

Ennostar

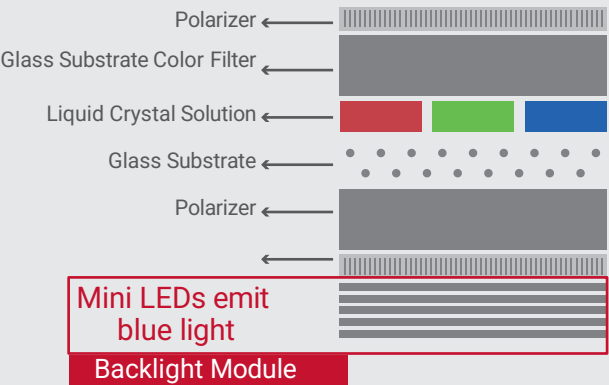
Mini LED Solution



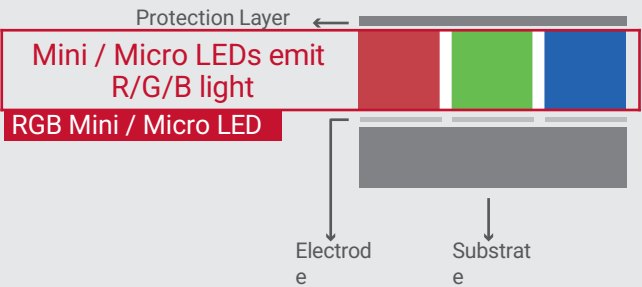
Bright Innovation · Sustainable Future

Mini / Micro LED for Display

Mini LED as LCD Backlight



Self-emissive Mini / Micro LED



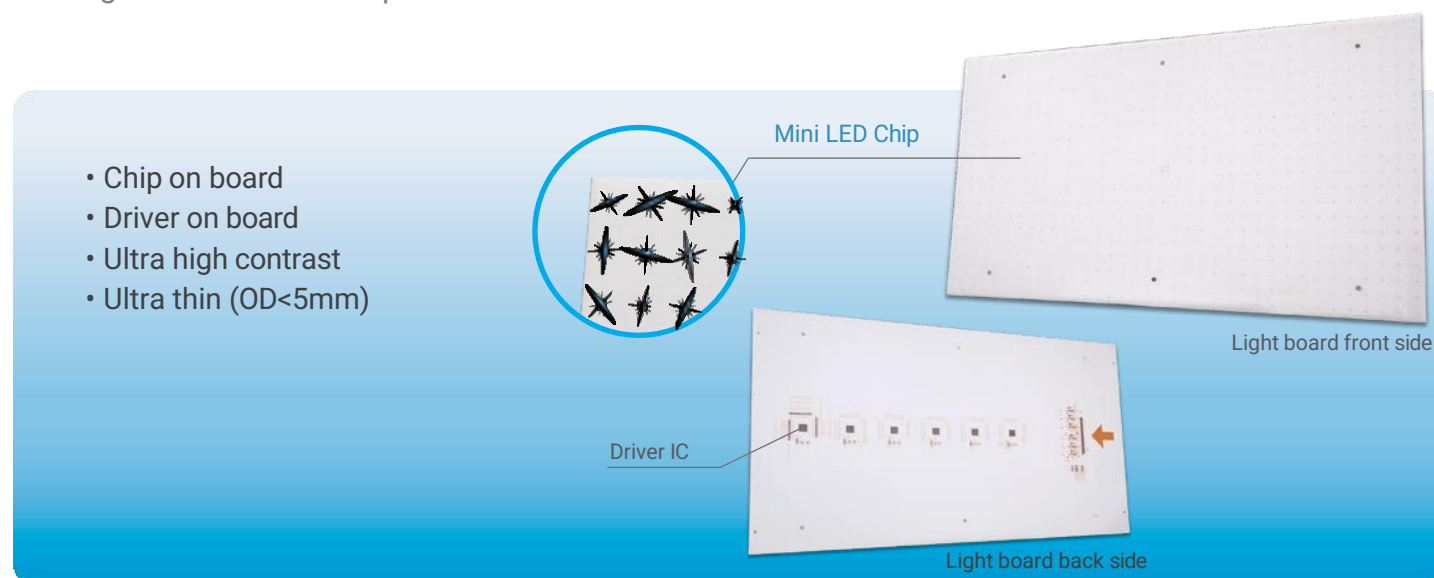
Display Performance Comparison:

	Current LCD Backlight	Mini LED Backlight	Mini RGB LED	Micro RGB LED
Light source	Backlit	Backlit	Self-emissive	Self-emissive
Brightness	Low	High	Higher	Higher
Contrast	Medium	High	Ultra High	Ultra High
Power consumption	High	Low	Lower	Lower
Suitable display size	<100"	<100"	>80"	Unlimited

Mini LED Backlighting *i-mini*

i-mini Blue

Package-free Mini LED chip on board



Mini LED Backlighting Product Lineup

17.3" Notebook

Model Name	PN17B01
Local Dimming	240 zones
Resolution	4K (3,840 x 2,160)
Brightness	1,000 cd/m2
Color Gamut	>100% NTSC

i-mini Blue 32" Monitor

i-mini

Model Name	PN32B01
Local Dimming	1,000 zones
Resolution	4K (3,840 x 2,160)
Brightness	1,000 cd/m2
Color Gamut	>100% NTSC
Optional	Driver on board

i-mini Blue 65" TV

i-mini

Model Name	PN65B01
Local Dimming	1,008 zones
Resolution	4K (3,840 x 2,160)
Brightness	1,000 cd/m2
Color Gamut	>100% NTSC
Optional	Driver on board

8.8" RearView Display

Model Name	PN08B01
Local Dimming	126 zones
Resolution	1,280 x 256
Brightness	3,000 cd/m2
Color Gamut	>90% NTSC

2.9" VR

- Active Matrix (AM)
- Chip On Glass (COG)
- Backlight & display applications applicable

Model Name	PN02B01
Local Dimming	2,304 zones
Resolution	3,456 x 3,456
PPI	1,688
Technology	AM mini LED



RGB Mini LED

i-mini

UFP i-mini RGB LED Modules

- Integrate LED and driver circuit
- Unlimited display size
- High brightness and high contrast
- Applicable for indoor and semi-outdoor



Model Name	IF060A0
Module Dimensions	60mm x 60mm
Pixel Pitch	0.75 mm
LED Type	Flip Chip COB
Power	5W per module
Brightness	1,000 cd/m2

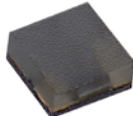


Model Name	IF090B0
Module Dimensions	90mm x 120mm
Pixel Pitch	0.75 mm
LED Type	0404 4-in-1 LED
Power	15W per module
Brightness	1,000 cd/m2

RGB Mini LED

4-in-1 RGB Mini LED

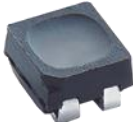
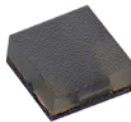
- Ultra fine pitch: P0.75~1.25mm
- Lextar in-house mini LED chip
- High reliability



Model Name	PC13X03 V0		PC21X01 V0	
Package Size	1313 (0404 4-in-1)		2121 (1010 4-in-1)	
Chip Type	Flip Chip		Lateral	
Pixel Pitch	0.75 mm		1.25 mm	
Pad Design	Common Cathode		Common Anode	
Peak Wavelength (nm)	R (5mA)	622	R (8mA)	622
	G (5mA)	523.5	G (5mA)	525
	B (5mA)	466	B (5mA)	467
Luminous Intensity (mcd)	R (5mA)	36	R (8mA)	32
	G (5mA)	99	G (5mA)	60
	B (5mA)	22	B (5mA)	12

RGB Mini LED

- High contrast
- Low color interference



Model Name	PC10X01 V0		PC15X01 V0	
Package Size	1010		1515	
Chip Type	Lateral		Lateral	
Pixel Pitch	-		-	
Pad Design	Common Anode		Common Anode	
Peak Wavelength (nm)	R (8mA)	622	R (8mA)	622
	G (5mA)	528	G (5mA)	522
	B (5mA)	470	B (3mA)	470
Luminous Intensity (mcd)	R (8mA)	38	R (8mA)	45
	G (5mA)	69	G (5mA)	180
	B (5mA)	15	B (3mA)	25

Patents

Region	Patent Number	Title
US	11,579,486B2	LIGHT EMITTING DEVICE, BACKLIGHT, AND DISPLAY PANEL WITH REFLECTIVE LAYER
	11,552,222B2	DISPLAY DEVICE
	11,367,849B2	PIXEL ARRAY PACKAGE STRUCTURE AND DISPLAY PANEL
	10,908,344B2	LIGHT-EMITTING MODULE STRUCTURE
	10,811,396B2	DISPLAY DEVICE
Taiwan	I790941B	發光模組
	I780966B	發光裝置、背光板及顯示面板
	I676851B	畫素陣列封裝結構及顯示面板
	D216971S	發光二極體模組
	D216970S	發光二極體模組
China	111463194B	显示装置
	111384225B	发光装置
	111105740B	显示器电路结构、显示器以及拼接式显示器
	110858599B	像素阵列封装结构及显示面板
	110391216B	发光模块结构
	306797865S	发光二极管模块
Korea	30-1169785-0001~0003	발광다이오드모듈
Japan	1694933	発光ダイオードモジュール
	1694932	発光ダイオードモジュール
	1694907	発光ダイオードモジュール



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