Aluminum PCB

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Common in LED lighting products. There are pros and cons, the white side is soldered LED pin, the other side showing the aluminum color, usually applied thermal plasma coagulation after contact with the conductive portion. There are still a ceramic substrate and so on.

Aluminum plate (heat radiation metal base plate (including aluminum plate, copper substrate, iron substrate)) is a unique metal base copper clad laminate, which has good thermal conductivity, electrical insulation properties and mechanical workability.

Its good thermal performance and favorable price than the copper substrate, as well as beyond the hardness of the ceramic plate is the preferred carrier of various types of lamps!

1. Definitions

Aluminum base plate is a metal having good heat dissipation CCL, generally consists of three single-panel structure, namely the circuit layer (foil), the insulating layer and the metal substrate. Also used for high-end dual-panel design, the structure of the circuit layer, an insulating layer, aluminum, an insulating layer, a circuit layer. Very few applications of plywood, plain plywood can be made with the insulating layer, aluminum bonding together.

LED aluminum plate is the PCB, the PCB also mean, just the circuit board material is aluminum, we used the average fiberglass circuit board material, but because the LED heat larger, so the board is generally used for LED lamps aluminum plate, can heat quickly, electrical circuit boards or other equipment used in class or fiberglass board!

2. works

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Power device surface mounted on the circuit layer , the heat generated during operation of the device through the insulating layer to a conductive metal substrate quickly , and then the metal substrate to transfer heat out of the device in order to achieve cooling .

And the ratio of the conventional FR-4 , the thermal resistance of the aluminum substrate can be minimized , so that the aluminum plate having an excellent thermal conductivity ; compared with the thick film ceramic circuit which is extremely excellent in mechanical properties .

In addition , aluminum plate as well as the unique advantages:

Ø with RoHs requirements ;

Ø more adapted to the SMT process ;

Ø In the circuit design of thermal diffusion in a very effective treatment , thereby reducing the module operating temperature and prolong life , increase power density and reliability ;

Ø reduce the radiator and other hardware (including thermal interface material) assembly , smaller footprint , lower hardware and assembly costs ;

Ø The power and control circuits optimized combination ;

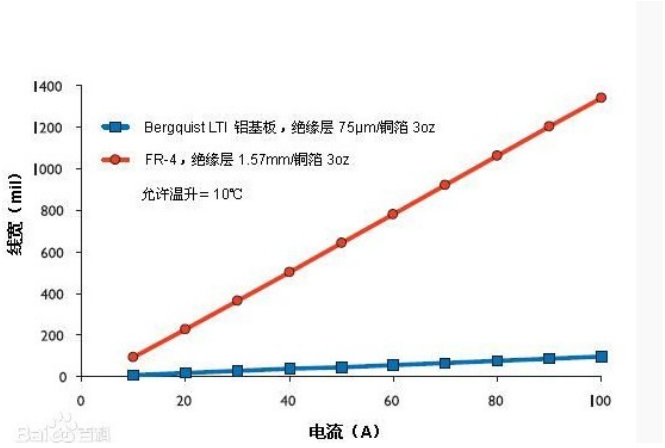
Ø replace the fragile ceramic substrates, better mechanical durability .

3. constitutes

Line layer

Line layer (generally electrolytic copper foil) formed after etching printed circuit assembly and connecting devices for implementing the .

Compared with the conventional FR-4, the same thickness , the same width, the aluminum plate can carry a higher current .



Insulating layer

Insulating layer is aluminum plate core technology , primarily as bonding, insulation and thermal features. Aluminum plate structure insulating layer is the largest power module thermal barrier. Better thermal conductivity of the insulating layer , the more conducive to the spread of heat generated during operation of the device , the more beneficial to reduce the operating temperature of the device, so as to improve the power load modules , reduce the volume, prolong life, increase power output and other purposes .

Figure 5 is a typical motor controller module , where the right of the icon using traditional techniques (FR-4), using a lot of heat sink , thermal interface materials and other accessories , a large block size, complex structure, high assembly costs ; while the left side because the use of high thermal conductivity of