

LED Encapsulation Technology Introduction-- COB Encapsulation

COB Encapsulation Advantages

SHENZHEN, 中国, July 29, 2021 /EINPresswire.com/ -- (1)Leadless Encapsulation

The pin-type encapsulation technology of LED chips can produce pins of various package shapes. It is the first LED product successfully developed and put on the market, with mature technology and a wide range of varieties. Although it is the earliest packaging technology, researchers are still constantly improving the internal and reflective layer of the lead-type package. The packaging material of the pin-type packaged LED is a potting form. The potting is to inject liquid epoxy resin into the LED cavity first, and then insert the pressure-welded pin-type LED bracket and put it in the oven. The oxygen resin is cured, and then the LED is separated from the mold cavity to form an LED product. The lead type packaging technology has a simple manufacturing process, low cost, and a high market share. In-line pin package LEDs are generally used in large-screen dot matrix display, indicator lights and other fields.

(2)SMD LED Encapsulation

In recent years, SMD LED has become a hot spot for LED development. Its brightness, consistency, reliability, viewing angle, flatness and other aspects have performed well. Compared with lead-type packaging technology, SMD LED adopts lighter packaging circuit boards and reflective layer materials, reduced size and weight, especially suitable for indoor and semi-outdoor full-color display applications.

(3)Power Encapsulation

In recent years, LED chips and packaging technologies have developed towards high power. The luminous flux of $\Phi 5\text{mm}$ lead package LEDs under high current is only 5% to 10% of that of power packaged LEDs. As the power becomes larger, the heat generated will inevitably increase, so thermal design and the selection of heat dissipation materials must be carried out to solve the light decay and life problems caused by temperature rise.

(4)COB LED Encapsulation

COB Encapsulation is a branch of surface mount technology and a new electronic assembly process technology. The bare LED chip is directly pasted on the printed circuit board, and then wire bonding is performed. Finally, the chip and the bonding wire are encapsulated and protected with a packaging material.

[Suntech COB packaging](#) is mainly used in high-power lighting, such as outdoor lighting, architectural lighting, and landscape lighting. However, because of its unique packaging method and heat dissipation mode, the application field is relatively wide, and indoor lighting products can also be packaged in COB at present. COB packaging is generally to package N LED chips together on a substrate, which can be made into point light emitting or surface light emitting. The overall luminous flux is increased, the power of the light source is increased, glare and zebra patterns are also avoided to the greatest extent, and the luminous efficiency per watt is improved. SMD packages require high-temperature reflow soldering, which can cause major damage to the LED chips, while COB packages do not require reflow soldering, which will not cause chip damage due to high temperatures, and there is no need to purchase placement machines and soldering equipment. This not only reduces costs, but also improves reliability.

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