

TEST & REVIEW

The Rockford Fosgate T2500-1bd Amplifier
Text and Measurements by Garry Springgay of Cogent Audio Labs

For over 25 years Rockford Fosgate has been known for building famed, and in many cases, legendary high power amplifiers and it seems there is no end to this tradition. Now, from one of the original founders of serious car audio power comes a new, formidable subwoofer-driving powerhouse.

The Rockford Fosgate T2500-1bd amplifier is part of the widely acclaimed Power Series. The new for '09 design brings a marriage of Rockford's patented Class bd technology and a polished, and more importantly, technically significant cosmetic design. With power output levels rated at 1000, 1800, and 2500 watts into respective 4, 2, and 1 ohm loads the T2500-1bd should have plenty of power for basically any application. But for those Fanatics who live by the old RF motto of "Too Much Is Just Right", the T2500-1bd is also a strappable design, allowing you to drive a single woofer coil with two of these beasts!



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While the model is new for 2009, the cosmetic changes are evolutionary, rather than revolutionary but incorporate some cool changes when compared to the previous year's models. Most notably, there are stylish and well executed power and voltage meters built into the top cover of the amp. While invisible when shut off, they can put on quite a show when the amp is at full song. The power meter is basically a cool bit of bling with no real significant purpose, but the battery voltage meter is quite accurate and does a great job of letting you know the condition of your electrical system, which as you read on, you'll find out why it's so important.

Measuring 22" long, but only 8" wide and 2" high, the Power Series amplifier's size belies the amount of power on tap, by incorporating a technology that Rockford Fosgate calls DTM or Dynamic Thermal Management. What this means in real terms, is that the amplifiers can be driven hard for long periods of time, without worry about thermal protection shutoff spoiling the party. The key to this technology is a method of constantly monitoring the amplifier's temperature and operating conditions, and controlling the output current to provide longer playing times.

Other nice upgrades from last year's amplifiers include panel mount style RCAs for both input and output signals, and easier to connect power and speaker terminals which are still all found on the long front edge of the amplifier. And speaking of terminals, the engineers at Rockford Fosgate clearly understand the kind of current this much power requires both on the input and output side of things. The power and ground terminals now easily accommodate 1/0 wire, and the speaker terminals will accommodate 8 gauge speaker wire.

The set screws that retain the cables are now a hex head style and are thankfully finally all the same (4mm) size! This is the type of fundamental feature change that makes life simpler for installers and shows that even a large company like Rockford pays attention to feedback from the install bays around the world.

TECHNICAL DATA

MEASURED PERFORMANCE SPECIFICATIONS

Manufacturer's Rated Power	Actual Measured Power @1.0% THD+N @12.6V Battery	Actual Measured Power @1.0% THD+N @14.4V Battery
1000 x 1 @ 4 Ω	942 x 1 @ 4 Ω	1238 x 1 @ 4 Ω
1800 x 1 @ 2 Ω	1645 x 1 @ 2 Ω	2168 x 1 @ 2 Ω
2500 x 1 @ 1 Ω	2540 x 1 @ 1 Ω	3293 x 1 @ 1 Ω
Signal to Noise Ratio referenced to full output.		-96.7dBA
Distortion at rated power		0.18%
CEA-2006A rated 4 ohm Power (minimum power per channel developed over the entire audio bandwidth)		1230 watts/ch
Maximum Efficiency at full power per ch.		83.6%
Input Sensitivity		190mV - 5.1V
Frequency Response (-3dB)		<10Hz - 243Hz
Maximum Current @ full power 1 ohm per ch.		310A

Power measurements were obtained using industry standard methods. (100Hz @ 1.0% THD+N - battery voltages shown +/- 0.2V)

Inside the T2500-1bd is a twin toroid power supply that uses no less than twelve Fairchild TO-247 case size N-Channel MOSFETs, each rated at 75A. There are another eight TO-247 size International Rectifier HEXFETs in the output section rated at a minimum of 30A each, giving the output of the amplifier a conservative current output capability of 240A!

Lest you think the amp is all brawn and no finesse, I should direct your attention to small but important details such as the use of top quality FR-4 double-sided plated-through glass epoxy circuit boards and high speed polypropylene capacitors. There is even a special vertically mounted board that is designed to shield the sensitive input circuitry from unwanted electromagnetic interference caused by the power supply.

The vast majority of the parts used are surface mount type and in the case of the dozens of resistors, they are all 0% tolerance surface mount type which increases reliability and reduces performance differences between serial numbers.

Crossover control is handled by a fourth order (-24dB) network and is adjustable from 35Hz to 250Hz. A -12dB per octave switchable subsonic filter is also included which, when engaged, rolls off the very lowest frequencies beginning at about 28Hz. Additional signal control is provided by a 0-180° phase switch, and the Single/Master/Slave switch which allows you to configure the amplifier to suit your particular system design.

As with virtually every amp Rockford Fosgate has produced since the earth cooled, the Punch EQ is also along for the ride. With as much as 18dB of boost at 45Hz and a properly configured filter Q, it's easy to dial in the amount of "help" needed to make up for old recordings or road noise masking the bottom end. A remote version of the Punch EQ control can be added to the amplifier to allow bass EQ adjustability from the driver's seat.

In terms of measured performance, the Power T2500-1bd bested all of its rated power specifications delivering well over 3kW into a 1 ohm load. While S/N specs are seldom great in these types of amplifiers, the T2500-1bd posted a respectable -65.8dBA number measured at 2V of output.



Voltage Meters Light up!

The T2500-1bd is a serious amplifier for enthusiasts who crave big power on their subwoofers and have the electrical system to handle it. By balancing power delivery with an intelligent thermal management system, the folks at Rockford Fosgate have delivered another high performance amplifier that more than holds its own against the earlier legendary performers. ♦