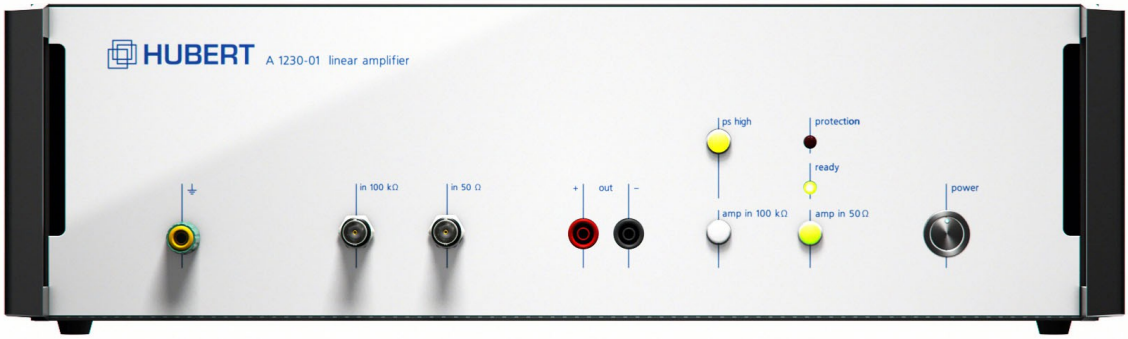
HUBERT
amp up your process

A1230-01

4-quadrant voltage amplifier

DC – 7 MHz | 380 V/µs | 185 W (source) | 68 W (sink)



DATA SHEET

The A1230-01 is a linear, extreme broadband precision power amplifier. It is ideally suited for applications that require quickly changeable signals at optional resistive and complex loads.

The A1230-01 is equipped with two added inputs with 50 Ω and 100 kΩ input resistance, respectively; the 50 Ω input makes it the ideal down

stream equipment for conventional function generators.

There are two operating voltages available for optional selection: high-voltage / low-current or low-volt / high-current. Particularly for very low-ohm loads, selection of low operating voltage results in significant reduction of the dissipation loss and a higher output current.

If higher output voltages are required, the preamplifier output (bridge out) allows for simple bridge circuit structures with a second A1230-01 for doubling the output voltage.

The device is equipped with a low-noise, temperature-controlled fan. In addition to over temperature shut-down, a feature for dissipation power calculation ensures fast power monitoring for perfect short-circuit and overload protection.

Operation is performed via the control elements on the front panel of the amplifier. Moreover, the amplifier can be completely remote-controlled by means of a simple byte protocol via the USB interface.

If higher output voltages or higher output currents are needed, configurations with several A1230-01 devices connected in series or in parallel are possible.

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Features

- Universally applicable broadband lab amplifier; ideally suited as downstream equipment for function generators
- Amplifier is stable with all inductive and capacitive loads
- Output voltages up to 75 V_{peak}
- Output current up to 5 A_{peak}
- Two added inputs with 50 Ω and 100 kΩ input resistance, respectively
- Preamplifier output (bridge out) allows for simple bridge circuit structures for doubling the output voltage
- 2 supply voltages for ideal load adjustment
- USB port (emulated COM port) as standard

Applications

- General lab applications for research, development and testing
- EMC testing
- Material testing
- MRI
- Component tests
- Plunger coil drives
- Piezo actuation
- Generation of magnetic fields (e.g. with Helmholtz coils)
- Medical engineering
- Laser technology
- Plasma technology

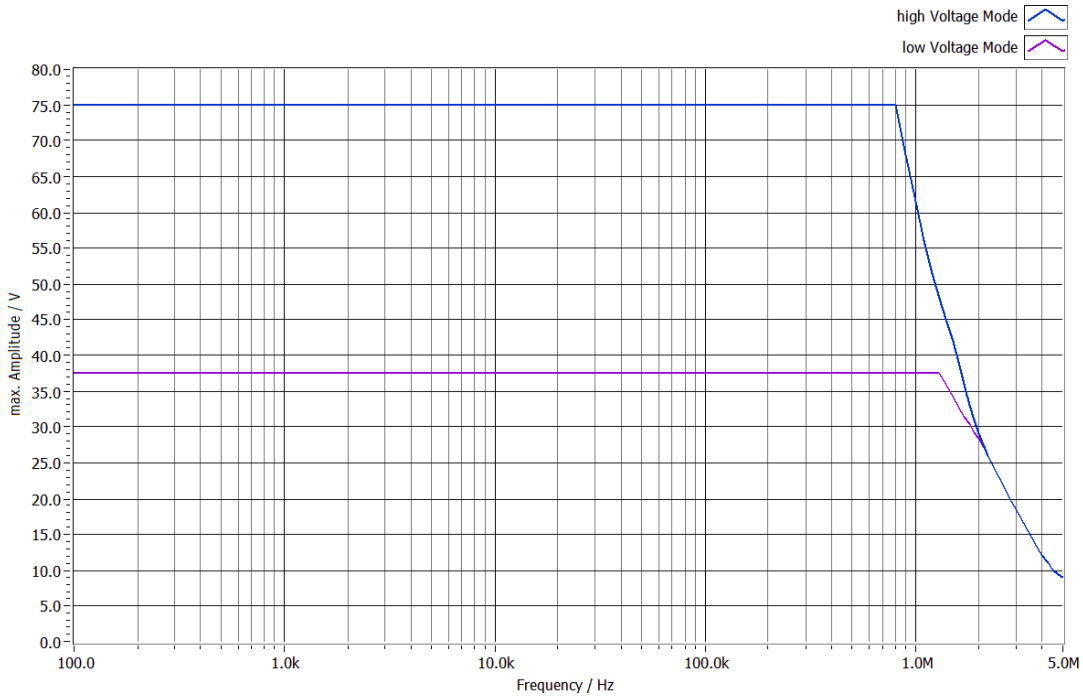
Rear of the amplifier

Specifications

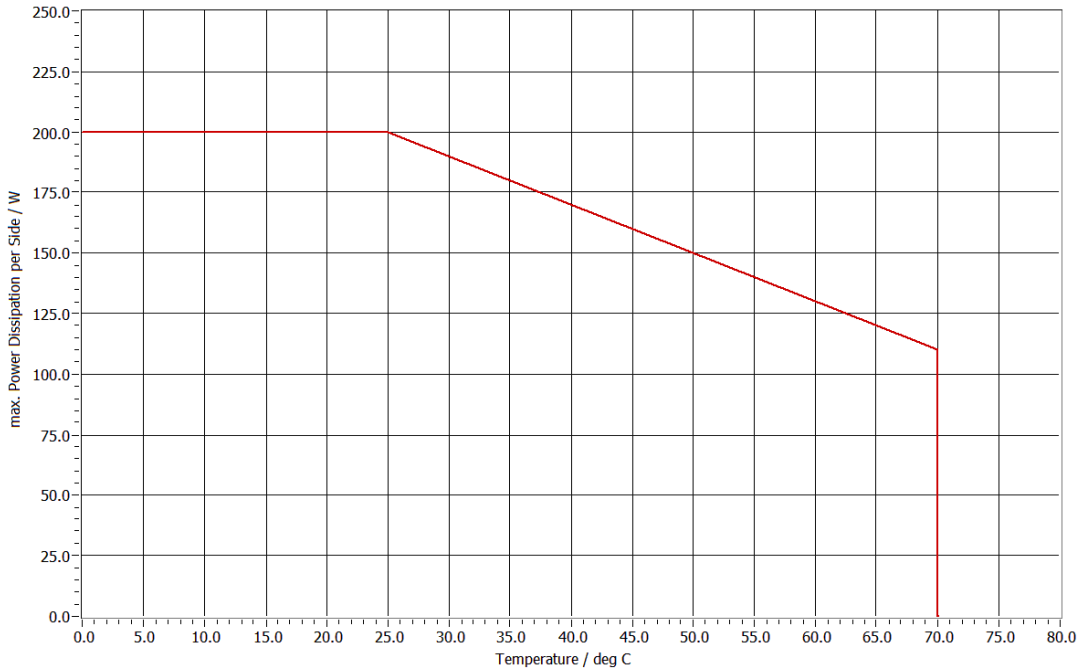
Parameters	Specification	Conditions/Moments
		Mains: 230 V
		25° C ambient temperature
		Continuous operation
Input Impedance	50 Ω ± 1% Gain: 20 ± 1% (±100ppm/°C)	
	100 kΩ ± 1% Gain: 10 ± 1% (±100ppm/°C)	
Maximum Input Level	± 7,5 V	100 kΩ Input
	± 3,75 V	50 Ω Input
Maximum allowed Input Voltage	± 15 V ± 10 V	100 kΩ Input 50 Ω Input
Small Signal Frequency Response		
	DC - 7 MHz	-3 dB, 100 mV_{rms} @ 50 Ω Load
	DC - 5 MHz	-1 dB, 100 mV_{rms} @ 50 Ω Load
Phase response	0, -5 degrees	DC – 120 kHz @ 50 Ω Load
Output Voltage (continuous)		
50 Ω Load, < 1% THD+N	± 75 V_{peak}	< 800 kHz; High Voltage Mode
	± 62 V_{peak}	< 1 MHz; High Voltage Mode
	± 37.5 V_{peak}	< 1 MHz; Low Voltage Mode
Output Current (continuous)	± 2.5 A_{peak}	High Voltage Mode
	± 5 A_{peak}	Low Voltage Mode
Output Current (pulse < 5 ms)	± 7.5 A_{peak}	High Voltage Mode
	± 15 A_{peak}	Low Voltage Mode
Slew Rate	380 V/uSec	50 Ω Load
Rise Time	< 330 ns	± 75 V Rectangular @ 50 Ω Load
Noise		
20 Hz - 10 MHz	< 1.5 mV_{rms}	
DC - 20 MHz	~ 10 mV_{pp}	
THD+N		
100 kHz	< 0.1 %	53 V_{rms} / 50 Ω Load
1 MHz	< 0.3 %	40 V_{rms} / 50 Ω Load
Output Offset	± 2 mV typ.; ± 5 mV max. (± 0.1 mV/°C)	
Output Impedance	~ 50 mΩ + 0.30 µH	
Output Impedance Bridge Out	47 Ω	Load > 2 kΩ
Source Power, DC		

Parameters	Specification	Conditions/Moments
30 Ω	185 W	High Voltage Mode
7.5 Ω	185 W	Low Voltage Mode
Sink Power, DC	68 W	High/Low Voltage Mode
Physical Characteristics		
AC Power	230 VAC / 50 Hz	
Remote control	USB	
Operating Temperature	10 °C to 55 °C	
Humidity	80% or less at 40 °C	non-condensing
Cooling	Forced air	
Dimensions (W x H x D)	449 x 133 x 435.5 mm	
Weight	Approx. 14 kg	

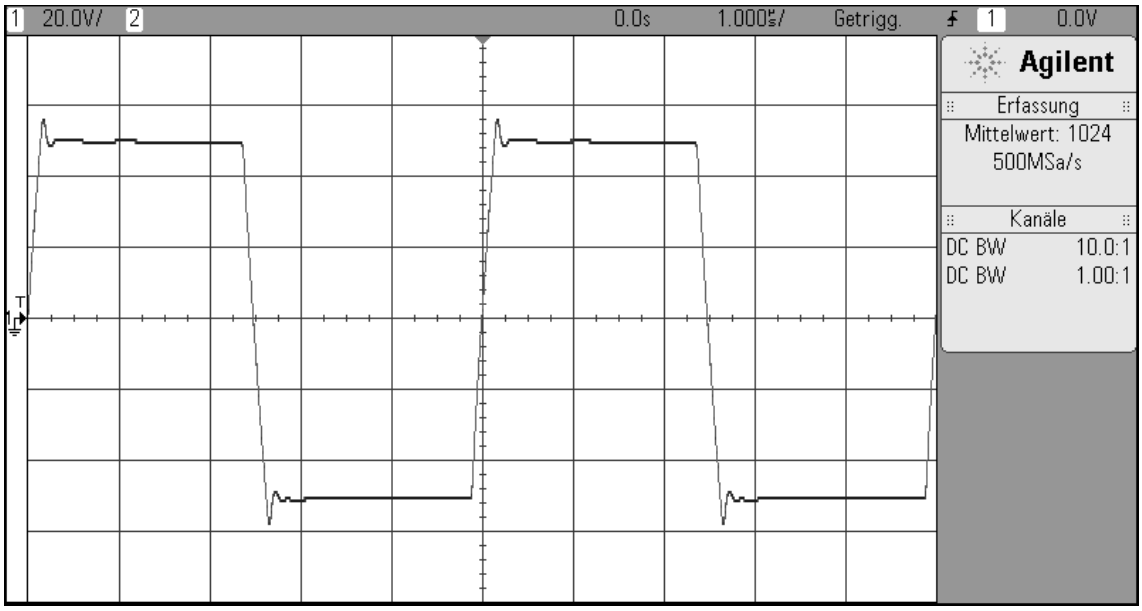
Output Voltage vs. Frequency (THD + N < 1%)
Blue: High Voltage Mode
Magenta: Low Voltage Mode



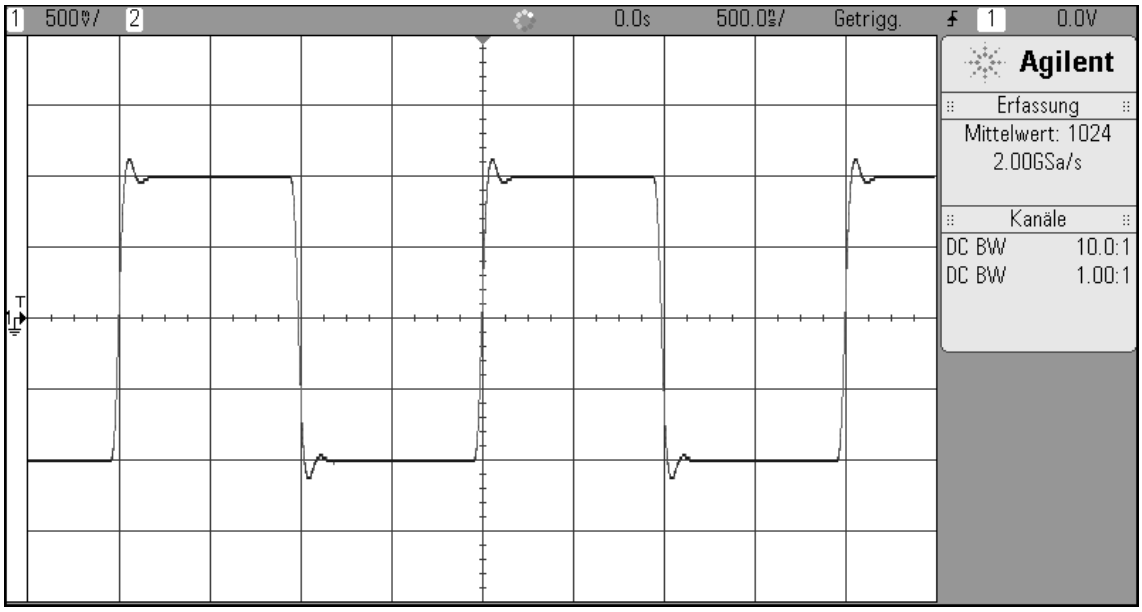
Power dissipation per side



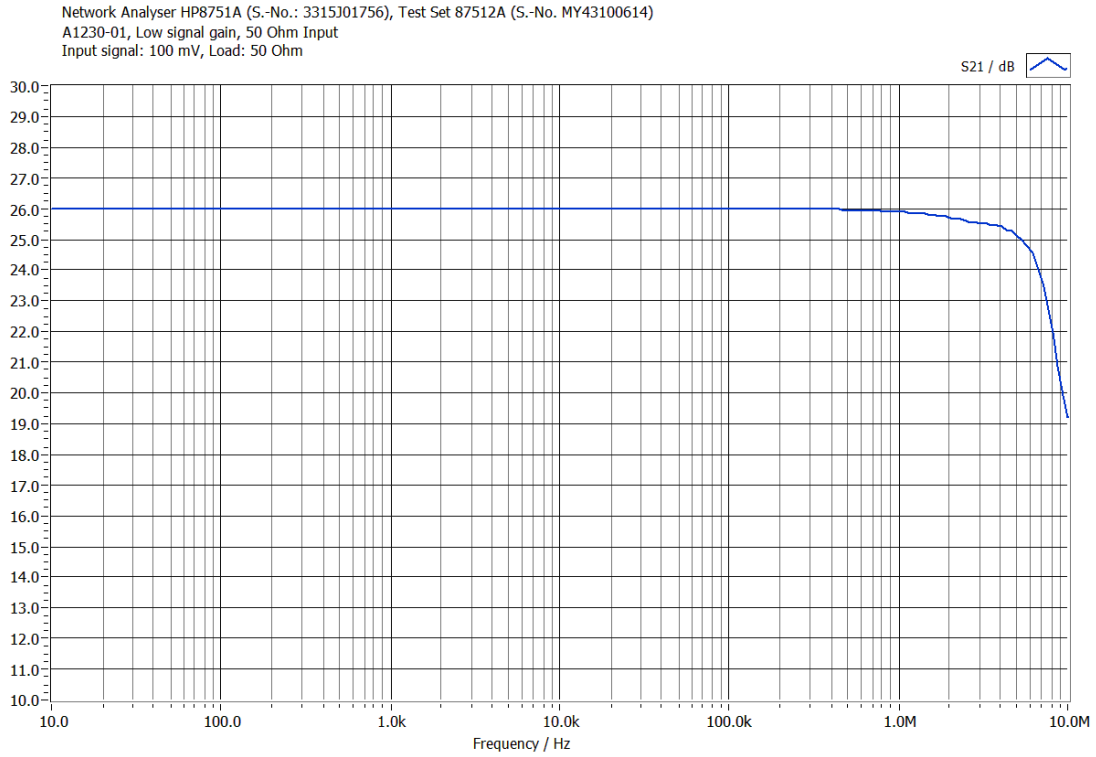
Square wave at 200 kHz and 50 V amplitude



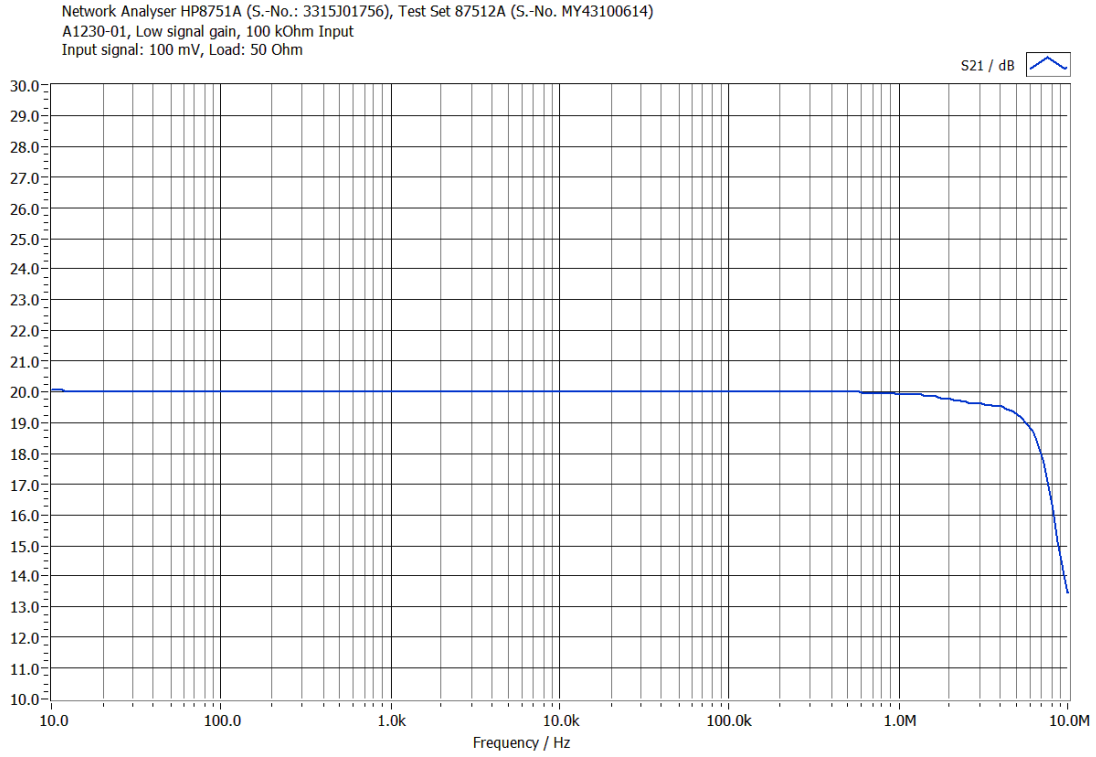
Square wave at 500 kHz and 1 V amplitude



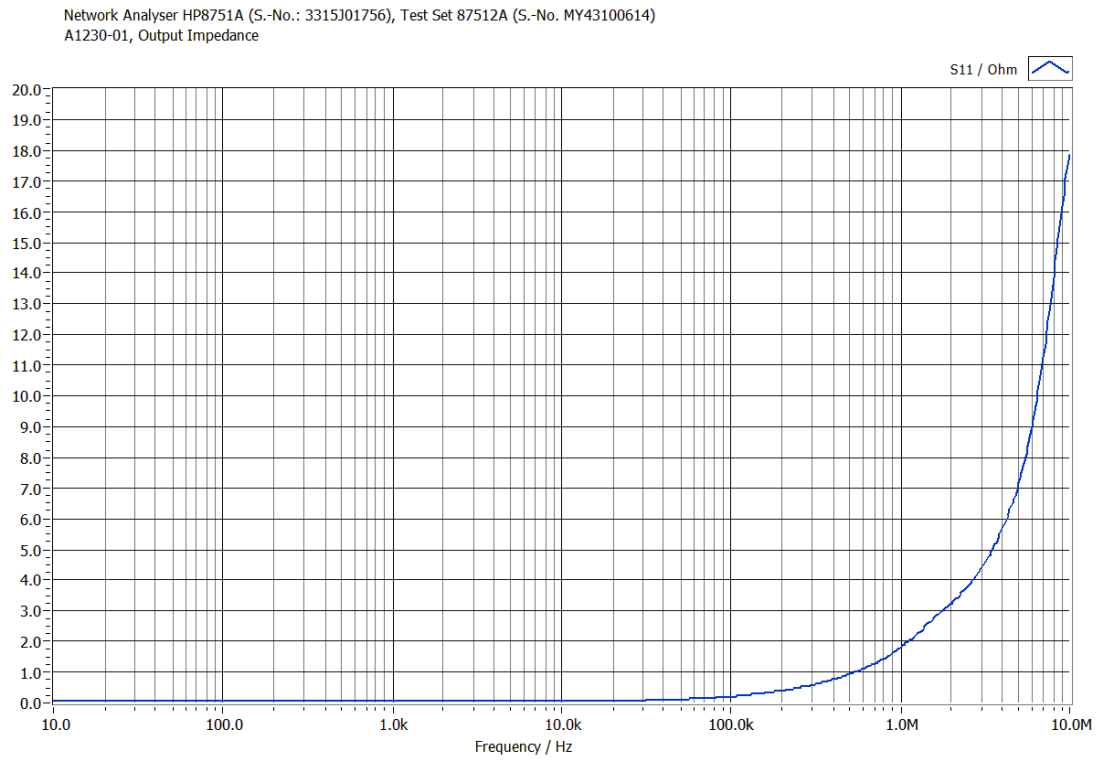
Gain 50 Ω Input



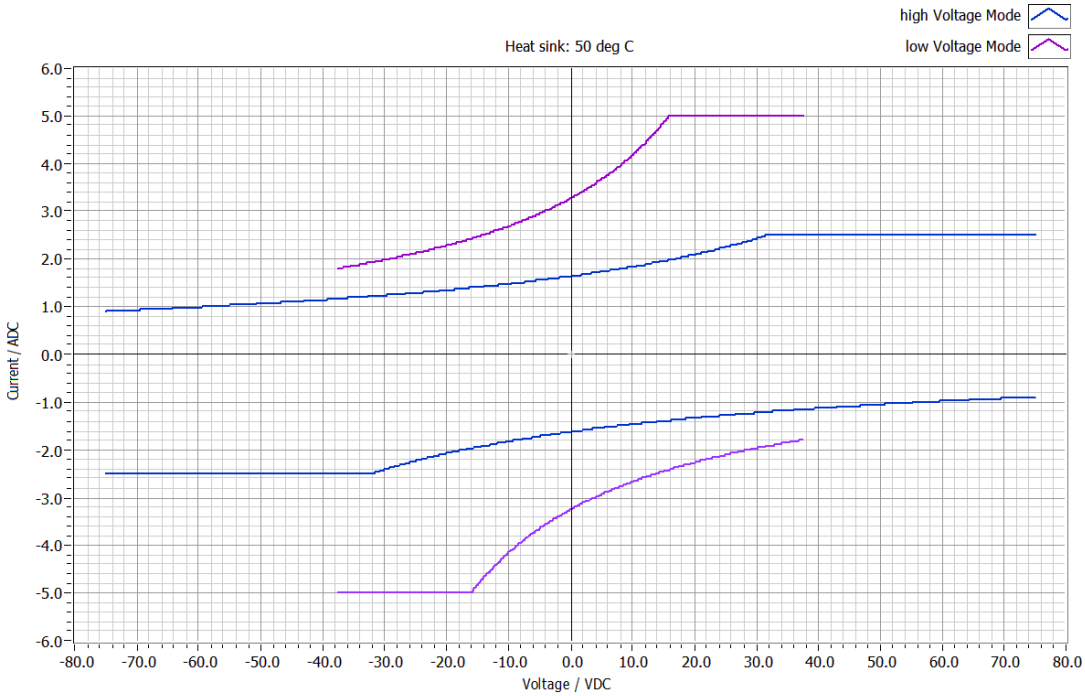
Gain 100 kΩ Input



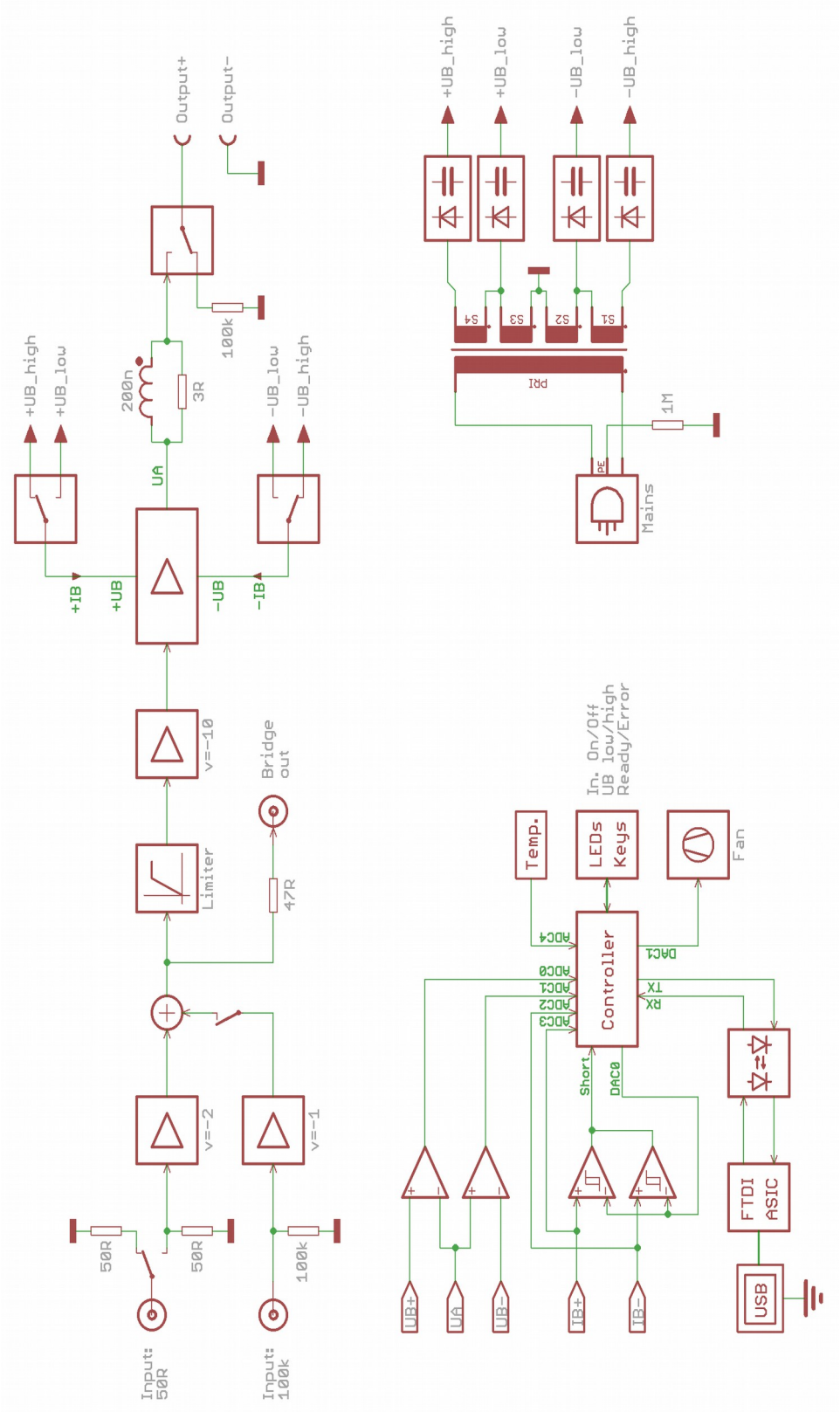
Output impedance



Output Current vs. Output Voltage
DC Limit



Block diagram A1230-01



Ordering information

12300010	A1230-01; precision power amplifier

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