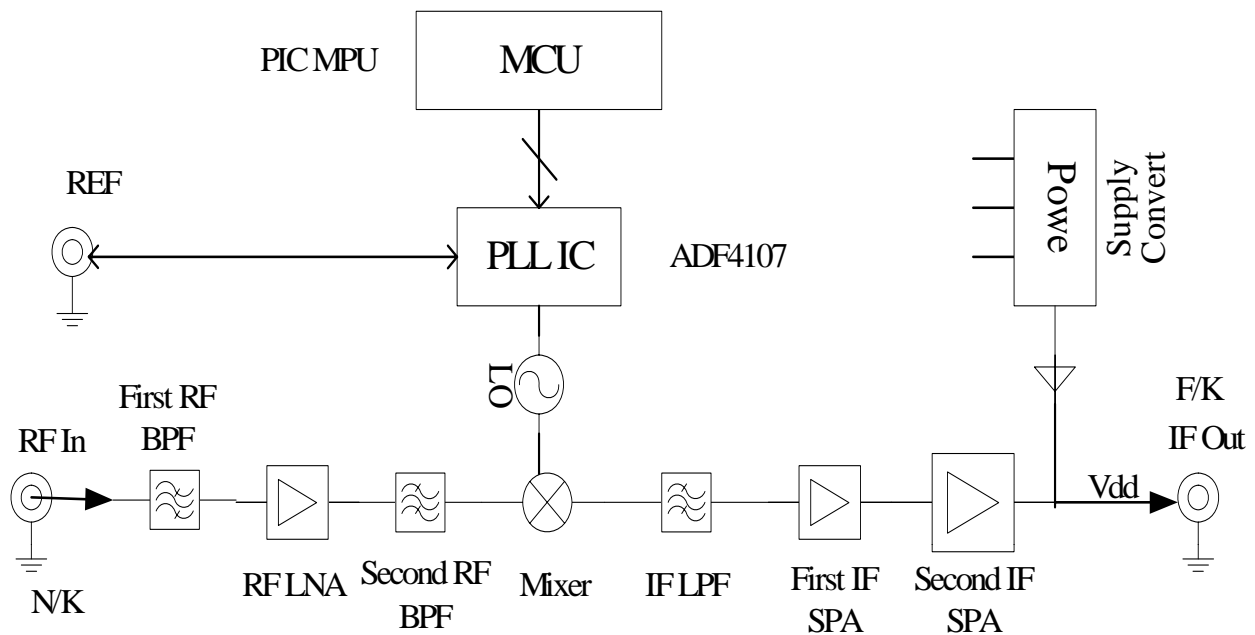
#### Mechanical and Environmental Specifications

<b>Operation Temperature:</b>	-40°C to 85°C base plate	<b>Mechanical shock</b>	30G, 11mSec half sin wave, 3 axis both directions
<b>Vibration:</b>	14.2g RMS (15-2000Hz) functional	<b>Humidity</b>	95% relative humidity, 65°C 96Hour
	16.2g RMS (15-2000Hz) endurance, 1 hour /axis	<b>MTBF</b>	50000 hour min
<b>Connectors:</b>	RF SMA-F / N-F Removable	<b>Case:</b>	Sea Gray Paint
	Power Supply feed in through IF port.	<b>Dimension Size (L x W x H):</b>	133.5mm x 85.5mm x 30.5mm



1.70-1.90GHz DOWNCONVERTER TESTING TABLE					
Output IF Frequency (MHz)	Input RF Frequency 1.70GHz				
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	Supply Current (mA)
1700	Gain (dB)	61.4	60.2	59.2	160
	NF (dB)		3.85		
	P1dB (dBm)		13.3		
Output IF Frequency (MHz)	Input RF Frequency 1.8GHz				
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	Supply Current (mA)
1800	Gain (dB)	61.2	59.7	58.4	160
	NF (dB)		3.9		
	P1dB (dBm)		13.2		
Output IF Frequency (MHz)	Input RF Frequency 1.90GHz				
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	Supply Current (mA)
1900	Gain (dB)	61.1	59.8	58.6	160
	NF (dB)		3.83		
	P1dB (dBm)		13.2		

### BLOCK DIAGRAM



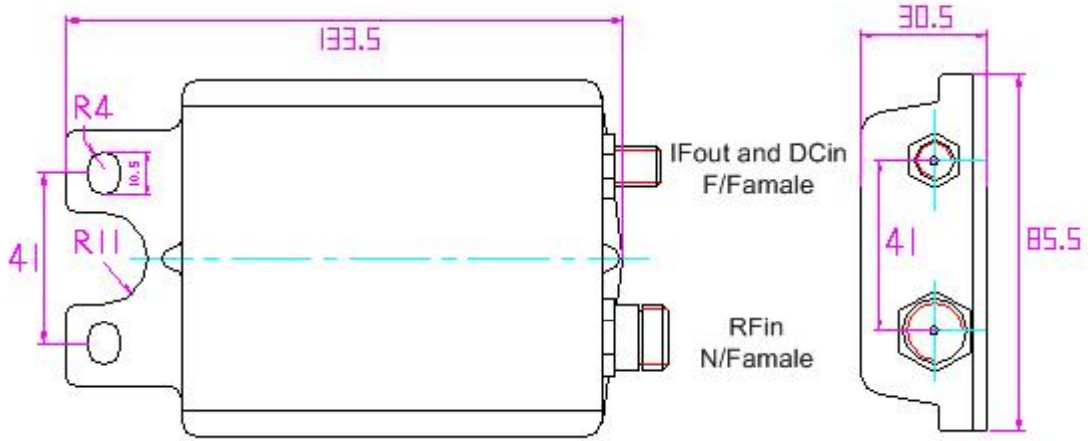


# RF-LAMBDA

The power beyond expectations

## RFBDC1G2GA

### MECHANICAL DRAWING



FREQUENCY BLOCK DOWN CONVERTER 1.70GHZ-1.90GHZ