CXE180 UNIVERSAL AMPLIFIER

The CXE180 is a compact dual output amplifier. It has two gain modes in one product. Gain can be selected on the field according to wanted operation. Higher gain is designed for distribution purposes and lower gain is suitable for line extender use.

Adjustments are using electrical circuits that are controlled with rotary switches. High gain return amplifier is fixed built on the mother board.

Features

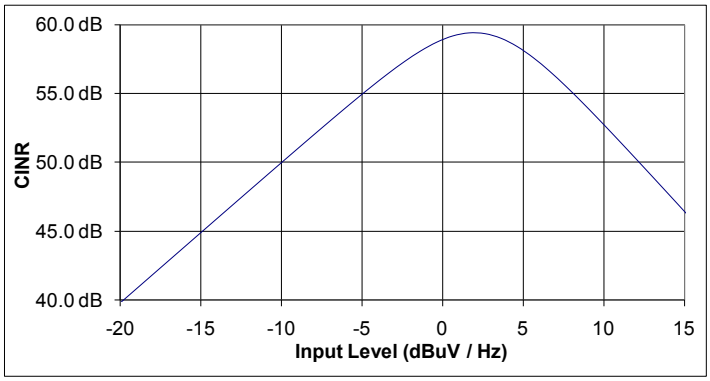
- GaAs pHEMT and MESFET gain technology
- 1 GHz
- 85 MHz US channel
- High gain / low gain selection
- Flat / sloped output selection
- All adjustments with rotary switches
- Cable simulator option at input
- 2 output ports
- Fixed US amplifier
- Excellent ESD and surge protection
- Remote / local powering
- Plug-in diplex filters

Technical specifications

Parameter	Specification	Note
Downstream signal path (all values with the diplex filters)		
Frequency range	47 / 54 / 70 / 85 / 108...1006 MHz	
Return loss	18 dB	1)
Gain	40.0 dB	2)
Input attenuator control range	0…-15 dB	3)
Input equaliser control range	0…20 dB	4)5)
Cable simulator	0 / -8 dB	5)
Mid-stage slope	8 / 0 dB	5)
Mid-stage gain selection	40.0 / 32.0 dB	
Flatness	± 0.5 dB	6)
Test point	20 dB	7)
Group delay	2 ns	8)
Noise figure	7.0 dB	9)
CTB 42 channels	112.0 dBµV	10)
CSO 42 channels	114.0 dBµV	10)
XMOD 42 channels	111.0 dBµV	10)
CTB 110 / 77 channels	66.0 / 73.0 dB	11)
CSO 110 / 77 channels	64.0 / 67.0 dB	11)
XMOD 110 / 77 channels	64.0 / 70.0 dB	11)
Upstream signal path (all values with the diplex filters)		
Frequency range	5...30 / 42 / 50 / 65 / 85 MHz	
Return loss	18 dB	
Gain	28 dB	12)
Gain control range (output)	0…-15 dB	3)
Gain control range (input)	0 / -10 dB	
Slope control range	0…15 dB	3)13)
Flatness	± 0.75 dB	
Noise figure	5.0 dB	14)
Output level, DIN 45004B	114.0 dBuV	14)
CINR	> 58 dBc	15)
General		
Hum modulation	70 dB	16)
Maximum current feed through	3.0 A / port	17)
Supply voltage	26...65 VAC / 180…255 VAC	
Power consumption	14.0 W	
Input / Output connectors	PG11 (several adaptors available)	
Test point connector	F- female	
Dimensions	182 (210) x 140 (148) x 84 mm	
Weight	1.5 kg	
Operating temp	-40...+55 °C	
Class of enclosure	IP 54	
EMC compatibility	EN 60728 -2	
Safety	EN 60728 -11	
ESD	4 kV	18)
Surge	6 kV	19)

Notes

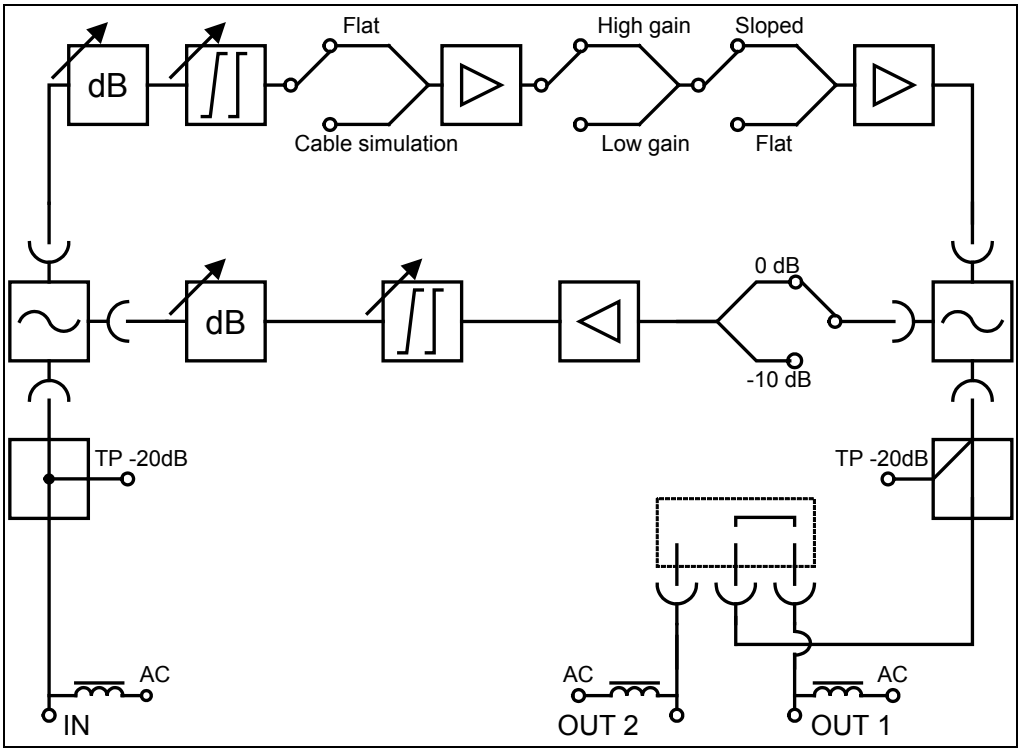
1) The limiting curve is defined at 40 MHz -1.5 dB / octave.
2) This is the nominal gain at 1006 MHz. Guaranteed minimum gain is 39.0 dB.
3) A rotary switch is used for control and step size is 1 dB.
4) A rotary switch is used for control and step size is 2 dB
5) Defined between 47…1006 MHz.
6) Typical value. The guaranteed value is ± 0.8 dB. Definition is done 8 dB sloped output and 0 dB output module.
7) Output TP is from a directional coupler and has a ±1.0 dB tolerance. The output test point can be used as an injection point for return path test signal. Input TP is a transformer type and it is having an accuracy of ±2.0. It can be used as the output test point for the return signal.
8) Typical value for 4.43 MHz band , when f > 130 MHz.
9) Typical value. Guaranteed value is 1.0 dB worse.
10) According to EN50083-3. Amplifier output was 8 dB cable equivalent sloped and higher gain mode was used. All results are typical values in room temperature, which can be used in system calculations. XMOD is measured at the lowest channel.
The highest recommended output level for the amplifier is 111.0 dBµV with 42 channels.
11) Measured with 77 and 110 NTSC channels. Amplifier output was 12 dB linearly sloped and the used levels were at 55 / 550 / 750 / 862 MHz 35.0 / 42.5 / 45.5 / 47.0 dBmV. All results are typical values in room temperature, which can be used in system calculations. XMOD is measured at lowest channel.
The highest recommended output level for the amplifier is 50 dBmV with 110 channels and 52 dBmV with 77 channels.
12) Guaranteed gain is always > 27.0 dB.
13) Pivot frequency is at 85 MHz.
14) These typical values can be used in network design.
15)



Measurement is done at 49 MHz with loading of 5*6.875 MHz and US input attenuator is having 0 dB value.

16) At any frequency from 10 to 1006 MHz when a remote current is less than 2.5 A / port. With 3 A current hum modulation value is better than 65 dBc / port.
17) When f-connector is used, a remote current should be lower than 2 A.
6 A is the maximum current, which can be locally injected into all ports together.
18) EN61000-4-2, contact discharge to enclosure and RF-ports.
19) EN61000-4-5, 1.2 / 50 µs pulse to RF-ports.

Block diagram



Ordering information

CXE180 without configuration

There are two fixed items available.

CXE180 LF is an amplifier equipped with 230 VAC power supply with euro plug, 2 pcs CXF065 diplex filters installed, 2 ports with F-female connectors, 3rd port closed with sealing plug, 0 dB output module (AC6120) installed.

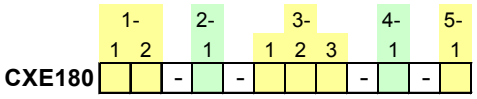
CXE180 RF is like previous product, but it uses 65 VAC powers supply. Port for local powering is sealed with a PG11 plug. If 65 VAC voltage is fed locally, cable gland is needed.

Accessories:

Diplex filters	CXF000/-030/-050/-065/-085
Diplex filters with ingress filtering	CXF065 14/-18/-28
Output modules	AC6124/-28/-11/-16/-19
3.5/12” connector (NiTin)	KDC210
IEC-female connector (NiTin)	KDC212
F-female connector (NiTin)	KDC213
5/8” adapter	KDC314
Cable gland	KDG900

Configured CXE180

CXE180 configuration map
DOC0018136
Rev 002



1-1 Platform type	
A	High gain 1 GHz

1-2 Power supply	
A	Local powering, euro plug (230 VAC)
B	Remote powering (65 VAC)
C	Remote powering with cable clamp (65 VAC)
D	Local powering, UK plug (230 VAC)

2-1 Output module	
A	0 dB, 1 output in use (AC6120)
B	Splitter -3.7 dB, 2 outputs in use (AC6124)
C	Tap -8 dB, 2 outputs in use (AC6128)
D	Tap -12 dB, 2 outputs in use (AC6112)
E	Tap -16 dB, 2 outputs in use (AC6116)
F	Tap -20 dB, 2 outputs in use (AC6119)
X	None

3-1 Input connection	
A	PG11
B	5/8"
C	IEC
D	3.5/12
E	F

3-2 Output 1 connection (first from right)	
A	PG11
B	5/8"
C	IEC
D	3.5/12
E	F

3-3 Output 2 connection	
A	PG11
B	5/8"
C	IEC
D	3.5/12
E	F
X	None (PG11 sealing plug)

4-1 Diplexer filters	
A	30/47 MHz (2 x CXF030)
B	42/54 MHz (2 x CXF042)
C	50/70 MHz (2 x CXF050)
D	65/85 MHz (2 x CXF065)
E	85/108 MHz (2 x CXF085)
F	65/85 MHz (CXF065 + CXF065 18)
K	Forward path jumper (2 x CXF000)
X	None

5-1 Reserved for future	
X	None