Micro LED High Definition Display—MIP Products

New technology New display New fusion

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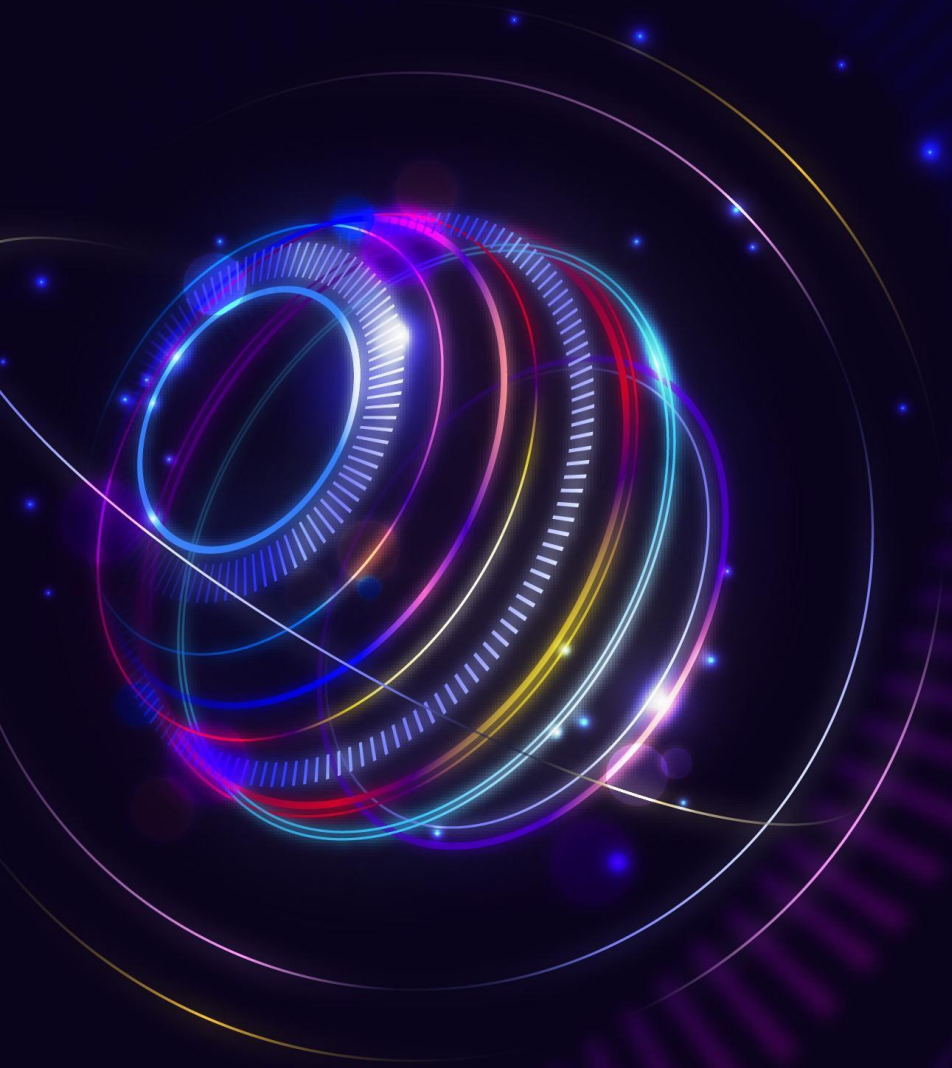
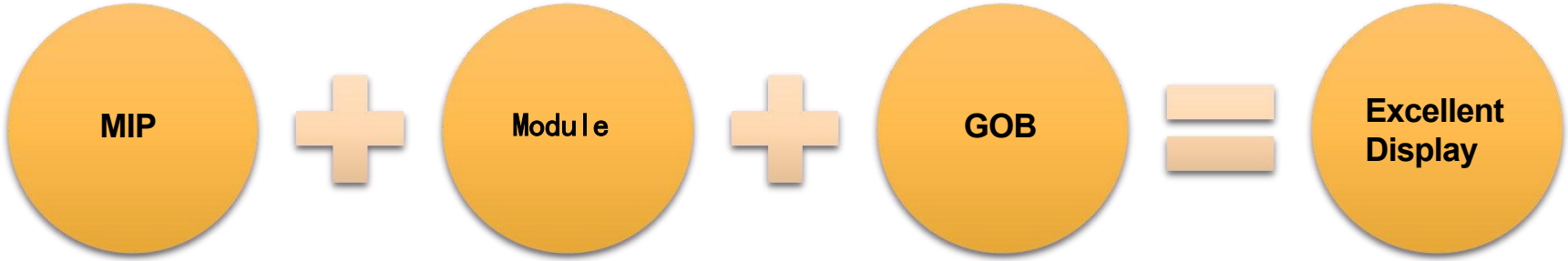


MIP Product Positioning

01. Product Technology



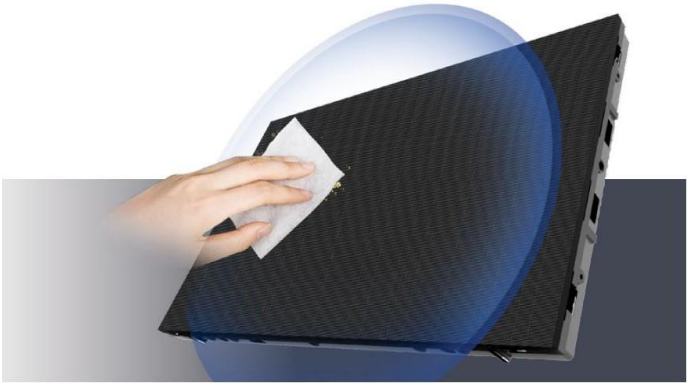
Product advantages: good appearance and color consistency, customizable, large Angle, surface optical treatment, anti-bump

Product positioning: less than P3 Mini/MicroLED display products

1. Change the molding packaging form to GOB packaging, optimize the structure and cost.

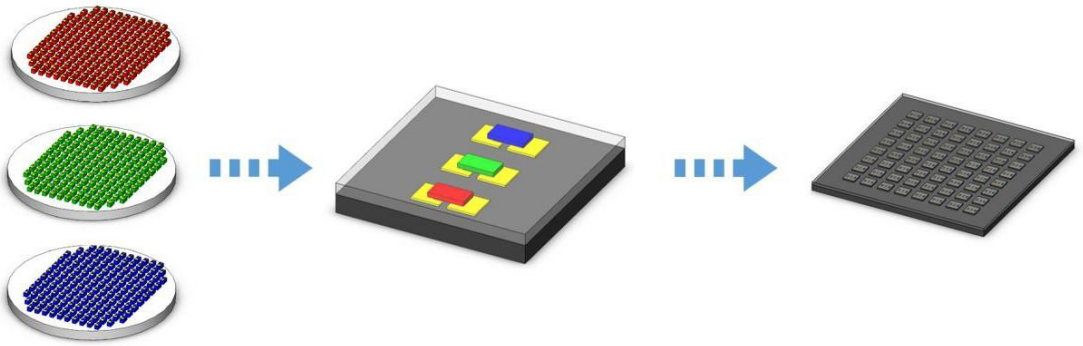
2, The integrated process flow, more structural optimization, to achieve better display effect and reliability.

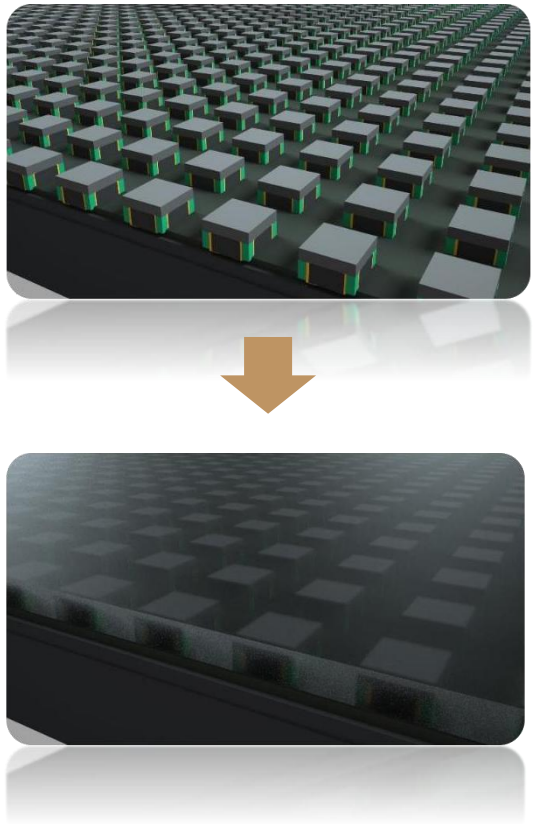
3, The color gamut and differentiation are more advantageous, the functions are more adaptable to the scene, and it is more suitable for the future variable market environment.

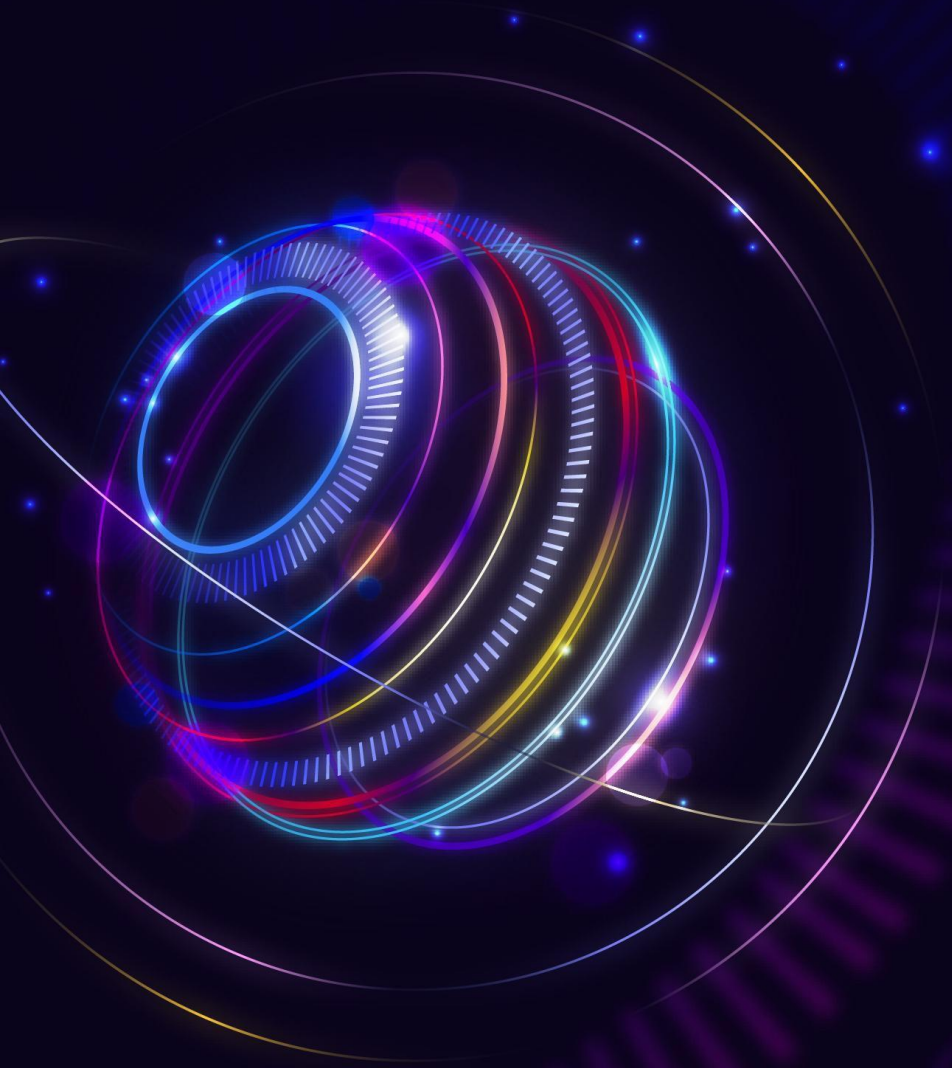


02. Technological Fusion

MIP products are equipped with high quality MIP beads from Nationstar, integrating multiple advantages such as full measurement and sorting of SMD devices and high reliability of COB!







Product features introduction

01. Process Advantages

MIP = Mini/Micro LED in Package

It is a small size display device that makes Mini/Micro LED into a single pixel

Standardization

Standardized devices, customized dot spacing suitable for P0.4~P3

Large scale

Similar to the SMD process, the supply chain is mature

High yield

The packaging plant is strong, and the pass rate can be achieved at one time 96%

Effective

General purpose SMD equipment

Chip mixing, secondary mixing before tape compilation

Low investment

The existing equipment is universal and only needs to replace the tooling fixture

02. Packaging Advantages

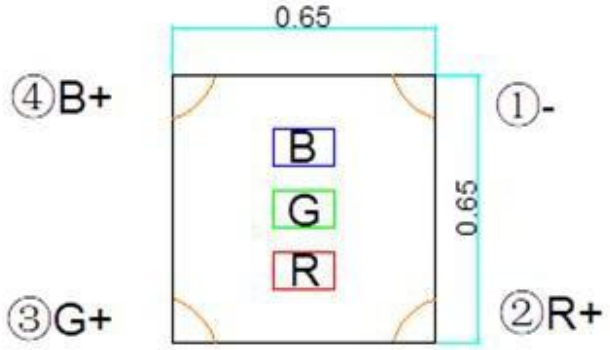
Product advantages: full inverted chip, thin packaging

Extreme black packaging, ultra-high contrast, meet the DCI-P3 color gamut

Product application: indoor ultra HD display (P0.4-P3), high-end TV, cinema, small and medium-sized conference room, security monitoring

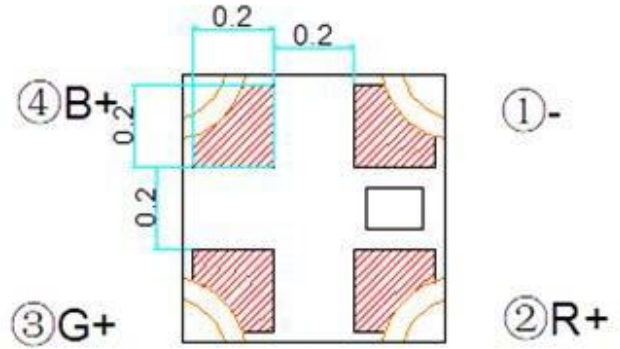
External size: 0.65 * 0.65 * 0.50 mm Photoelectric parameters:

MIP-C0606	light intensity /mcd
R @ 2mA	30
G @ 2mA	80
B @ 2mA	16



front view

side view



perspective view

03. Color gamut advantage

DCI-P3 Color gamut True color reproduction

The MIP device with strict test sorting is equipped with GOB packaging technology, which has better display effect, good color consistency and uniform brightness.

04. Ink color advantage

Through single-pixel spectroscopy screening, the problem of ink color consistency of COB is solved, with no color deviation at a wide viewing angle!

MIP show

COB show

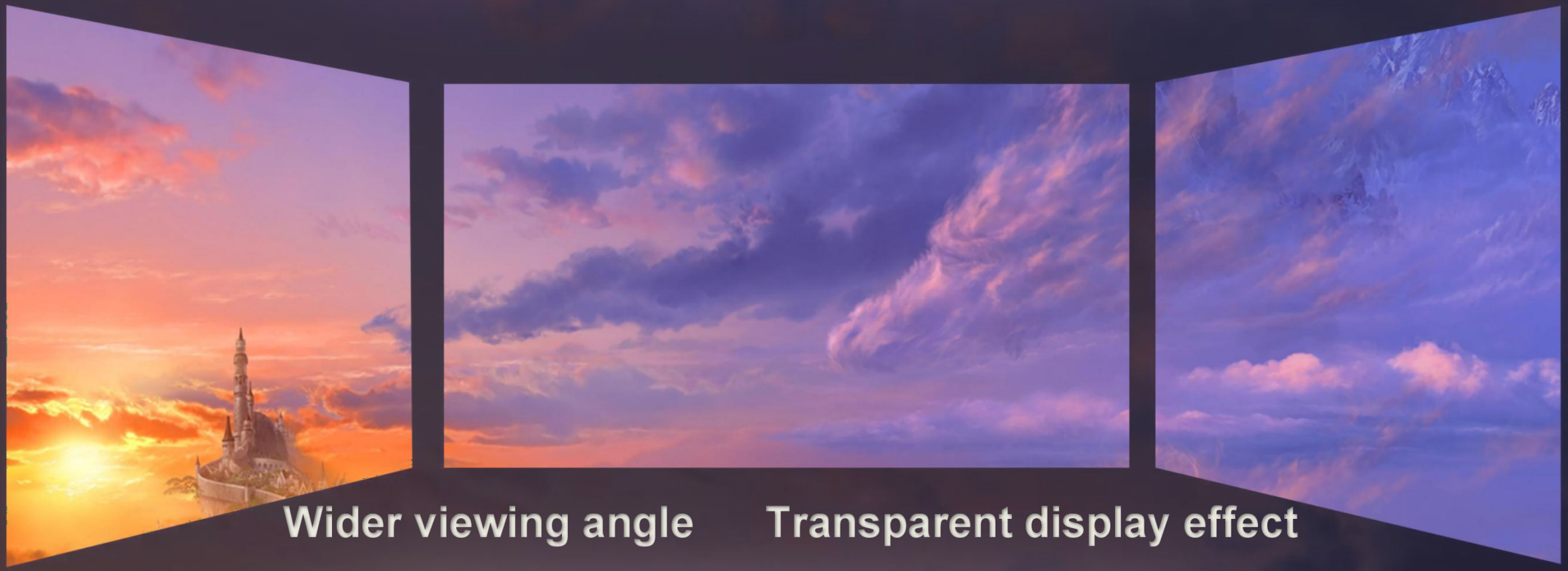
05. Brightness advantage

The product does not need to be corrected, and the brightness sacrifice is reduced

MIP+GOB dual enabling, display panel does not need to be corrected to improve production efficiency,

while pursuing high brightness and cleverly reducing the sacrifice of brightness, maintaining high clarity and excellent visual effect.

06. Viewing Angle



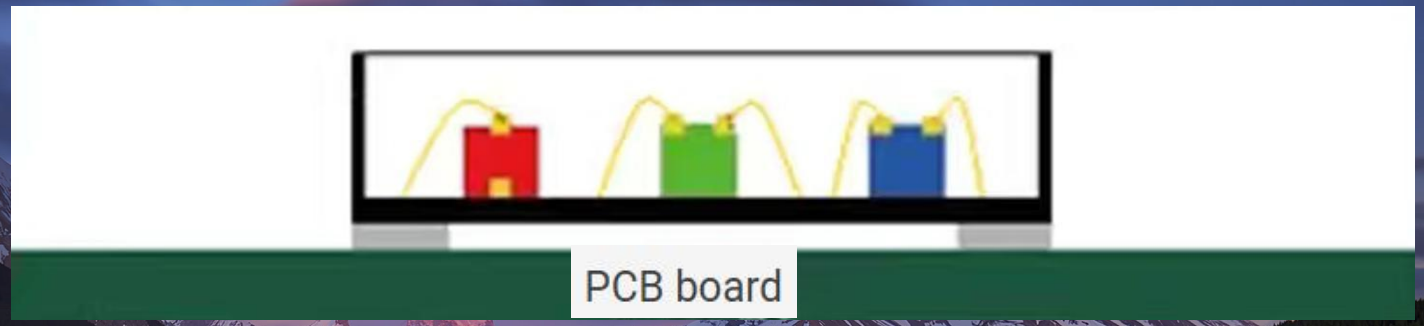
Wider viewing angle **Transparent display effect**

Using RGB full inverted chip and no solder wire shielding on the light-emitting surface,
the viewing Angle is greatly improved;

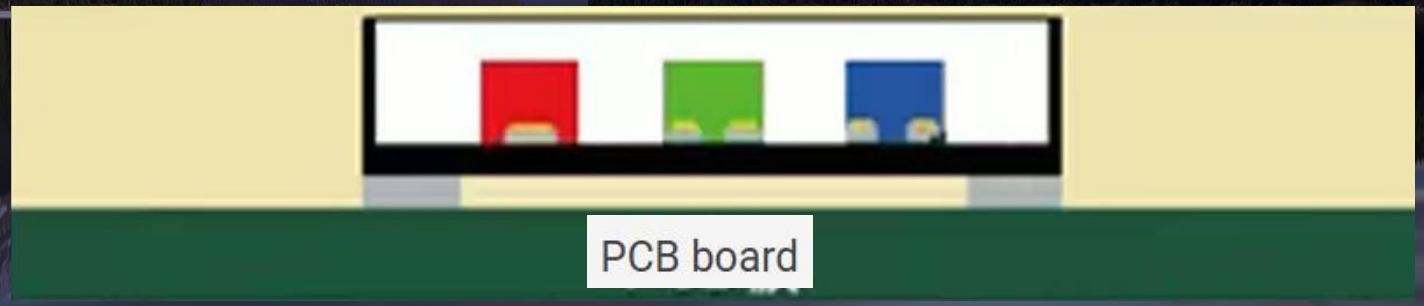
Combined with GOB technology, the particle sense is reduced and the display effect is transparent and soft.

07. Protection performance

- SMD



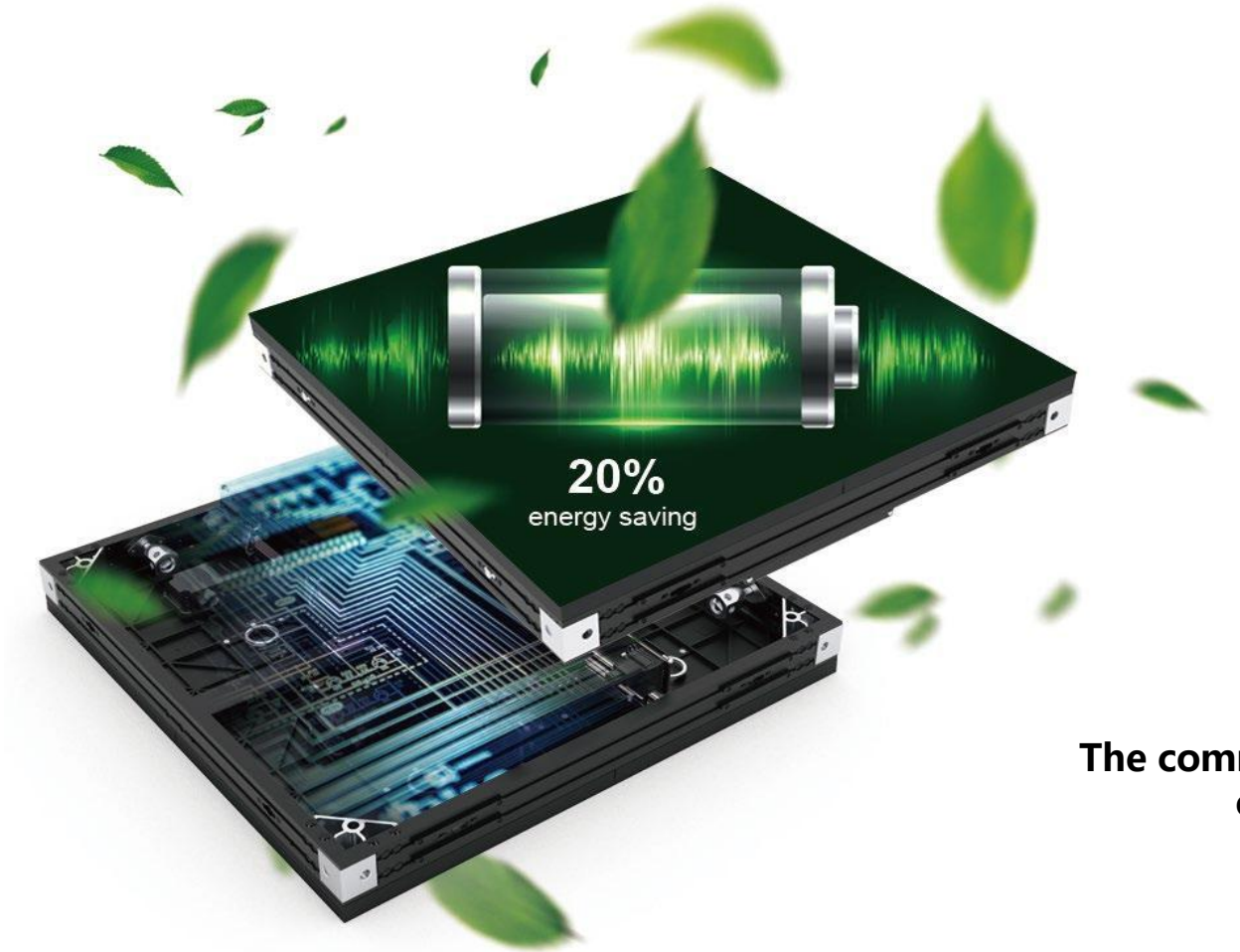
- MIP+GOB

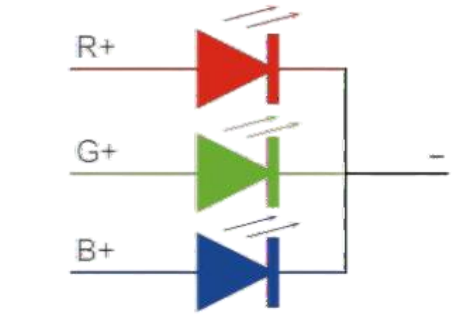


Double technology escort, reliable performance is better

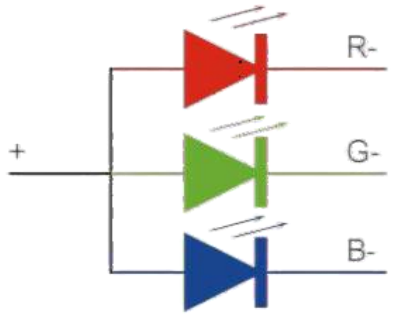
MIP+GOB has double protection against bumps, and effectively realizes eight kinds of protection: waterproof, moisture-proof, collision-proof, dustproof, corrosion-proof, blue light-proof, salt-proof and anti-static.

08. Common cathode energy saving





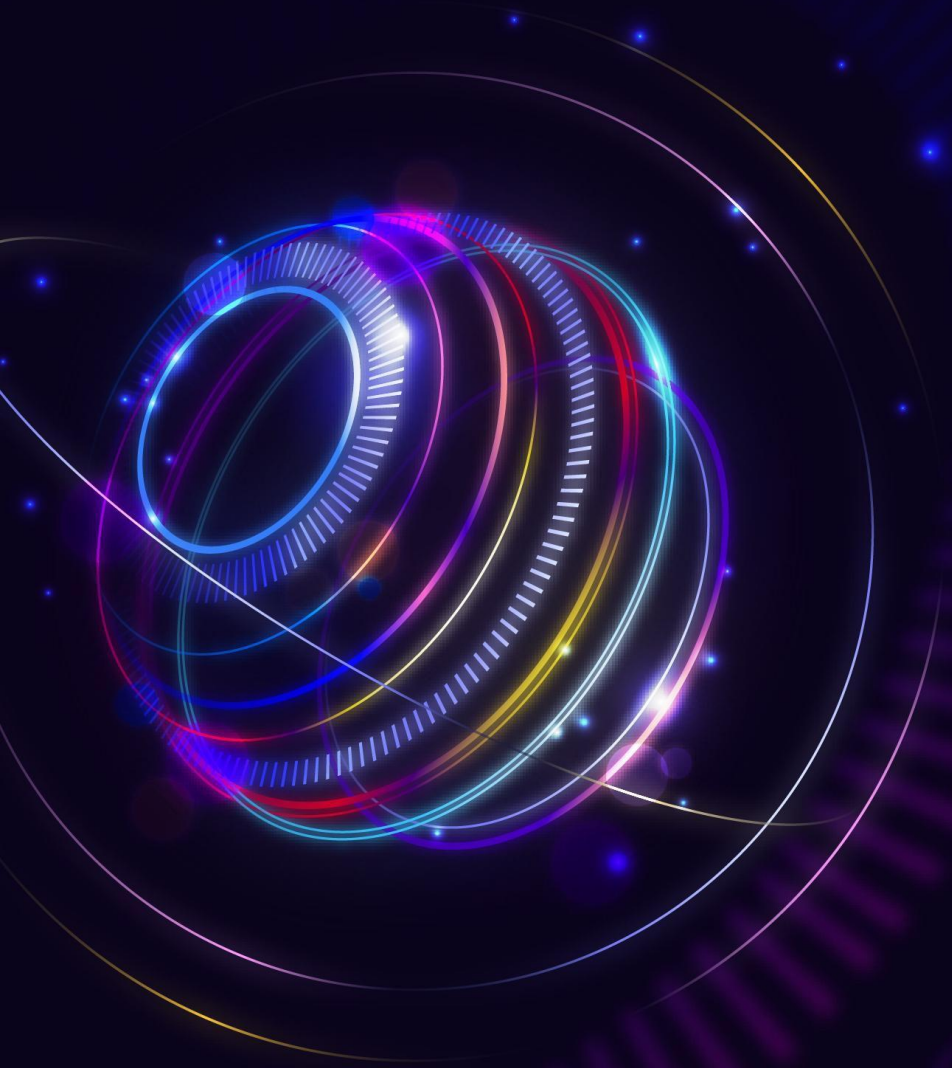
Common cathode circuit



Common anode circuit

The common cathode drive technology effectively reduces the heat of the screen and greatly improves the service life.

The average power consumption is only 60w/m²



Product Comparison

01. Product comparison chart

Compare dimensions	SMD	COB	MIP	The core advantage of MIP
know-why	Surface mount devices,The chip is packaged separately and then mounted on the PCB board	The chip is directly attached to the PCB board, integrated packaging and overall film	Chip-level independent packaging, compatible with surface mount technology, single pixel light mixing	By combining the reliability of COB with the flexibility of SMD, single pixel spectroscopy improves consistency
production engineering	Mature step-by-step packaging + surface mounting process	Simplify the process (die bonding to film covering), but require special equipment	The SMD equipment is reused, and the components are pasted after splitting and coloring to reduce the threshold of equipment investment	Compatible with traditional SMT production line, flexible to adapt to multiple spacing requirements
power dissipation	Higher (poor heat dissipation)	Low (direct chip heat dissipation)	Extremely low (using common cathode energy saving technology, low power consumption, low heat)	Balanced power consumption and display effect, suitable for high density scenarios, the average power consumption per square is 60W
luminance	Medium (limited by lamp cup structure, generally 450CD/m2)	Medium (no lamp cup shading, higher light efficiency, generally 500CD/m2)	High (the brightness can reach 1000CD/ square meter, retaining the advantage of high brightness)	Inherit the high brightness characteristics of COB without light efficiency loss
Consistency of ink color	Limited by the large area of gold wire and metal pad, the consistency of ink color is poor	Medium (difficult to control the surface ink color due to batch problems)	The surface is smooth and the ink color is consistent	The dark surface effectively improves the contrast
planeness	General (LED protruding)	Excellent (overall surface coating)	U (independent encapsulation and lamination)	The surface flatness is comparable to COB and is suitable for high-end display requirements
piece	Obvious (large spacing of lamp beads)	Very small (integrated packaging)	Very small (independent pixels are reduced)	The micro-gap (P0.4-P3) seamless display effect is better
Color consistency	Excellent (spectral and color separation process is mature)	General (depends on chip source control)	Excellent (single pixel spectrally filtered, mixed Bin more accurate)	The ability of splitting and separating color exceeds COB, with no color bias and no color difference in large viewing Angle
colour gamut	DCI-P3≥72% sRGB98% NTSC85%	DCI-P3≥98% sRGB125% NTSC115%	DCI-P3≥102% sRGB140% NTSC122%	The color gamut is larger. The color is true to life and the display effect is more natural
Display effect	Standard (low contrast, prone to reflection)	Excellent (high contrast, good black consistency)	Excellent (good contrast and COB, more uniform large Angle)	The uniformity of the large view is better than that of COB, and the HDR effect is outstanding, with a wider color gamut
stability	Low (easy to fall off the lamp, poor protection)	High (overall film impact resistance)	High (close to COB level after lamination)	The protection level after film covering is similar to that of COB, which is suitable for complex environment
maintainability	Medium (the lamp beads can be replaced separately)	Low (whole module replacement required)	Intermediate (local repair possible before film application)	The maintenance cost is lower than COB, and the single lamp repair is supported before the film is covered
usage scenario	Outdoor advertising, regular indoor screens (above P1.5)	Indoor scene display (P1.2 and above)	Full scene coverage (P0.4-P3, command and dispatch, exhibition, cinema screen, virtual shooting, etc.)	It has a wide range of adaptation, and can be flexibly applied from micro spacing to intermediate spacing, which is suitable for most indoor scenes

02. Product Parameters

P1.25（MIP1010)	
project /Item	Parameter/Parameters
Point-to-point distance / Pixel Pitch (mm)	1.25
Scan mode / Scan Mode	45 rolls
Module size (mm)	300*168.75mm
Unit panel resolution / Resolution (dots)	240*135
Pixel density / Pixel Density (dots/m²)	640000
Light tube type /Led Package	Flip chip 1010
Brightness / Brightness (cd/m²)	0-1000 (adjustable)
Refresh rate / Refresh Rate (Hz)	1920- 3840
Input voltage /nput voltage (v)	AC100~240
Optimal viewing distance /iewing Distance (m)	2.13
Corrected pre-brightness (cd/m²)	>1200
GOB before brightness (cd/m²)	>1100
Peak power consumption of the box (W)	50
Peak power consumption (W/m²)	250

P0.9（MIP0606)	
project /Item	Parameter/Parameters
Point-to-point distance / Pixel Pitch (mm)	0.9375
Scan mode / Scan Mode	45 rolls
Module size (mm)	300*168.75mm
Unit panel resolution / Resolution (dots)	320*180
Pixel density / Pixel Density (dots/m²)	1137778
Light tube type /Led Package	Flip chip 0606
Brightness / Brightness (cd/m²)	0-10 00 (adjustable)
Refresh rate / Refresh Rate (Hz)	1920- 3840
Input voltage/nput voltage (v)	AC100~240
Optimal viewing distance /iewing Distance (m)	1.875
Corrected pre-brightness (cd/m²)	>1000
GOB before brightness (cd/m²)	>1200
Peak power consumption of the box (W)	60
Peak power consumption (W/m²)	300

P0.7（MIP0404)	
project /Item	Parameter/Parameters
Point-to-point distance / Pixel pitch (mm)	0.78125
Scan mode / Scan Mode	64 hits
Module size (mm)	300*168.75mm
Unit panel resolution / Resolution (dots)	384*216
Pixel density / Pixel Density (dots/m²)	1638400
Light tube type /Led Package	Flip chip 0404
Brightness / Brightness (cd/m²)	0-1000 (adjustable)
Refresh rate / Refresh Rate (Hz)	1920- 3840
Input voltage /nput voltage (v)	AC100~240
Optimal viewing distance /iewing Distance (m)	1.563
Corrected pre-brightness (cd/m²)	>1000
GOB before brightness (cd/m²)	>1200
Peak power consumption of the box (W)	60
Peak power consumption (W/m²)	300

Thank you