

Fan 60 x 60, 12 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.47 A
Airflow	63 m3/h
Noise	44 dBA
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

Fan 60 x 60, 24 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.24 A
Airflow	46,8 m3/h
Noise	39 dBA
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

Fan 80 x 80, 12 V

including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.2 A
Airflow	70 m3/h
Noise	35 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

KU UP 107 B, Up Converter

10000 ... 10700 MHz

This device converts the IF frequency range 960 ... 1660 MHz up to the frequency range 10000 ... 10700 MHz. Typical applications are MMDS transmitter as well as DVB-T or DVB-S systems. The up converter includes band pass filters for high spurious rejection and a high quality VCO with low phase noise and therefore it is suitable for all modulation types. Together with a power amplifier an output power of 50 watts CW can be achieved.



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- Additional input for 10 MHz reference frequency
- Automatic activation of PLL if external 10 MHz signal is supplied
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems

Important notes

- Please notice the following:
- Additional cooling required

Technical specifications:

Frequency range (IF)	960 ... 1660 MHz
Frequency range (RF)	10000 ... 10700 MHz
LO frequency	9040 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1kHz	typ. -79 dBc/Hz
Phase noise @ 10 kHz	typ. -83 dBc/Hz
Phase noise @ 100 kHz	typ. -109 dBc/Hz
Image rejection	typ. 80 dB
Gain	typ. 25 dB
Maximum input power	max. 5 mW (+7 dBm)
Output power (P1dB)	typ. 250 mW (+24 dBm)
Output power (COFDM)	30 ... 60 mW
Maximum case temperature	+55 °C
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 850 mA
Reference frequency input	10 MHz / 2 ... 10 mW
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	310 g

KU UP 2123 A, Up Converter

2100 ... 2300 MHz

The converter KU UP 2123 A is designed for radio link systems in the range from 2100 MHz to 2300 MHz. It features a high frequency stability and high linearity. High spurious rejection is achieved by internal band pass filters. There is no need for additional external filters! Typical applications are radio link systems or digital video transmissions using DVB-T and DVB-S. Together with the power amplifier KU PA 210230-20 B an output power of more than 20 watts CW can be achieved.



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems
- Multichannel Multipoint Distribution Service (MMDS)

Technical specifications:

Frequency range (IF)	540 ... 740 MHz
Frequency range (RF)	2100 ... 2300 MHz
LO frequency	1560 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1 kHz	typ. -98 dBc/Hz
Phase noise @ 10 kHz	typ. -107 dBc/Hz
Phase noise @ 100 kHz	typ. -116 dBc/Hz
Gain	typ. 17 dB, min 15 dB
Maximum input power	max. 5 mW (+7 dBm)
Output power (P1dB)	typ. 50 mW (+17 dBm)
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 240 mA
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	310 g

KU UP 2325 A, Up Converter

2300 ... 2500 MHz

The converter KU UP 2325 A is designed for radio link systems in the range from 2300 MHz to 2500 MHz. It features a high frequency stability and high linearity. High spurious rejection is achieved by internal band pass filters. There is no need for additional external filters! Typical applications are radio link systems or digital video transmissions using DVB-T and DVB-S. Together with the power amplifier KU PA 230250-20 B an output power of more than 20 watts CW can be achieved.



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems
- Multichannel Multipoint Distribution Service (MMDS)

Technical specifications:

Frequency range (IF)	597 ... 797 MHz
Frequency range (RF)	2300 ... 2500 MHz
LO frequency	1703 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1 kHz	typ. -95 dBc/Hz
Phase noise @ 10 kHz	typ. -98 dBc/Hz
Phase noise @ 100 kHz	typ. -110 dBc/Hz
Gain	typ. 17 dB, min 15 dB
Maximum input power	max. 5 mW (+7 dBm)
Output power (P1dB)	typ. 50 mW (+17 dBm)
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 240 mA
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	310 g

KU UP 5457 A - Up Converter

5400 ... 5700 MHz

The converter KU UP 5457 A is designed for radio link systems in the range from 5400 MHz to 5700 MHz. It features a high frequency stability and high linearity. High spurious rejection is achieved by internal band pass filters. There is no need for additional external filters! Typical applications are radio link systems or digital video transmissions using DVB-T and DVB-S.



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems
- Multichannel Multipoint Distribution Service (MMDS)

Technical specifications:

Frequency range (IF)	400 ... 700 MHz
Frequency range (RF)	5400 ... 5700 MHz
LO frequency	5000 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1kHz	typ. -85 dBc/Hz
Phase noise @ 10 kHz	typ. -92 dBc/Hz
Phase noise @ 100 kHz	typ. -100 dBc/Hz
Gain	typ. 17 dB, min 15 dB
Maximum input power	max. 5 mW (+7 dBm)
Output power (P1dB)	typ. 100 mW (+20 dBm)
Maximum case temperature	+55 °C
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 430 mA
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	310 g

KU UP 5659 A, Up Converter

5600 ... 5900 MHz



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems

Technical specifications:

Frequency range (IF)	400 ... 700 MHz
Frequency range (RF)	5600 ... 5900 MHz
LO frequency	5200 MHz
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1kHz	typ. -85 dBc/Hz
Phase noise @ 10 kHz	typ. -92 dBc/Hz
Phase noise @ 100 kHz	typ. -100 dBc/Hz
Gain	typ. 17 dB, min 15 dB
Maximum input power	max. 5 mW (+7 dBm)
Output power (P1dB)	typ. 100 mW (+20 dBm)
Maximum case temperature	+55 °C
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 430 mA
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	310 g

Fan 80 x 80, 24V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.2 A
Airflow	90 m3/h
Noise	40 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 80 x 80, 12 V HP - high power fan
including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.35 A
Airflow	90 m3/h
Noise	40 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

KU UP 112 A, Up Converter

10700 ... 11400 MHz



Features

- Low phase noise oscillator
- High frequency stability of the oscillator
- High linearity
- Reverse polarity protection

Applications

- Digital broadcast systems (DVB-T, DVB-S)
- Analog and digital transmission systems

Important notes

Please notice the following:

- Additional cooling required

Technical specifications:

Frequency range (IF)	2420 ... 2470 MHz
Frequency range (RF)	10.7 ... 11.4 GHz (one 50 MHz segment selectable)
LO frequency	8280 ... 8930
LO accuracy @ 18 °C	+/- 2 ppm
LO frequency stability	+/- 3 ppm
Phase noise @ 1kHz	typ. -80 dBc/Hz
Phase noise @ 10 kHz	typ. -79 dBc/Hz
Phase noise @ 100 kHz	typ. -91 dBc/Hz
Image rejection	typ. 50 dB
Gain	typ. 30 dB
Input power	typ. 1 mW (0 dBm)
Maximum input power	max. 5 mW (+7 dBm)
Output power (Psat)	1 W (+30 dBm)
Output power (COFDM)	typ. 200 mW (+23 dBm)
Maximum case temperature	+55 °C
Supply voltage	+12 ... +14 V DC
Current consumption	typ. 1.5 A
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	126 x 64 x 22
Weight	340 g

KU UP 3436 A, Up Konverter

3400 ... 3600 MHz

The up converter KU UP 3436 A converts the UHF band from 400 to 600 MHz up to the frequency range from 3400 to 3600 MHz. Internal filters provide high spurious rejection and image rejection. Due to low phase noise and high frequency stability of the local oscillator at 3000 MHz, the up converter is suitable for analog and digital communication systems.

Typical applications are Multichannel Multipoint Distribution Systems (MMDS) using QPSK modulation and DVB-T or DVB-S systems. The output power of 20 mW can be increased to several watts by the use of an additional power amplifier.

See also section > Power Amplifiers > 3.4 GHz.



Technical specifications:

Frequency range (IF)	400 ... 600 MHz
Frequency range (RF)	3400 ... 3600 MHz
LO frequency	3000 MHz
LO accuracy @ 18 °C	+/- 20 kHz
LO frequency stability	+/- 2.5 ppm
Phase noise @ 100 kHz	typ. -112 dBc/Hz
Image rejection	typ. 50 dB
Gain	23 dB
Gain flatness	+/- 2 dB
Input power	typ. 0.1 mW (-10 dBm)
Maximum input power	max. 3 mW
Output power (P1dB)	min. 20 mW (+13 dBm)
Output power (Psat)	min. 17 dBm (50 mW)
Supply voltage	+9 ... +14 V DC
Current consumption	typ. 230 mA
Input connector / impedance	SMA-female, 50 ohms
Output connector / impedance	SMA-female, 50 ohms
Case	milled aluminium
Dimensions (mm)	82 x 64 x 22
Weight	200 g

Fan 80 x 80, 24 V

including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.07 A
Airflow	70 m3/h
Noise	33 dBA
Bearing System	Ball
Dimensions	80x80x25 mm
Fan grill	80x80 mm

Fan 120 x 120, 24 V

including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.4 A
Airflow	234.4 m3/h
Noise	48 dBA
Bearing System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

**Fan 120 x 120, 12 V HP - high power fan
including fan grill**



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 1.6 A
Airflow	323 m3/h
Noise	54 dBA
Bearing System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

Fan 120 x 120, 12V

includig fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	0.8 A
Airflow	234.4 m3/h
Noise	48 dBA
Bearing System	Ball
Dimensions	120 x 120 x 38 mm
Fan grill	120 x 120 mm

Fan 60 x 60, 12 V

including fan grill



Technical specifications:

Supply voltage	+12 V DC
Current consumption	typ. 0.15 A
Airflow	40 m3/h
Noise	34.5
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm

Fan 60 x 60, 24V

including fan grill



Technical specifications:

Supply voltage	+24 V DC
Current consumption	typ. 0.15 A
Airflow	40 m3/h
Noise	34.5
Bearing System	Ball
Dimensions	60x60x25 mm
Fan grill	60x60 mm