

AI-04693 DIY Digital Audio Amplifier

I have 2 of these speakers and want to build a tweeter array, find me an diy amp board in Shopee

Yes. Those are **Pioneer TS-G1044R 10 cm (4") 2-way coaxial speakers**, rated **30 W nominal, 200 W max, 4 Ω each**.

For your two speakers, I would build a simple **stereo 2-channel Class-D amplifier**, with **one speaker on each channel**.

My recommendation: TPA3116D2 2 × 50 W

Shopee PH — TPA3116D2 2×50 W amplifier board, ₱375

This is the one I'd buy for your project.

Why it fits:

- 2 channels → one TS-G1044R per channel
- 4 Ω compatible
- 12–24 V DC input
- Class-D, very efficient
- Around **30–50 W/channel** depending on supply voltage and distortion
- Cheap and compact
- Plenty of power for your **30 W nominal** Pioneer drivers

The TPA3116D2 is specified around **2×50 W into 4 Ω at ~21 V**, so it is a very good match for these drivers. ([Reddit](#))

Even cheaper option

Shopee PH — XH-M562 TPA3116D2 2×50 W, ₱106–144

This is essentially the inexpensive DIY version. I'd choose this if you're experimenting and don't mind doing more of the wiring yourself.

Better-quality build

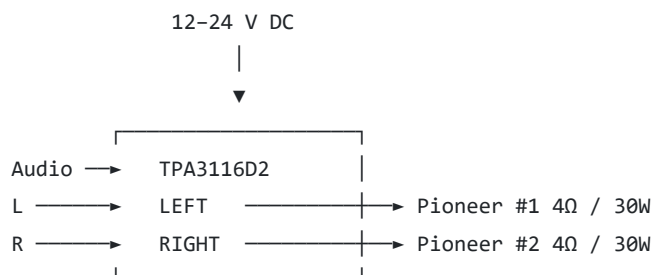
Shopee PH — PCBfun TPA3116D2 2×50 W, ₱420

I'd choose this one if you're making a **permanent enclosure/project** rather than just experimenting.

Your wiring

Do **NOT** connect both 4 Ω speakers in parallel to one channel.

Use:



For a nice DIY setup, I'd use a **19–24 V DC power supply**, ideally around **4–5 A**.

⚠️ **One important thing about calling this a "tweeter array"**

Your Pioneer is **not just a tweeter**. It's a **2-way coaxial driver**: the main 4" cone plus the small coaxial tweeter. The label explicitly identifies it as **"2-WAY COAXIAL 10 cm."**

If your goal is actually to build a **tweeter array** using these two units, I would approach the project differently.

You'd want:

Audio source → high-pass filter/crossover → amplifier → two coaxial drivers

rather than sending the entire audio spectrum into them.

If you're actually trying to build a **small high-frequency speaker array**, I can find you a **Shopee amplifier + crossover board + power supply + wiring diagram** specifically matched to these Pioneer drivers.

Explain **Digital power amplifier Board**

A **digital power amplifier board** is simply the **electronic circuit board that takes a weak audio signal and makes it powerful enough to drive your speakers**.

In the board I recommended, the key chip is typically **TPA3116D2**.

Think of it this way

Your phone/PC/audio source produces:

small audio signal → amplifier board → large electrical signal → speaker

The amplifier doesn't create music. It **amplifies the electrical representation of the music**.

Why is it called "digital"?

This is a little misleading.

A TPA3116D2 is a **Class-D switching amplifier**, not a digital audio amplifier in the sense of a DAC or USB digital amplifier.

It rapidly switches its output transistors **ON/OFF at high frequency**. The speaker's voice coil responds to the resulting average/current waveform and produces the audio.

So:

Term	What it means
Class-D	Switching amplifier topology
Digital amplifier	Common marketplace name
TPA3116D2	Amplifier IC/chip
2×50 W	Maximum advertised output under specific conditions
4 Ω	Your Pioneer speaker impedance
12–24 V	Typical DC supply range

For your Pioneer speakers

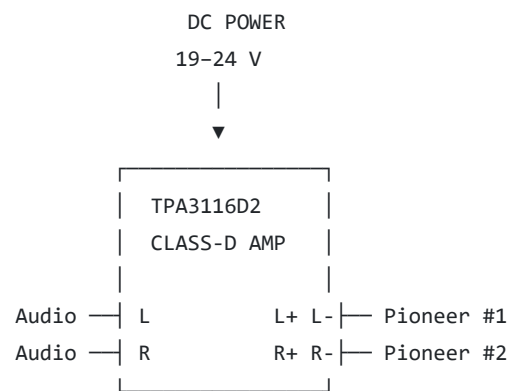
You have:

Pioneer TS-G1044R

- 4 Ω

- 30 W nominal
- 200 W maximum
- 2-way coaxial

With a **TPA3116D2 2-channel board**:



Important: the speaker outputs on these boards are usually **BTL/bridged outputs**. Don't connect either speaker terminal to the power-supply negative or common the negative terminals together.

What the amplifier board does NOT do

The amplifier board doesn't automatically provide:

- Volume control
- Bluetooth
- Bass/treble control
- Crossover
- Power supply
- Enclosure

Those are separate functions unless they're included on the particular board.

For your project, I would actually build it as:

Bluetooth/3.5-mm input → volume control → crossover/EQ → TPA3116D2 → 2 × Pioneer TS-G1044R

That would give you a much more useful little speaker system than simply connecting the speakers directly to an amp board.

And because your Pioneer speakers are **coaxial 2-way speakers**, you already have a tweeter built into each one—you don't need a separate tweeter amplifier just to get high frequencies.

Compare to the old analog amp

Yes. The **TPA3116D2 Class-D board** is quite different from the old-school **analog Class-AB amplifier**, even though both do the same basic job.

Class-D vs. old analog amplifier

	 Old Analog / Class-AB	 TPA3116D2 Class-D
Amplification	Linear	Switching

Typical efficiency	~50–70%	~85–90%
Heat	High	Low
Size	Large/heavy	Tiny/light
Transformer	Often large	Usually external DC supply
Heat sink	Usually substantial	Small or none
Power consumption	Higher	Much lower
Battery operation	Poorer	Excellent
Sound	Can sound excellent	Can sound excellent
Distortion	Very low in good designs	Very low in good designs
Cost	\$\$\$	\$
DIY convenience	More complicated	Very easy

 The biggest difference: heat

Imagine you want **30 W of audio power**.

A Class-AB amplifier might need to consume roughly **50–60 W** from the power supply to produce that output.

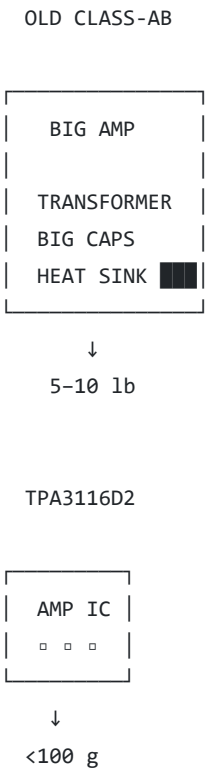
The rest becomes:

 HEAT

A TPA3116D2 might consume roughly **33–36 W** to deliver the same 30 W.

So much less energy becomes heat.

That's why you can have a board like this:



🎵 But is the old analog amp better sounding?

Not necessarily.

This is where the old "analog sounds better" idea gets complicated.

A **good Class-AB amplifier** can sound fantastic.

A **good Class-D amplifier** can also sound fantastic.

For your Pioneer TS-G1044R speakers, I would **not spend money on a large Class-AB amplifier**. These are relatively small **30 W nominal 4 Ω** coaxial speakers.

A TPA3116D2 is actually a very sensible match.

One important correction

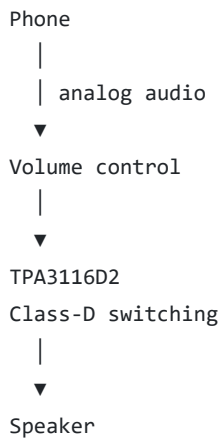
Calling the TPA3116D2 a "**digital amplifier**" is somewhat marketplace-speak.

It's more accurately:

Class-D switching power amplifier

The **D does not mean Digital**.

Your audio signal can still be completely analog:

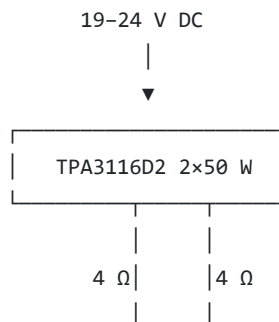


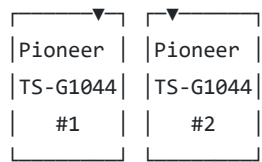
No digital audio is required.

For your DIY project

Since you're talking about building an array with **two Pioneer TS-G1044R**, I'd actually favor the Class-D board.

You could make something like:





Small + efficient + inexpensive + plenty of power.

If you're after the **old-school sound/feel**, though, there's another interesting option: a **TDA7297/TDA2030/TDA2050 Class-AB DIY board**. Those are much closer to the traditional analog amplifier architecture.

For **your specific Pioneer speakers**, I can compare **TPA3116D2 vs TDA2030 vs TDA7297 vs LM1875** and tell you which one I'd build.