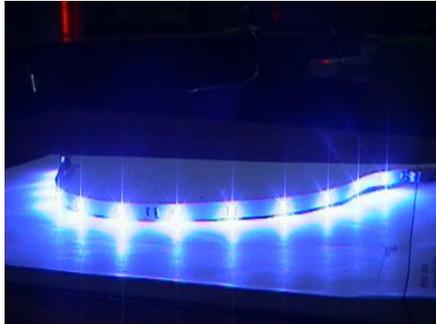


BINAY CHIP-ON-BOARD (COB) LED FLEXISTRIPS

BINAY's COB LED Flexistrrips use technologically superior techniques to provide colour-stabilised, long-life performance



BINAY COB LED Flexistrrips (Ultraflex)



Chip On Board: The LED chip is directly bonded on to metal substrate for heat sinking

BINAY LED FLEXISTRIPS use **Chip-On-Board (COB) technology** to directly place the LED chip on a heat-sinking metal board, thus allowing rapid dissipation of generated heat and keeping the LED P-N junction at a low temperature.

BINAY COB technology is used for both small chip and high power chips to give long life and high reliability. In the COB production process, LED chips are directly attached to the metal PCB substrate, so that the heat generated at the P-N junction has a direct path for maximum heat dissipation. While this process demands a high competence in engineering and manufacturing technology, it eliminates the major bottleneck of the lead-in wires for heat dissipation, as the entire chip now rests directly on the metal surface. Additionally, non-degrading silicone encapsulant (which does not 'yellow' over time) is used to encapsulate the chip, thus prolonging the life of the product.

Many LED strips available in the market nowadays use packaged epoxy-encapsulated LEDs (5mm/3mm, SMD, or 4-leg variety), which were initially developed for indication use. **Such LED products are unsuitable for illumination applications, and will eventually fail – not immediately, but will gradually fade in intensity over a period of 12 to 18 months.** Epoxy-encapsulated LEDs are an older technology, in which the LED chip is encapsulated with a transparent epoxy compound to isolate it from the environment. The epoxy traps the heat of the LED P-N junction inside the package; and while some heat can be conducted out by the lead-in wires, **this is insufficient**, resulting in a high P-N junction temperature which eventually destroys the chip.

Advantages of COB Technology

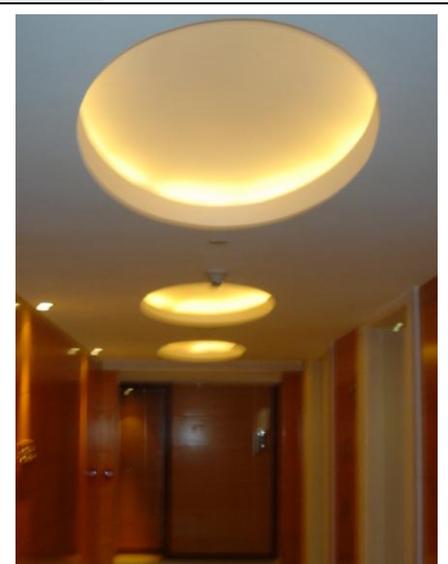
Due to superior heat dissipation, COB LEDs operate at extremely low junction temperatures, giving the following advantages over conventional LED technologies:

- Long Life and excellent colour stability; high reliability, zero-maintenance operation
- Higher brightness due to cooler junction temperature (heat reduces brightness)
- **Wide-angle 180-degree light emission;** ideal for **backlighting** applications
- Very slim, low profile light source – can be as **thin as 2mm** in height, making it ideal for cove lighting and low height applications (**uniform illumination, without scallops or dark spots**)
- Greater brightness and efficiency due to better light extraction
- Very long life, with no 'yellowing' over time – BINAY COBs use silicone encapsulant, which does not get damaged when exposed to high energy blue photons
- Can be made in multichip designs for higher brightness

Chip-On-Board LED Technology, while slightly expensive, is the best solution for temperature sensitive devices such as LEDs – primarily due to its superior heat dissipation characteristics (which result in cooler LED chips and a long life of up to 100,000 hours).

BINAY has pioneered this new technology in India.

BINAY has the developed technology to produce COB LEDs **of any colour** (over a range of 16 million shades), including **warm white** light to **exactly** match that of conventional incandescent filament or xenon lamps.



*Cove lighting with BINAY COB LED Strips
(Four Seasons Hotel, Mumbai)*



*In-Cabinet and Under-Cabinet lighting with
BINAY COB LED Strips*



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