

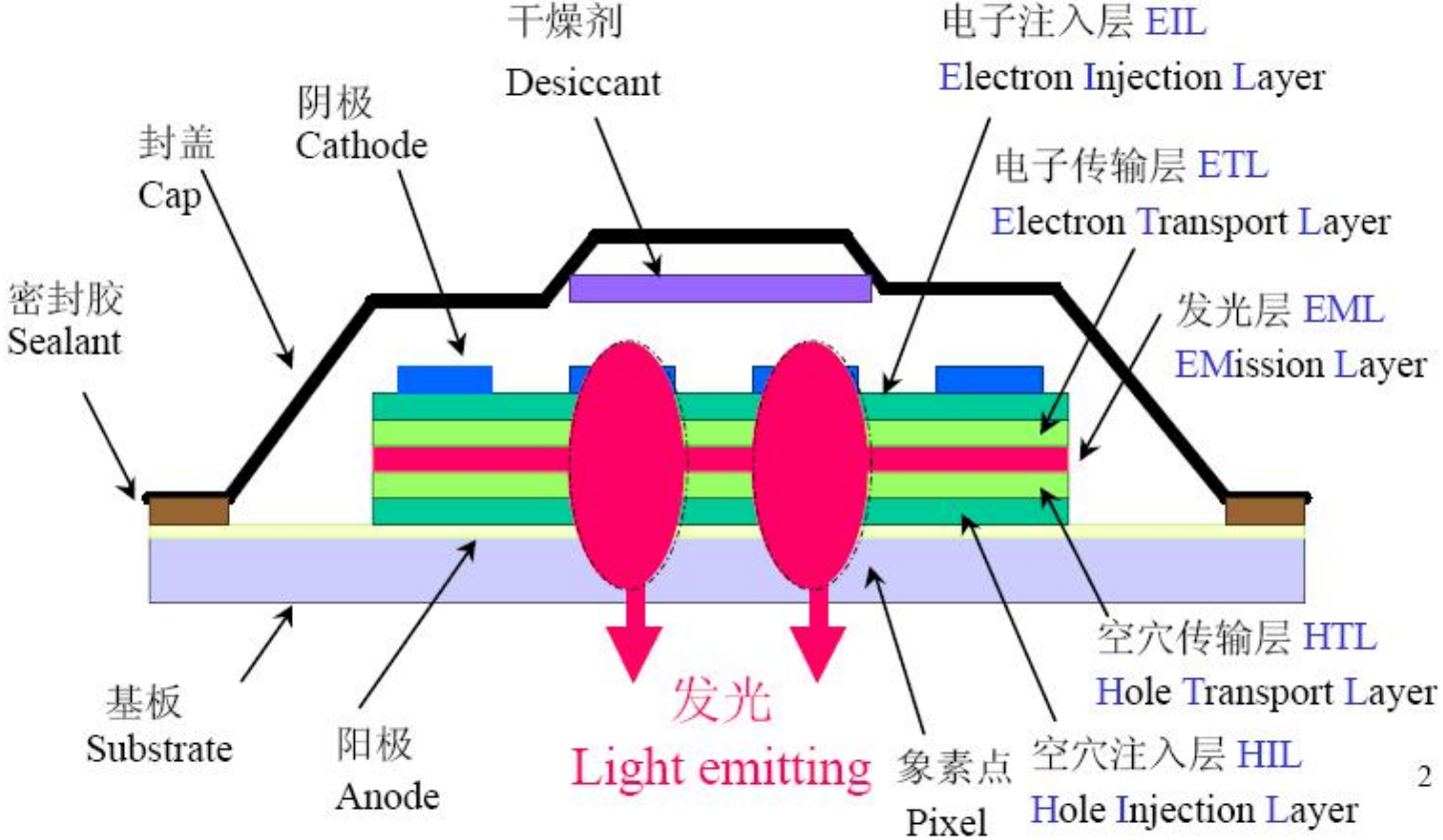
**TRULY<sup>®</sup> 信利**

# OLED Presentation

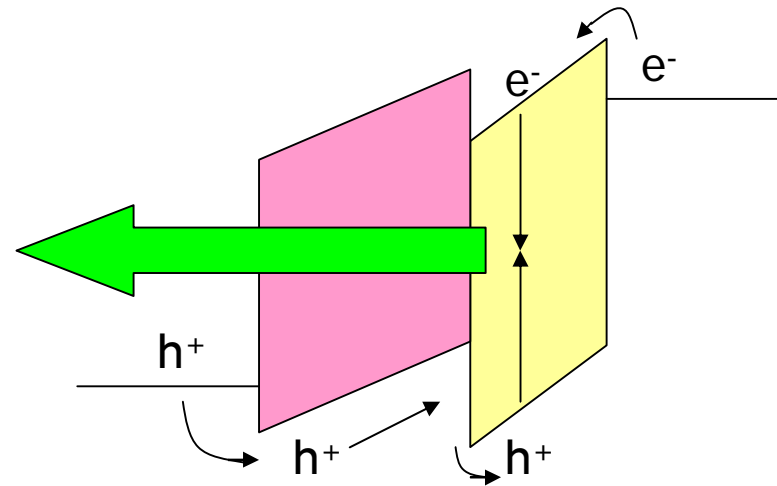
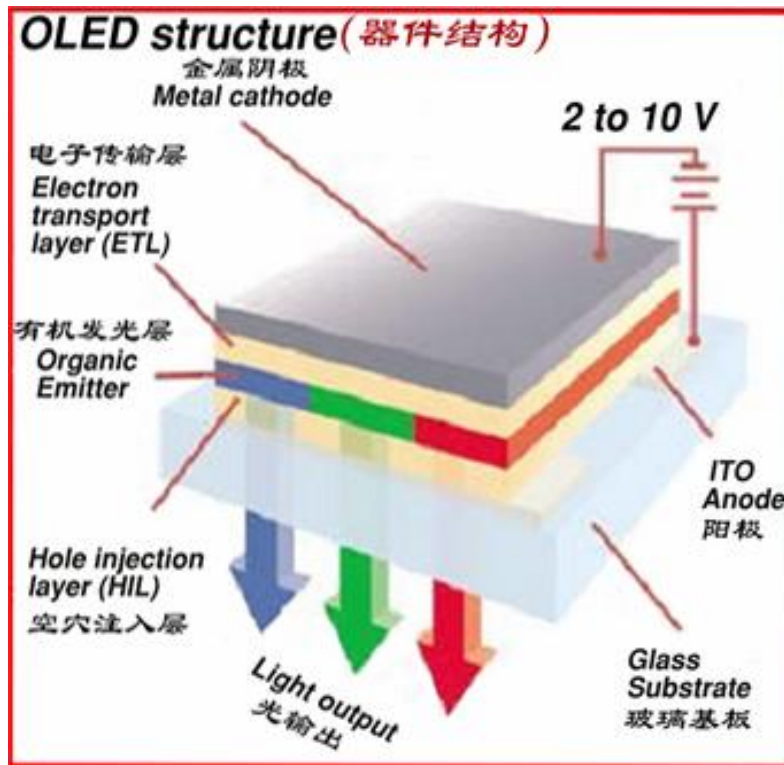
## OLED Definition

- **OLED:** Organic Light-Emitting Diode  
有机发光二极管
- **OELD:** Organic ElectroLuminescence Device  
有机电致发光器件

# OLED Structure



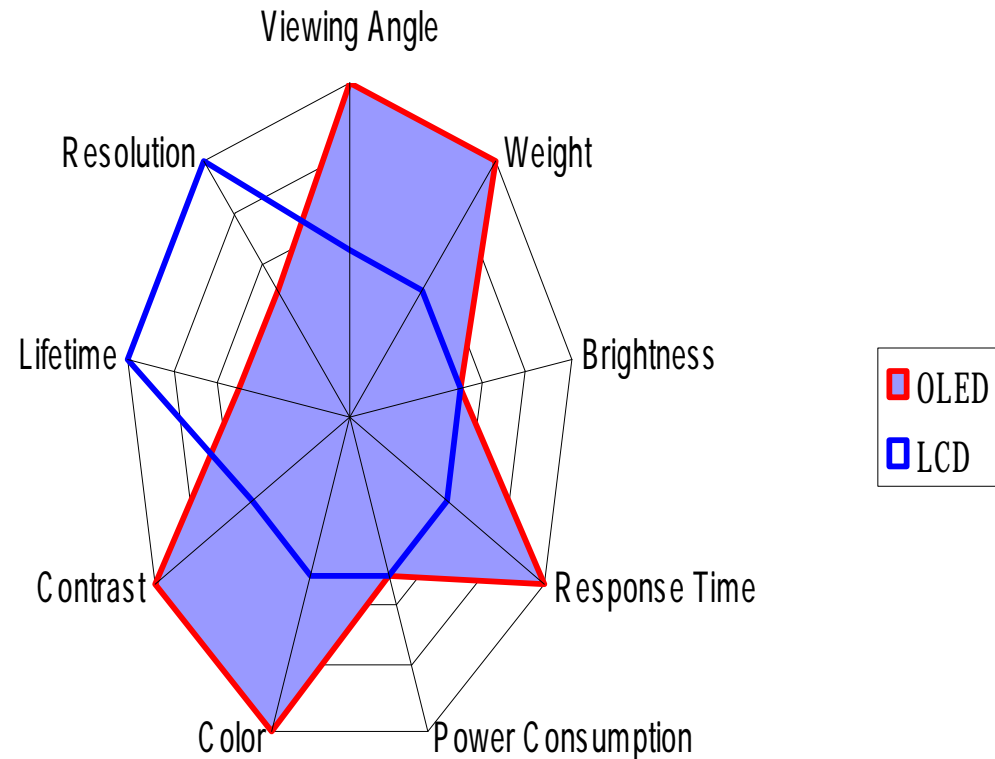
# OLED Fundamental



With inputting voltage or current, the electrons and holes recombine and generate excitons, then excitons irradiate and output the light.

# OLED Advantage

- 1.Full Viewing Angle
- 2.Faster Response Time  
(microsecond grade)
3. Higher Contrast
- 4.Vivid Color
- 5.Simple Process
- 6.Better Performance in  
Wide Temp. Range



	<b>OLED</b>	<b>LCD</b>
Emitting Type	Self-emitting type; Better performance indoor or at night; Similar as Negative transmissive LCD	Passive emitting type; Need sunlight or backlight
Contrast	high	low
Viewing Angle	Full	Narrow
Color	Vivid	Not Good, depend on CF
Response time	Microsecond Grade	Millisecond Grade
High Temp.	Good	Contrast worse
Low Temp.	Good	slowly Response time
thickness	Thinner	Need Backlight, difficult to become thinner
Structure	Solid structure	Liquid structure
Lifetime	Long (data below)	50K~150K
Remark	PM type	

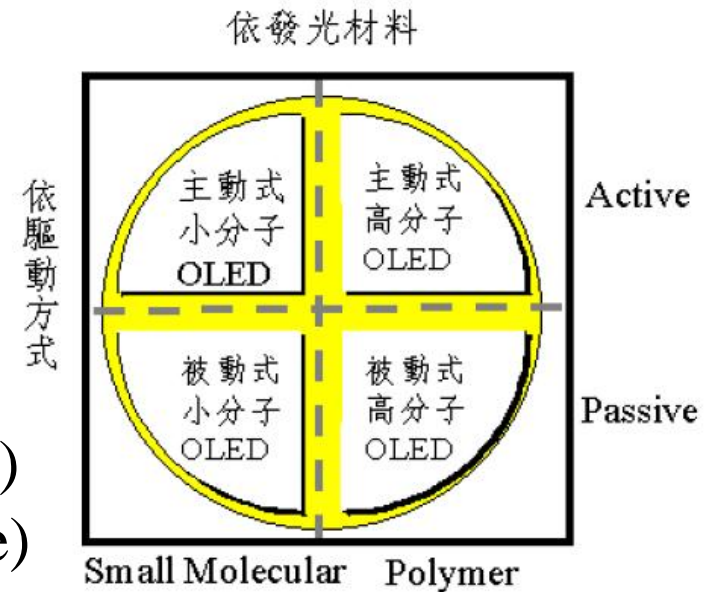
## Two kind of OLEDs

1. Base on emitting material:

- 1) OLED: Small Molecular type
- 2) PLED: Polymer type

2. Base on driving method :

- 1) AM—OLED( Active Matrix type)
- 2) PM—OLED( Passive Matrix type)



## OLED Display Mode

1. Mono-color: Red、 Green、 Blue、 White、 Yellow
2. Area-color: two colors、 three colors、 four colors
3. Greyscale: 4 levels, 16 levels( for Mono&Area color)
4. Full color: 256 colors, 4K colors, 65K colors, 262K colors

# TRULY OLED

## Photograph of Pilot line



**Cr/ITO cleaning line**



**Exposure machine**



**Stripping machine**



**OLED R & D line**



**OLED production line 1**

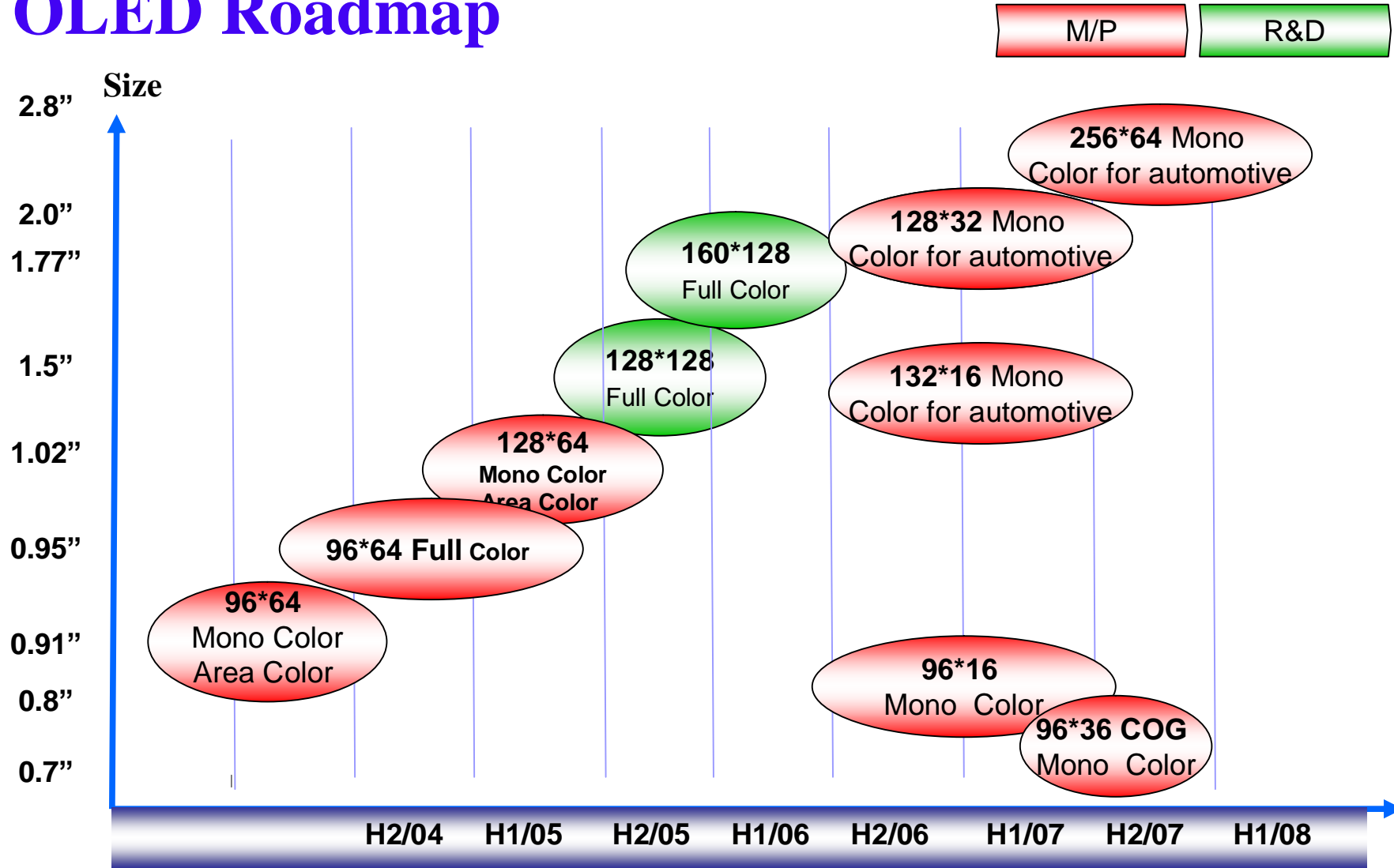


**OLED Production line 2**



**OLED Encapsulation 2**

# OLED Roadmap



<b>TRULY OLED product List</b>					
Model No.	Display color	IC package	Diagonal inch	Resolution	Application
TOD9M0028	R/G/B/W/Y	COG	0.67 "	96*36	<b>Normal Reliability</b> Bluetooth sub-display MP3 Remote control device Medical apparatus Watch Air conditioner Cassette audio etc.
TOB9M0023	R/G/B/W/Y	TCP	0.8"	96*16	
TOD9M0030	R/G/B/W/Y	TCP	0.91"	96*64	
TOD9M0005	A3(B+G+O)	TCP	0.91"	96*62	
TOD9M0014	L3(65K colors)	TCP	0.95"	96*64	
TOD9M0018	R/G/B/W/Y/A2	TCP	1.02"	128*64	
TOB9M0021	R/G/B/W/Y	TCP	1.45"	132*16	
TOC9M0020	R/G/B/W/Y	TCP	2.0"	128*32	<b>High Reliability</b> Automotive, military, Industrial meter etc.
TOD9M0026	R/G/B/W/Y	COF	2.7"	256*64	

# Mono-Color OLED



TOD9M0028



TOB9M0023



TOD9M0030



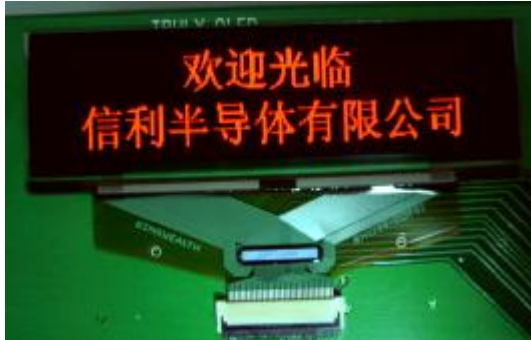
TOD9M0018



TOB9M0023



TOC9M0020



TOD9M0026

## Area Color & Full Color OLED



TOD9M0018-A2



TOD9M0005-A3



TOD9M0014-L3

# TRULY OLED Lifetime

**Lifetime Test Model:  $L^n T_{1/2} = \text{constant}$**

L-----Luminance; n-----decay index;  $T_{1/2}$ -----lifetime

Color	Initial Luminance (cd/m <sup>2</sup> )	Lifetime (hours)	CIE1931(x,y)
Red	30/50	150K/75K	0.65,0.34
Yellow	60/100	150K/70K	0.47,0.51
Green	80/100	80K/55K	0.33,0.63
Blue	60/80	80K/60K	0.15,0.27
White	60/80	80K/60K	0.30,0.35
Full color	45/80	50K/25K	0.30,0.36
Remark	30% pixels scrolling display ON; Decay to 50% of initial Luminance		

**THANK YOU!**