

Hello friends, on this occasion I will post again, the discrete class-D amplifier UcD Superlite,

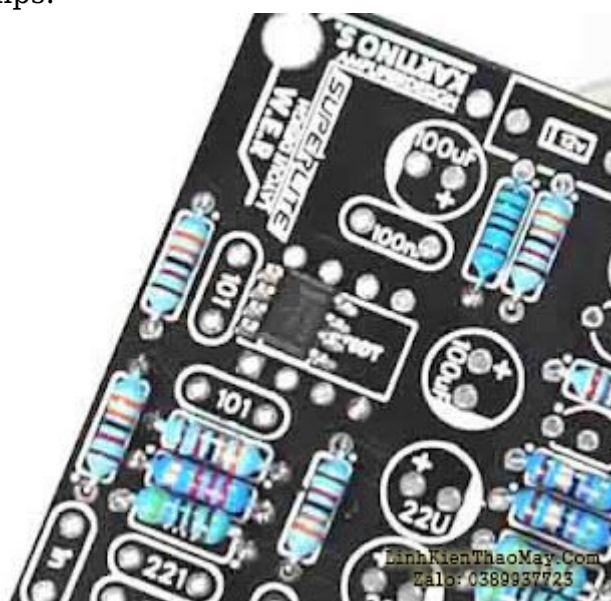


Class-D Discrete Amplifier UcD Superlite with RM Core

Is that a discrete class-d UcD?

UCD is one of the Class D Topologies patented by Philips (NXP) and this Class D type is widely used in Hypex products which they claim can compete with Class AB power.

and class-d discrete is a class d power circuit without using IC eg MOSFET IR2110 driver or logic inverting, so it only uses capacitor resistors and transistors, but in this Superlite uses 1 dual OP-AMP IC used for the balanced input for easier reasons sought and many variants rather than discrete op-amps.



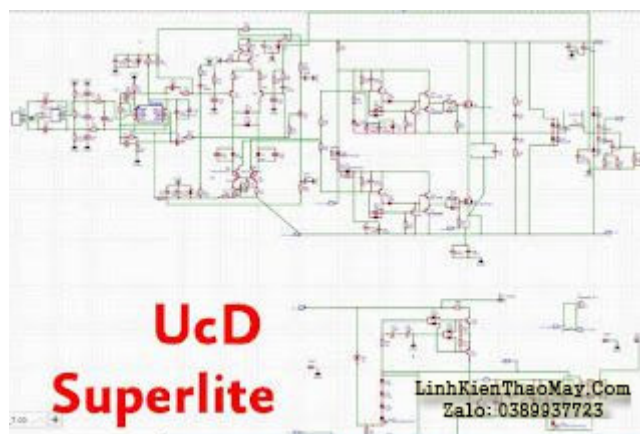
UcD Superlite was designed by Indonesian audio experts, Mr. Kartino Surodipo, who is also the admin in the Class-D Next-generation amplifier Indonesia group, he shares a lot of knowledge and design of amplifiers for free or free.

This amplifier, in my opinion, this bass sound is more punch and soft, with a standard

Tài liệu này được tải từ website: <http://linhkienthaomay.com>. Zalo hỗ trợ: 0389937723

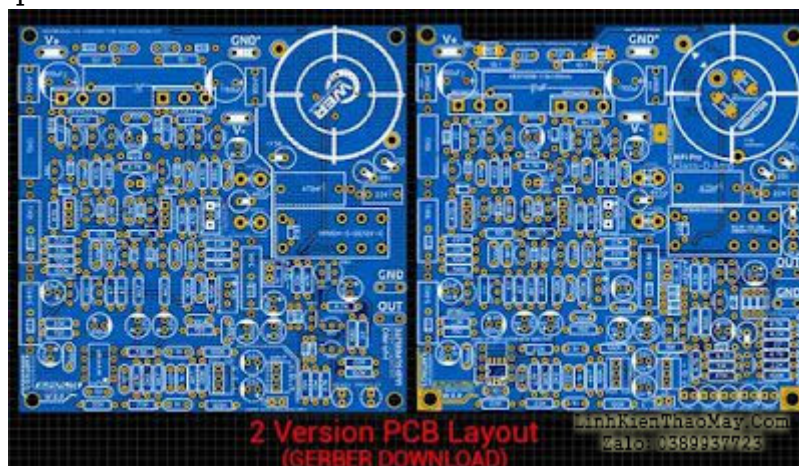
MOSFET and PWM freq 250khz, Mid and high sound is also pretty good, it can crisp. Ripple output or residual PWM can be very low, so it is very safe for Twetter, not easily broken, and here I will design the PCB with a macro component, the following UcD power amplifier scheme which I re-schema in the EasyEDA application.

Complete circuit



- Input balance
- DCP, Speaker protector which functions to disconnect the relay when the speaker output DC voltage is at least 2V
- Led Indicators, there are ON, Signal, Protection Clip, and ready.
- 60VDC-95VDC PSU range.
- For the power output ... we will immediately test it using measurements using Oscilloscope, Ampere Pliers, Avometer, and Dummy load. So it is not difficult to set hundreds or even thousands of watts without measurement.

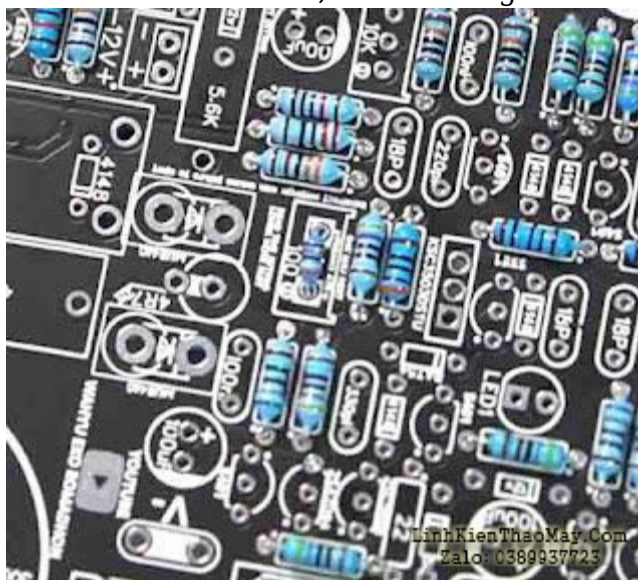
The PCB Layout that I designed myself, in dual-layer, the dimensions of the PCB are 10x10cm. very compact size and also efficient for the use of power 4 channels, the component looks very tight yes, it is still very safe not to be disturbed for the input signal with PWM oscillation signal, the gap or the distance of the pad is still far compared to me using the SMD component.



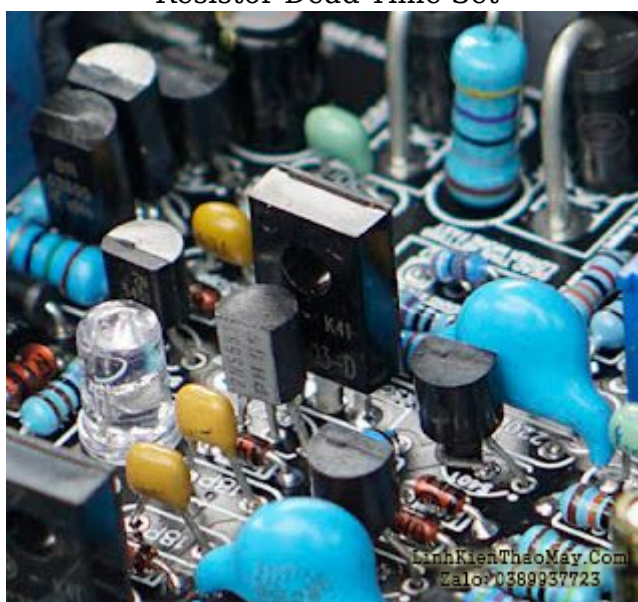
for component values do not be negotiable for class D power, because the slight difference will affect the PWM, stability and switching frequency, this is very influential with the sound and power output of class D amplifiers.



For the PWM Cap freq value I use 220pF multilayer capacitors, dual opamp ICs for Inbal using Low Noise MC33078 SMD op-amps can also use DIP version, dead time resistors use $300 + 39\Omega$ 1 / 4W, comparator uses 2n5551 and C3503 manufacturers ON semi, bat54 diodes using SMD, TR Totem using C2655 and A1020 pairs, for dumper diodes using ES2D or can also use Mur240 or ultrafast 2A diodes, Mosfet using IRFP260N 2 seeds.



Resistor Dead Time Set



C3503 (ON Semi) 2N5551 (Philips)

For Inductor LPF I use several core variants, but for this post, I use MS130 core 3 cm with an inductance value of 33uH. LPF cap 1uF 250V. The relay uses a 12V 20A relay.



Core MS-130060 3.3cm diameter

I use a heatsink aluminum plate with a thickness of 4mm is enough for a class D amplifier. One of the advantages of class D amplifiers compared to other classes is that the efficiency is very high, up to 90% or even more. So the power wasted by heat is so minimal that the heat sink or cooler can be smaller than class AB. Then why is there class D that still uses a fan? yes because there is still power wasted by the heat of about 10%, so suppose this amplifier is branded with 1000W of power then 10% of power is wasted around 100W if discharged by heat, this exceeds 60W solder heat, you can imagine for yourself how hot the 60W solder. So it is better to install a fan, other than that DCO or PWM will be more stable if the temperature of the active component is stable, not hot.



Heatsink 105mmx100mm

The UcD kit is ready and ready to be tested, I use a 90VDC voltage for the main PSU, with the bias I took from the Nguồn xung SMPS, note that the Nguồn xung SMPS already has a special voltage for bias, the bias voltage must be separate from the main supply or other accessories. Potentiometer uses 10k ohm mono.

For the load test, I installed the output to a 4 ohm 1000W dummy load, and also the

measurements that I have installed to measure the output voltage and current, DC output, the temperature of the heatsink amplifier, and also to the watt meter AC input.



700W Power Output at 90VDC Symmetrical PSU, Signal 1kHz

Full video making and test:

[PCB Layout Gerber, BoM Download](#)

Các bài viết tương tự:

1. [200W HiFi Discrete UcD Class-D Amplifier](#)
2. [500W Class-D Amp IRS20957 SMD](#)
3. [Âm li DIY - Em có cái âm li chạy thẻ nhớ dùng bo giải mã mp3, mạch chỉnh âm sắc 3 chiết áp\(loại không dùng nguồn\) và 1 mạch công suất class d công suất 60w](#)
4. [Amply mạch Class D tiếng nhạc có hay không?](#)
5. [Cách điểm test để kiểm tra trước khi chạy Class-D Amplifier D2K Pro Dual Feedback](#)
6. [DIY Class T Power Amplifier Tripath TA2022](#)
7. [DIY Class-D Amplifier Fullbridge D2K 2500W RMS - Bản hoàn thiện](#)
8. [High Power Class-D Amplifier D4K5](#)
9. [Mạch class D là gì ? Và Sơ đồ mạch Class D](#)
10. [Mạch khuếch đại công suất Class C](#)
11. [Power Amplifier Class-AB AX-BLAME 90VDC](#)
12. [Power Amplifier Class-D UcD SuperLite v2 Final](#)