

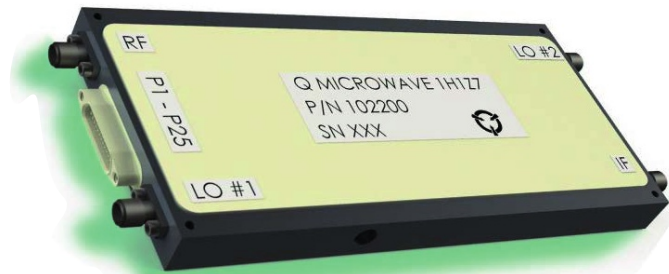


Q Microwave
An **Amphenol** company

500 MHz Bandwidth Wideband RF Downconverter 0.5 to 18 GHz Frequency Range

Typical Applications

- Frequency Conversion
- Electronic Warfare Systems
- Radar Systems



Features

- **RF Frequency Range**
 - 0.5 to 18 GHz
- **IF Frequency Range**
 - 950 to 1450 MHz
- **500 MHz Instantaneous Bandwidth**
- External LO's Required
- Frequency Agile across Entire Band
- Voltage +/- 6 VDC
- Small Size 6.0 x 2.7 x 0.55 inch
- Rugged Hermetic Package
- DC Test Cables Available Upon Request

General Description

Q Microwave's PN 102200 is a frequency-agile RF Downconverter capable of converting frequencies centered between 0.5 and 18 GHz, with 500 MHz of instantaneous bandwidth.

The 500 MHz IF frequency range is centered at 1200 MHz (950 to 1450 MHz).

This module is configured to use two externally provided Local Oscillator (LO) inputs in order to provide a higher degree of flexibility and customized applications.

Digital control is provided through a Micro-D connector.

The unit is packaged in a rugged housing with hermetical seals and internal potting in order to provide higher reliability in difficult environments.

All specifications are customizable upon request. Q Microwave is an AS9100 / ISO9001 Certified Supplier.

For more information, please contact:

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0.5 to 18 GHz Wideband RF Downconverter

500 MHz Bandwidth Wideband

Table 1: Electrical Specifications using Table of Applicable Test Conditions*

Parameter	Min.	Typ.	Max.	Units
RF Input Frequency Range	0.5		18	GHz
IF Output Center Frequency	950	1200	1450	MHz
L01 Input Frequency Range	1.0		19	GHz
L02 Input Frequency Range	3.5		9.5	GHz
L01 & L02 Input Power	+10		+17	dBm
Instantaneous 3 dB bandwidth		500		MHz
Insertion Loss	13		17	dB
Gain Flatness (0.5 to 18 GHz)		9		dB
Gain Variation over IF Passband (500 MHz)		< +/- 1.5		dB
Noise Figure (NF)			16	dB
IIP3	+30			dBm
Output 1 dB Compression Point (OP1dB)	+10			dBm
Spurious L01 x L02			-65	dBm
L0 to Input Isolation			-60	dBm
L0 to Output Isolation			-60	dBm
Switching Speed			1	usec
Max Power In			+27	dBm
Operating Voltage (+6 VDC)			250	mA
Operating Voltage (-6 VDC)			50	mA
VSWR IF Port			2.0:1 / 50% 2.5:1 / 100%	mA
VSWR RF Port			2.0:1 / 50% 2.5:1 / 100%	mA
Filter Specifications	Per Table 2			
Digital Switch Logic	Per Table 3			

*Note 1: Table of Final Test Sweeps & L01/L02 Inputs used to test the converter are on Website



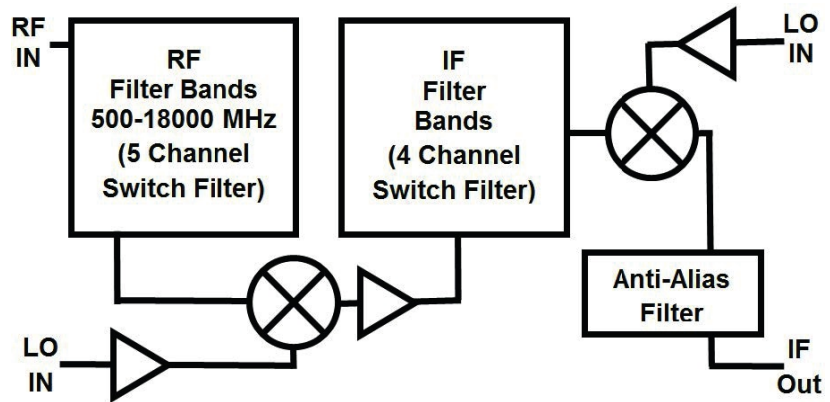
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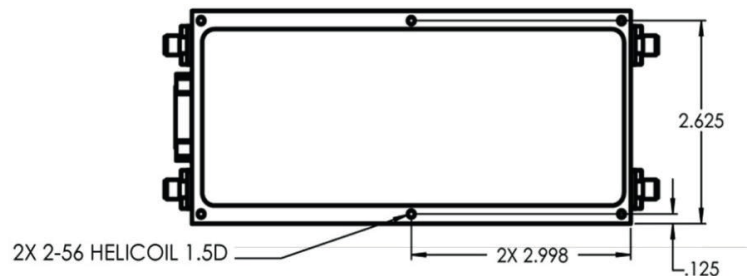
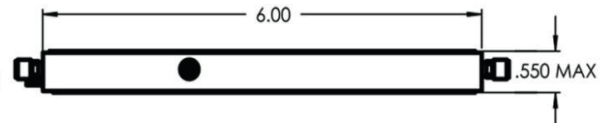
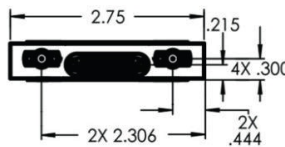
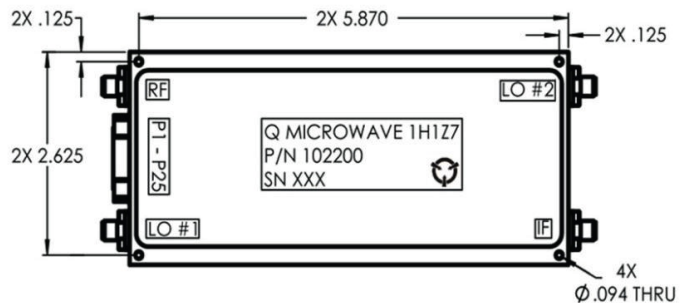
RF Block Diagram

Q PN 102200 Wideband RF Downconverters have dual-stage downconverter approach as is depicted in the Block Diagram below. It will downconvert an RF Input signal to an IF Output signal, centered at 1200 MHz, with up to 500 MHz of Instantaneous Bandwidth.



Mechanical Outline & Dimensions

1. **MATERIAL:**
 - A. HOUSING: ALUMINUM 6061-T6
 - B. COVER: ALUMINUM 4032 OR 4047
2. **SEAL METHOD:** LASER WELD
(VACUUM BAKE 2 HRS. MIN @ 125°C ± 5°C BEFORE SEALING)
3. **HERMETICITY:**
 - A. GROSS - LEAK LEVEL PER MIL-STD-202, M112, COND. D
4. **FINISH:**
 - A. LID SURFACE AND WELD ZONE: CHEMICAL CONVERSION COAT PER MIL-DTL-5541, CLASS 1A
 - B. DC CONNECTOR SHELL: CHEMICAL CONVERSION COATED PER MIL-C-5541, CLASS 1A
 - C. THREADED HOLES: UNPLATED (BARE ALUMINUM)
 - D. SMA CONNECTORS: PASSIVATED STAINLESS STEEL
 - E. ALL OTHER SURFACES: HIGH PHOSPHORUS NICKEL PLATED PER ASTM B733, TYPE V (10% - 13%), .001-.0015 IN THICK
5. **INPUTS/OUTPUTS:**
 - A. RF CONNECTORS - SMA, FIELD REPLACEABLE
 - B. DC CONNECTOR: 25 PIN MICRO-D
6. **MARKING:** LABEL AS SHOWN
7. **NOTES:**
 - A. WEIGHT: 11 oz. MAX
 - B. ESD HANDLING PRECAUTIONS TO BE OBSERVED
 - C. ALL DIMENSIONS ARE PRIOR TO PLATING



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0.5 to 18 GHz Wideband RF Downconverter

Table 2: Filter Specifications

Band	Fc	1.5 dB BW	Lower Rejection		Upper Rejection	
	(MHz)	(MHz)	dB	MHz	dB	MHz
RF1	1550	500 - 2600	50	20 - 400	50 40	2990 - 11000 11000 - 18000
RF2	3740	2380 - 5100	50	20 - 2050	50 40	5840 - 11000 11000 - 18000
RF3	6490	4880 - 8100	50	20 - 4250	50	9260 - 18000
RF4	9990	7880 - 12100	50	20 - 6750	50	13820 - 18000
RF5	14940	11880 - 18000	50	20 - 10350	40	at 24000
IF1	3610	3120 - 4100	50	20 - 2700	50	4700 - 13000
IF2	4343	3865 - 4820	50	20 - 3330	50	5560 - 13000
IF3	6625	6150 - 7100	50	20 - 5300	50	8125 - 13000
IF4	7363	6900 - 7825	50	20 - 6000	50	8980 - 13000
Anti - Alias	1200	950 - 1450	50	20 - 800	50	2050 - 15000

Table 3 Digital Switch Logic

Filter	B0R	B1R	B2R	B0I	B1I	All Other States														
	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	RF1	RF1	RF1	RF1	RF2	RF2	RF2	RF2	RF3	RF3	RF3	RF3	RF4	RF4	RF4	RF4	RF5	RF5	RF5	RF5
Filter	IF1	IF2	IF3	IF4	IF1	IF2	IF3	IF4	IF1	IF2	IF3	IF4	IF1	IF2	IF3	IF4	IF1	IF2	IF3	IF4
	OFF																			OFF



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