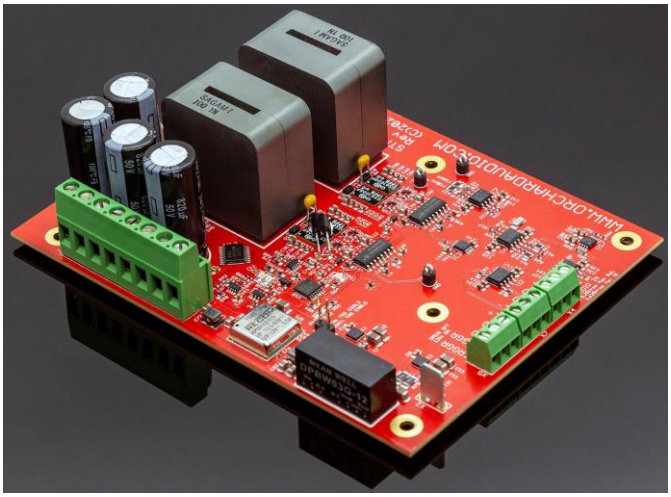
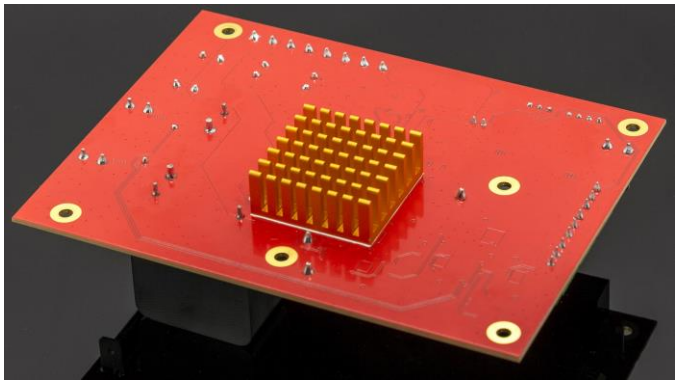
Orchard Audio LLC
32 Pleasant Hill Road
Succasunna, NJ 07876
Tel +1 (504) 233-3444
e-mail leo@orchardaudio.com

Starkrimson® Ultra - 500W GaN Amplifier Module





Highlights

- Flat, full load-independent frequency response
- High Damping Factor
- Extremely low, frequency-independent total harmonic distortion (THD)
- Extremely low noise
- A completely passive control loop
- A consistent top performer in listening trials.

Features

- Fully balanced input to output
- 2Ω capable
- Pop free start and stop
- Weight: 325g

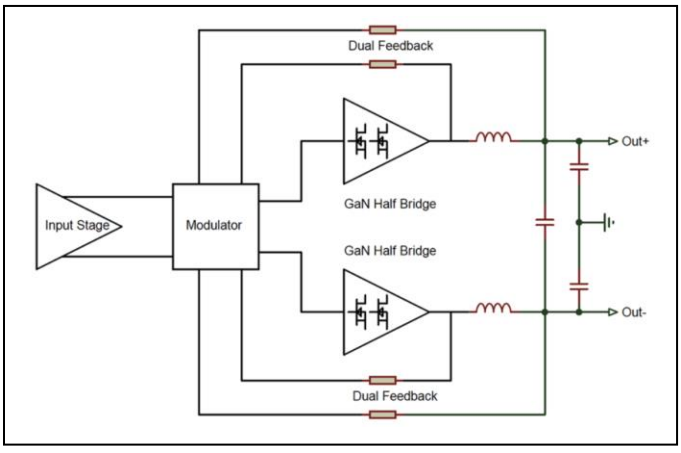
Applications

- Active loudspeakers
- Audiophile power amplifiers for professional and consumer use
- Monitor loudspeakers for recording and mastering studios

Description

Starkrimson amps are state-of-the-art (SOTA) hi-fi audio power amplifiers that were conceptualized to provide the listener with a truly life-like musical experience, presented with every significant detail intact.

Not only does this module offer a way for audiophile music reproduction to continue in an ever-energy-conscious world, but its measurements and sonic performance also raise the bar for audio amplifiers.



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Absolute Maximum Ratings

Item	Rating	Unit	Notes
Power Supply Voltage	+/-50V	V_{DC}	Module will not be damaged up to +/-50V but will not operate above +/-43.4V
Peak Output Current	20	A	
Balanced Input Voltage	5.5V	V_{RMS}	XLR Input
SE Input Voltage	2.75V	V_{RMS}	RCA input
Air Temperature	40	^0C	

Recommended Operating Conditions

Item	Min	Typical	Max	Unit	Notes
Power Supply Voltage	+/-30	+/-40	+/-43.4	V_{DC}	
Load Impedance	2		16	Ω	
Source Impedance			4.4 2.2	kΩ kΩ	XLR input RCA input

Specifications

Item	Min	Typical	Max	Unit	Notes
Power Supply Input Capacitance	1312	1640	1968	µF	Per + and - rails.
Input Impedance		44 22 10		kΩ kΩ kΩ	XLR (balanced) RCA (single-ended) Trigger Input
Output Power into 4Ω			500	W_{RMS}	$1000W_{PEAK}$
Output Power into 8Ω			250	W_{RMS}	$500W_{PEAK}$
Output Noise		44.7		μV_{RMS}	A-wt, 20Hz-20kHz
Output Impedance		11.42		mΩ	f<1kHz
Voltage Gain		19.05 25.05		dB dB	XLR RCA
Required Input level for 250W/8Ω or 500W/4Ω (XLR input)		5 2.5		V_{RMS} V_{RMS}	XLR Input RCA Input
Efficiency 8Ω Load @ 1kHz 250W		96		%	Using +/-40V supplies
Efficiency 4Ω Load @ 1kHz 500W		95.5		%	Using +/-40V supplies
Standby Current		60		mA	
Signal-to-Noise Ratio (SNR)		120		dB	8Ω load

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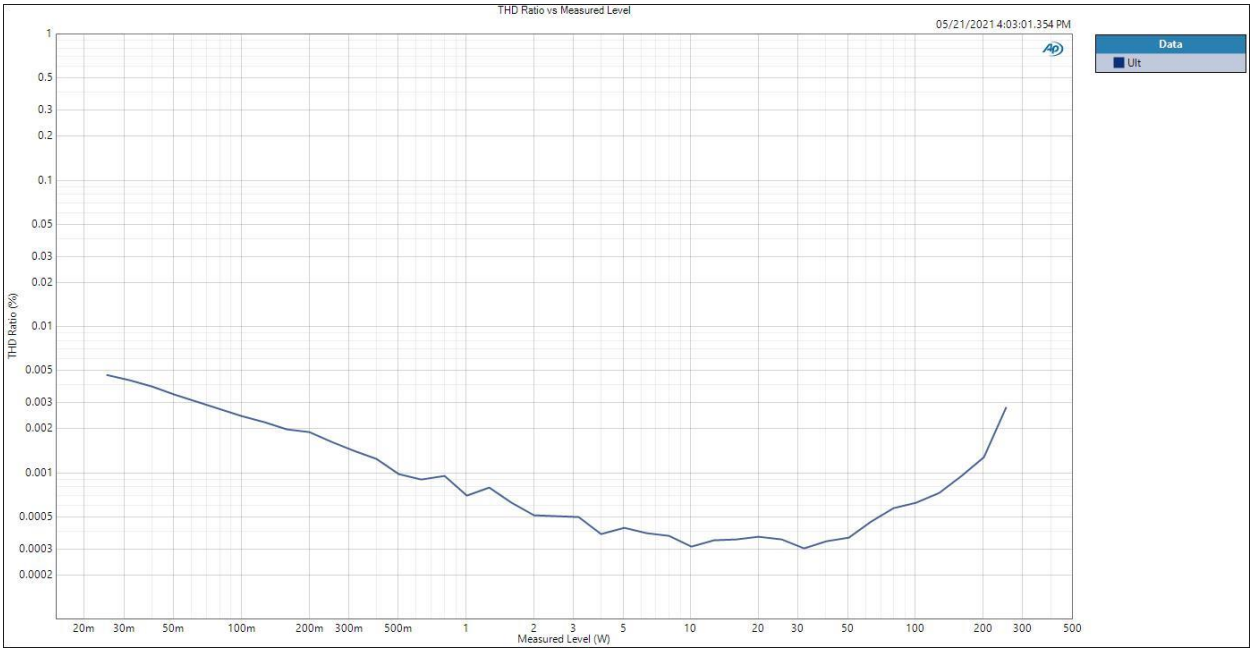
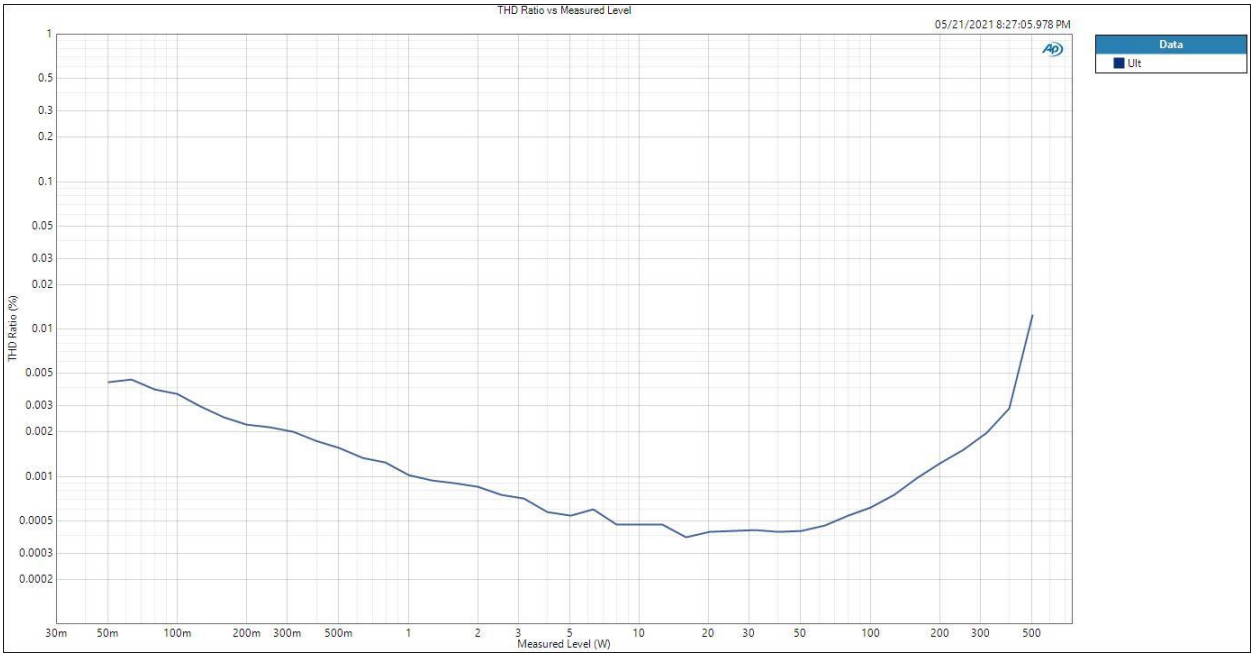
Typical Performance Graphs

The graphs were taken on a stock Starkrimson Ultra amp Module powered by a Hypex SMPS1200A100



Total Harmonic Distortion (THD) vs Output Power, 1khz 8Ω load



Total Harmonic Distortion (THD) vs Output Power, 1khz 4Ω load

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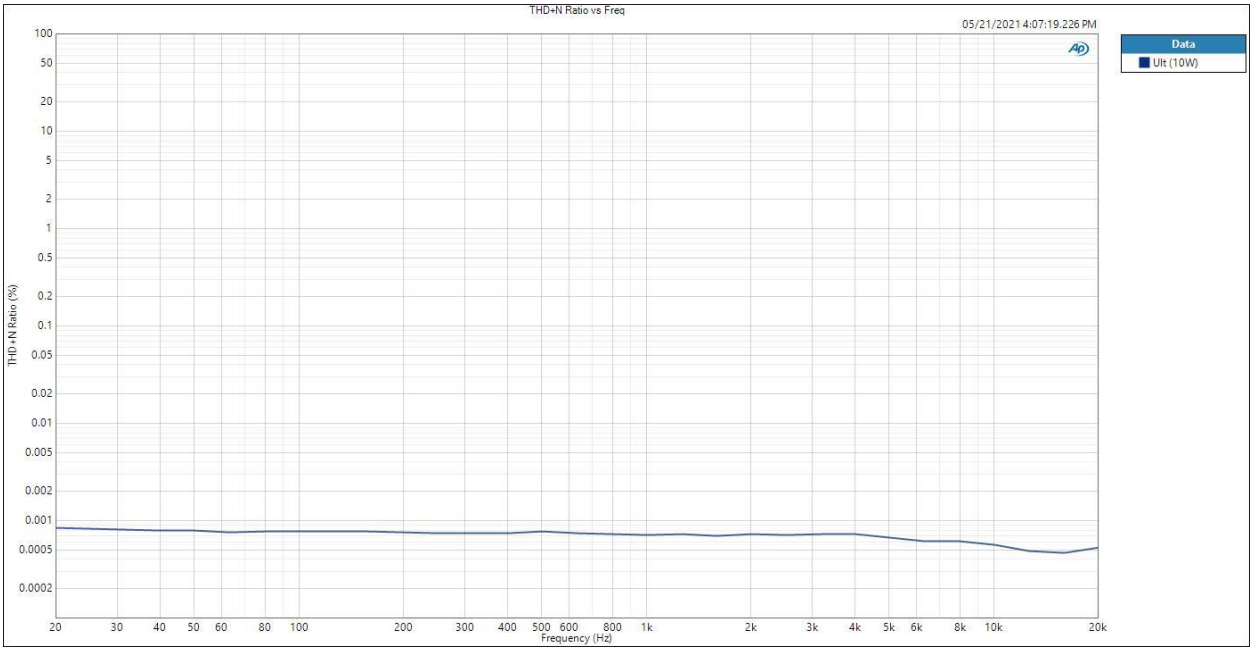
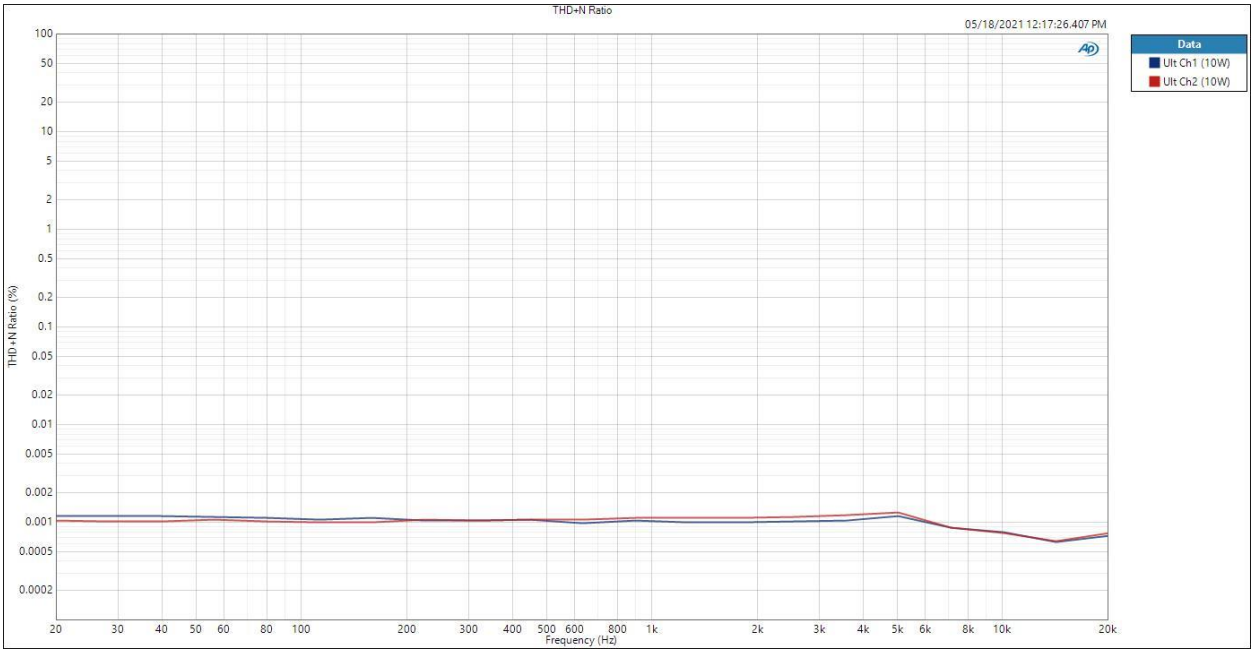


THD+N Ratio vs Frequency at 10W output Power, 22.4kH BW, 8Ω Load



THD+N Ratio vs Frequency at 10W output Power, 22.4kH BW, 4Ω Load

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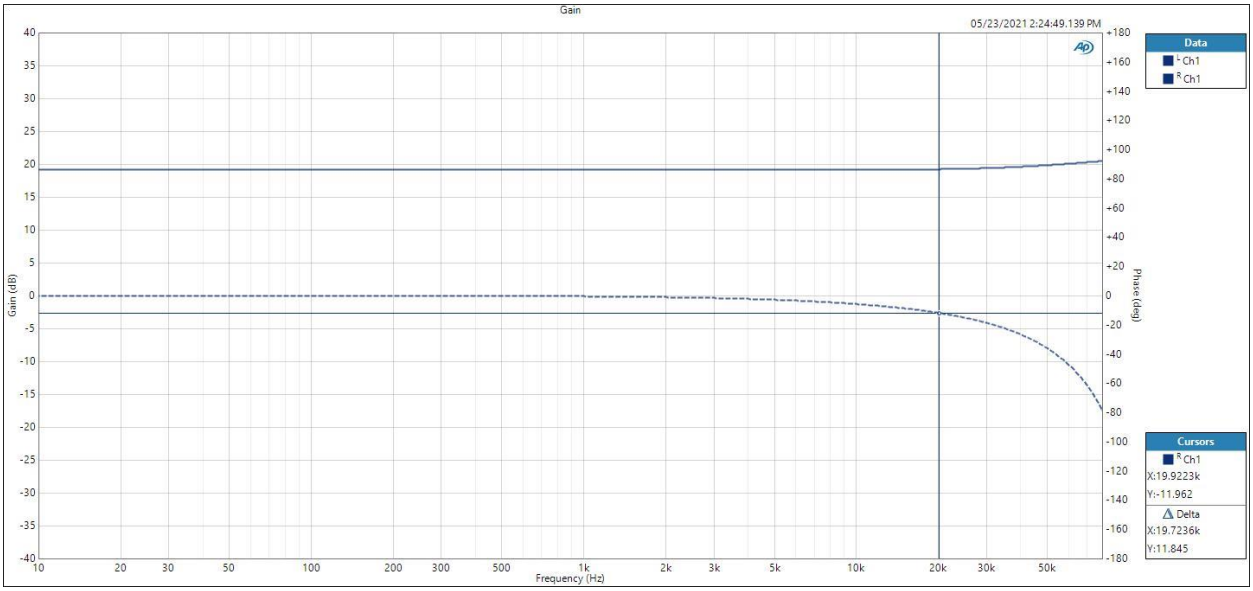
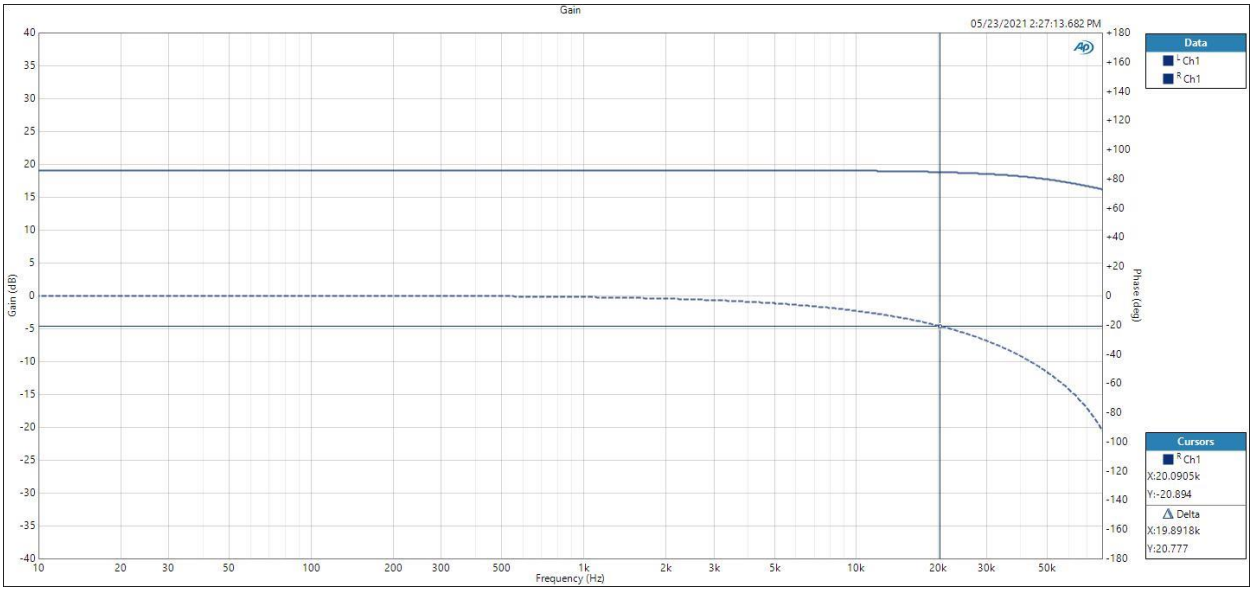


Frequency Response – Gain and Phase, 8Ω Load



Frequency Response – Gain and Phase, 4Ω Load

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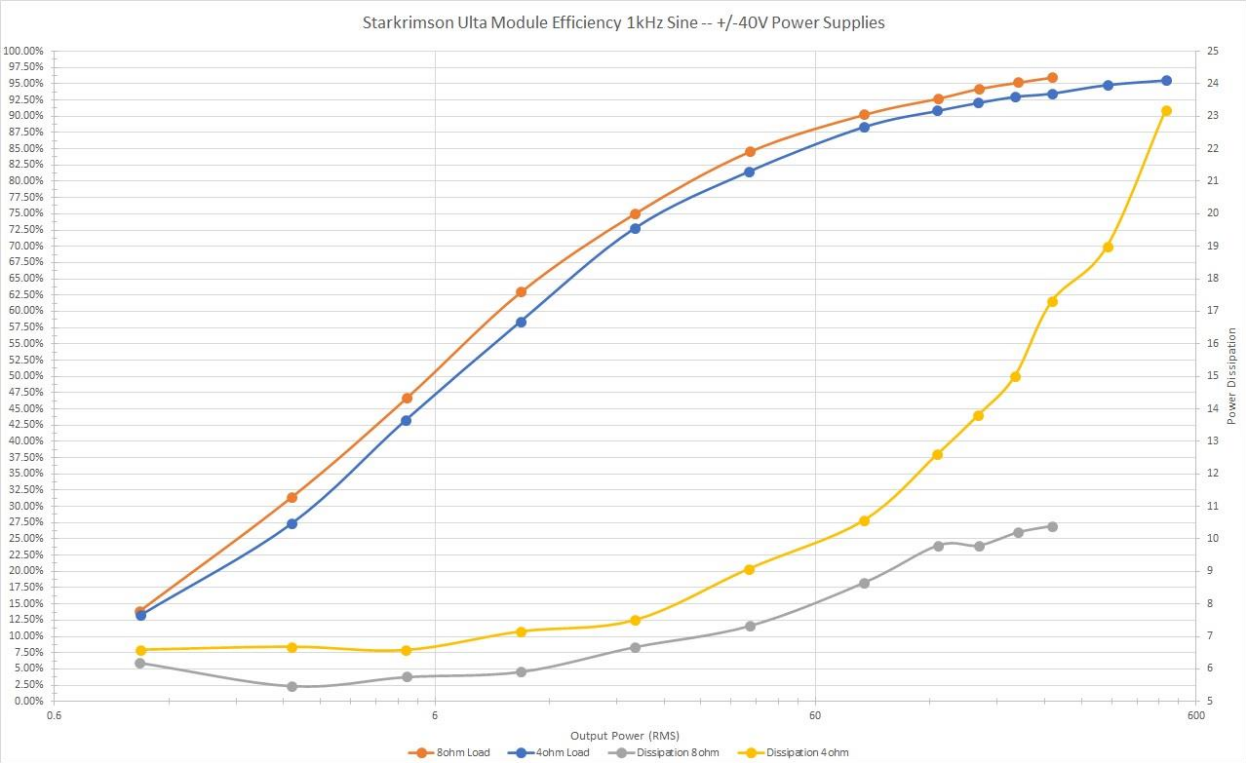

Starkrimson Module Efficiency

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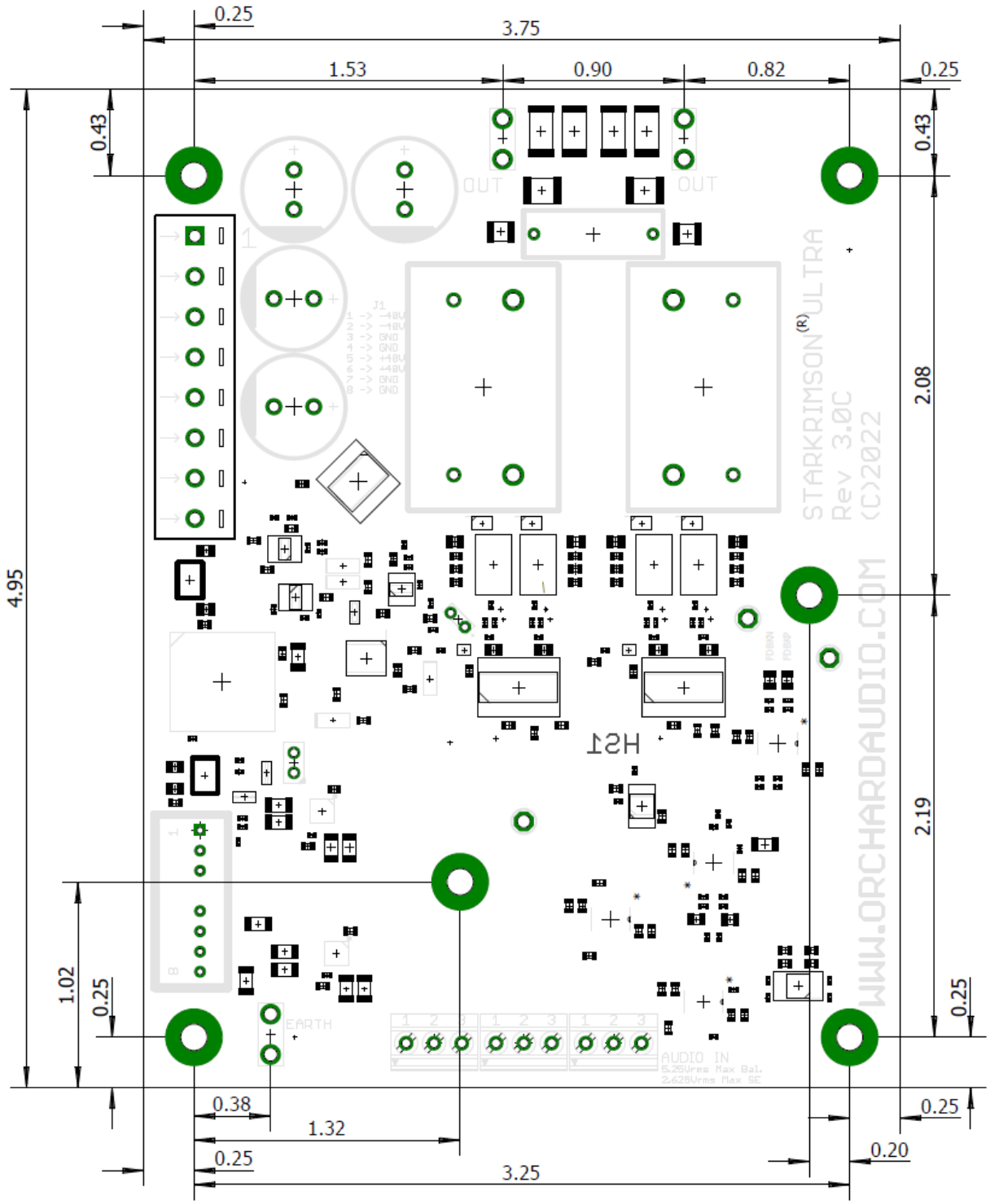
Starkrimson Ultra Module Dimensions



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Connectors

Power Supply Connector: J1

- Pin 1: - Rail
- Pin 2: - Rail
- Pin 3: GND
- Pin 4: GND
- Pin 5: + Rail
- Pin 6: + Rail
- Pin 7: GND
- Pin 8 GND

Amplifier Output: X1 and X3

- Both outputs are hot (differential output)
    - Do not connect either of the outputs to ground

Amplifier Balanced (XLR) Input: X7

- Pin 1 – GND
- Pin 2 – Positive
- Pin 3 – Negative

Amplifier Single-Ended (RCA) Input: X4

- Pin 1 – GND
- Pin 2 – GND
- Pin 3 – Signal

Amplifier Trigger Input: X5

- Pin 1 – 12V Trigger
- Pin 2 – 12V Trigger
- Pin 3 – GND