



Dongbu LED *New* Side view

Dongbu LED

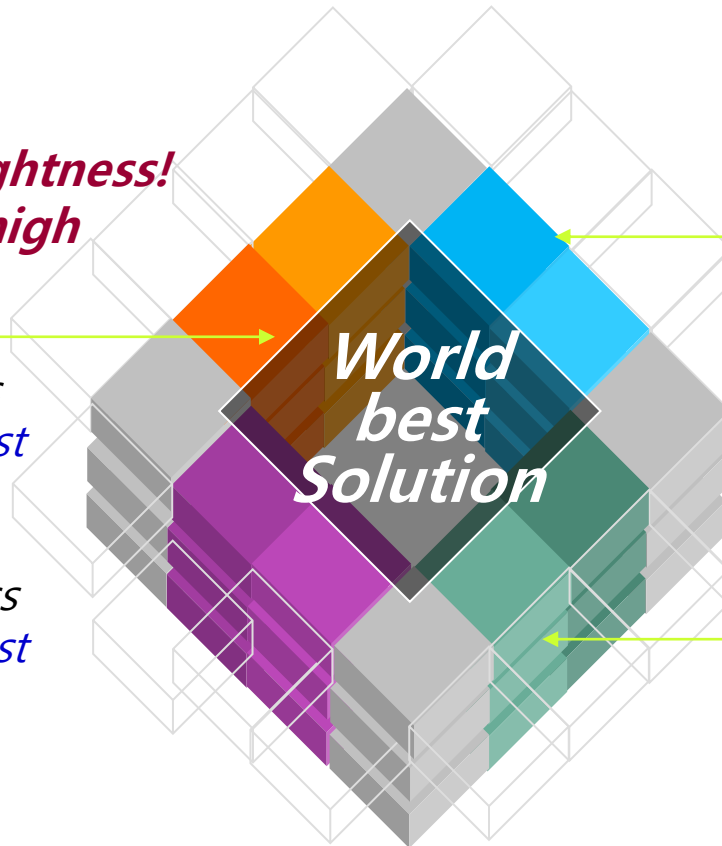
An Excellent Global Company

2014
NEW
Product

DongBu a world leading company in the
LED side view type

● *World's Top Brightness!
Do you want the high
brightness LED ?*

- 0.6t High Brightness
- 9.8lm The World Best brightness !
- 0.4t High Brightness
- 8.0lm The World Best performance !



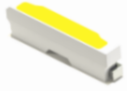
● *Do you want the
super ultra slim LED of
the first & lowest
thickness in the world ?*

- 0.3t PKG
- 0.4t all-in-one Bar Type
The World First !

● *Do you want to
reproduct Color of
nearest Nature ?*

- High Color Gamut 0.6t
- Adobe, NTSC 100%
- The World Best Natural
Color Reproduction

☐ '2014. New Side view PKG Line up



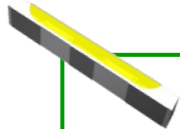
0.6t High Brightness

1in1 3.2cd MP
1in1 3.5cd 3Q Launch



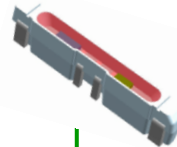
Super Ultra Slim PKG

0.4T COB 4.5cd 2Q Launch
0.3T 2in1 4.0cd 2Q Launch



0.4t High Brightness

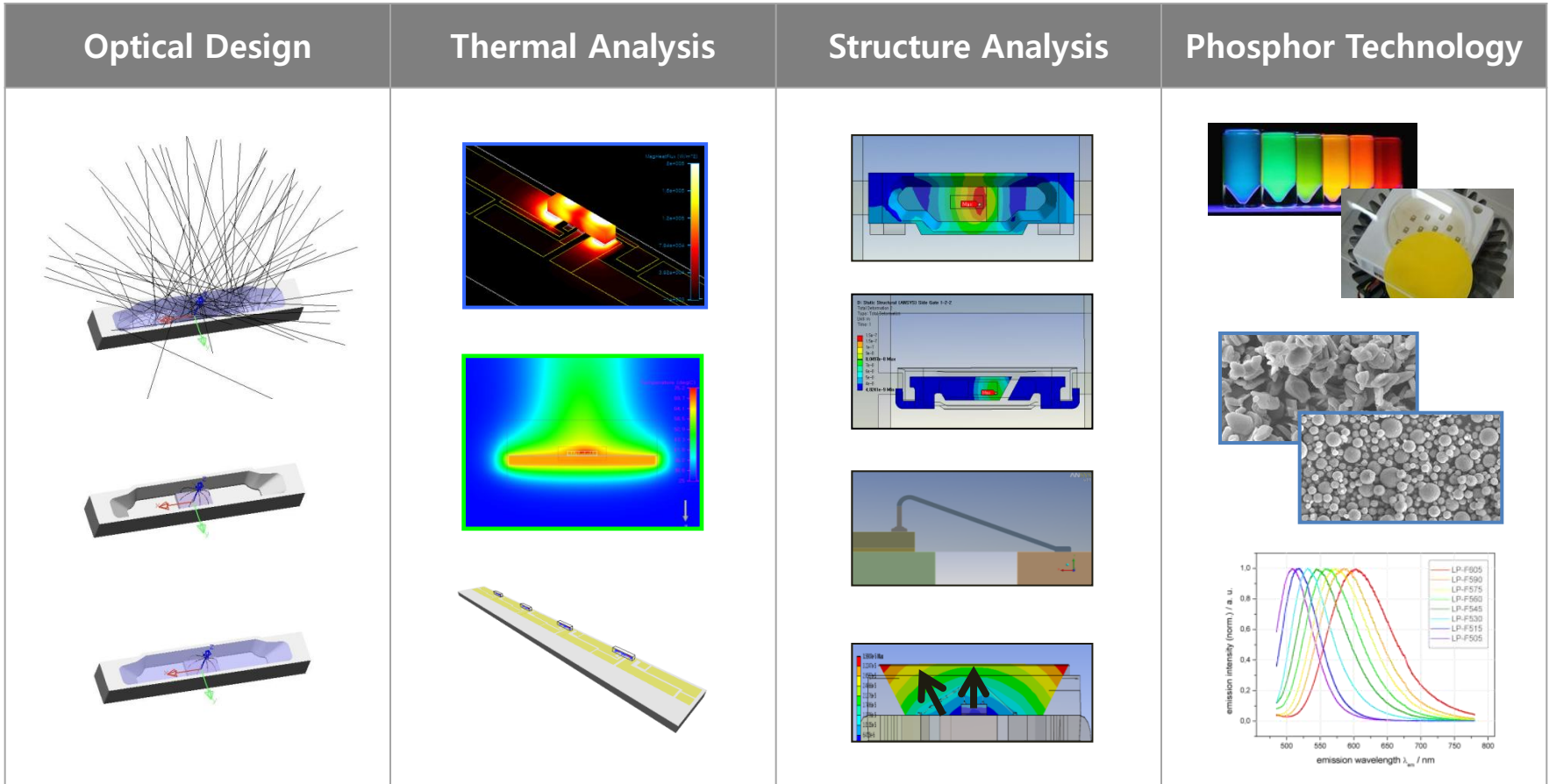
1in1 2.5cd MP
1in1 2.7cd 2Q Launch



0.6t High Color Gamut

Adobe 100%
2in1 2.0cd 2Q Launch
2in1 2.5cd 3Q Launch

□ Dongbu Side view PKG “Technology Competitiveness”



- Optimized optical design technique
- Analyze the photon behaviors and interactions for various materials.

- Thermally stable design technique
- Analyze the conduction, convection and radiation

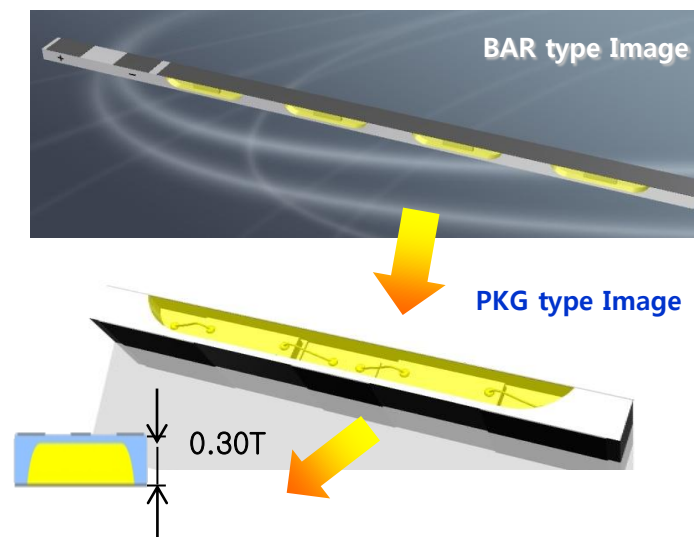
- Stress released optimum design technique (Wire bonding, PKG design)
- Material failure mode analysis

- Controlling phosphor diameter and morphology
- Optimized combination of R/G/Y Phosphor

☐ Super Ultra Slim -Type [0.3T] & [0.4T]

● The lowest thickness PKG

- Application : Tablet PC, Ultra Note PC, Mobile BLU
- High brightness LED - 40(L) x 0.5(W) x 0.4(T) mm
38(L) x 0.5(W) x 0.3(T) mm
- Can supply LED only and Bar type also
- Bar type product, can supply the product base on customer demand

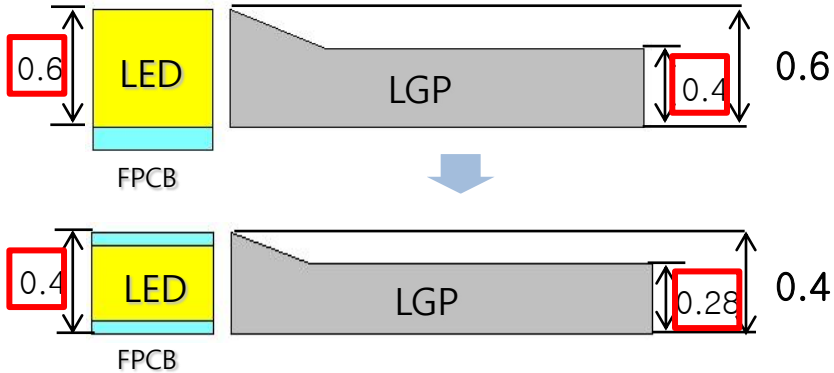


● SPECIFICATIONS

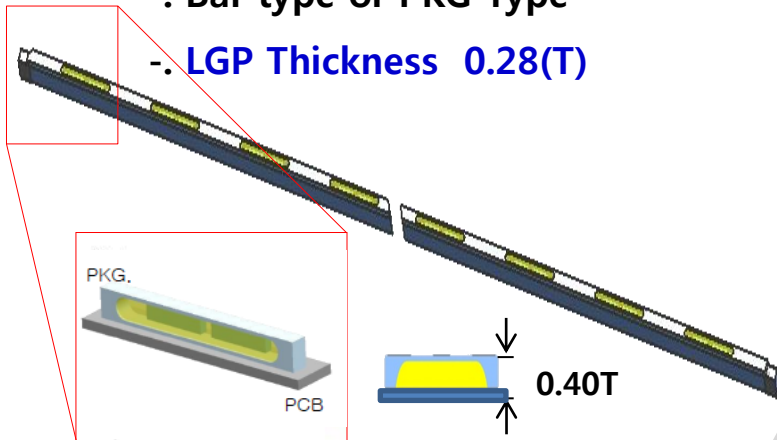
Items [0.4T / 2In1]		Value	Remark
Electrical	IF typ (mA)	40	
	VF range (V)	3.0 ↓	@40mA.
Optical	Iv typ (mcd)	4,000	@40mA, E3
	Iv Range (mcd)	3,800~4,500	@40mA, E3
	Flux typ (lm)	13 [110lm/W ↑]	@40mA, E3
Phosphor		Silicate & RGY	

Super Ultra Slim -Type [0.3T] & [0.4T]

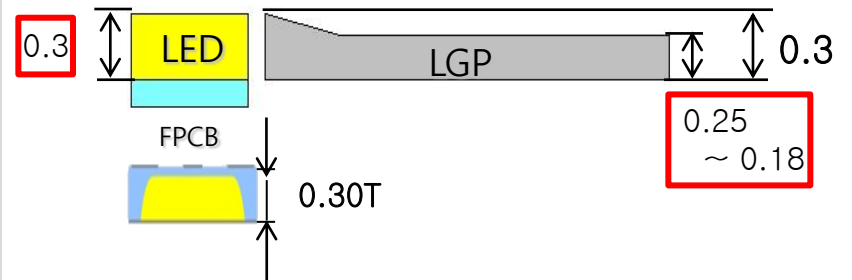
0.4T BAR TYPE



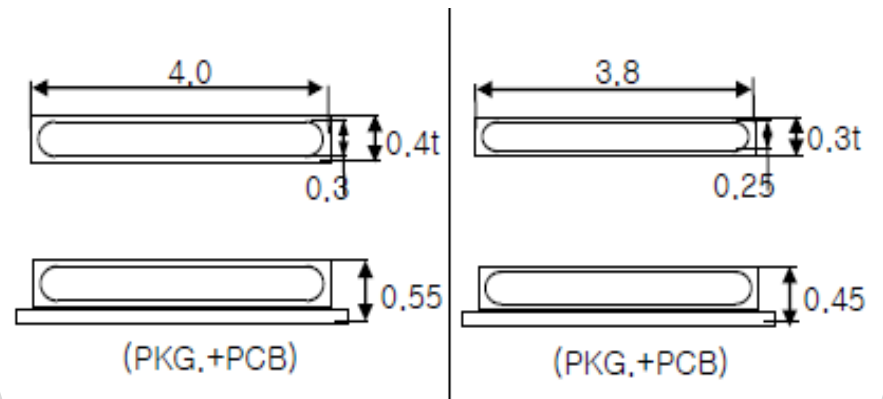
- Dongbu Bar. Concept
- Bar type or PKG Type
- LGP Thickness 0.28(T)



0.3T PKG TYPE



- Dongbu 0.3T PKG. Concept
- PKG Type만
- LGP Thickness 0.25~0.18(T)



8" BLU Compare Test : Efficiency Improve 62% ↑

PKG	LED	Chip	IF	Brightness (Nit)	Increase The Brightness
Reference (0.6T LED)	21	21	20	6,100	
Two in one (0.4T COB LED)	20	40	40	9,900	62% ↑

- (1) 62% rising effect in brightness compared to existing product
- (2) Reducing the Y-axis size of LED results in the increase of LCM active area
- (3) Thermal resistance Reference (0.6t) Vs. S-Type = 61°C : 40°C

E/S and Mass production schedule

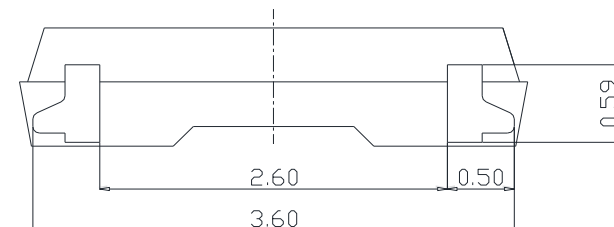
PKG	Feb.	Mar.	Apr.	May.	Jun.
•0.3T PKG			SAMPLE		MP
•0.4T COB	SAMPLE		MP		

NEW 0.4T High Brightness LED

FEATURES

- Application : Mobile BLU , Tablet PC
- High brightness LED - 38(L) x 0.9(W) x 0.4(T) mm
- Side-view 1 in 1

3809 0.4T PKG Image



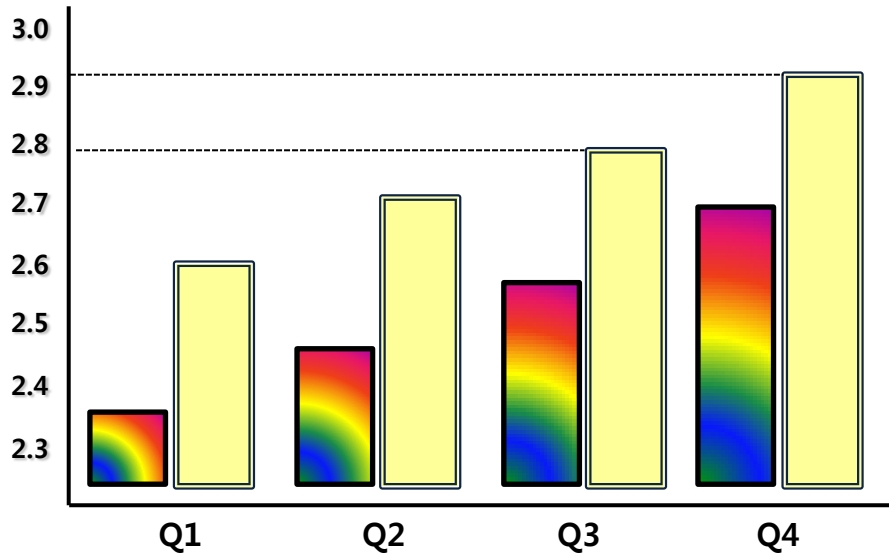
SPECIFICATIONS

Items [0.4T]		Value	Remark
Electrical	IF max (mA)	30	
	IF typ (mA)	20	
	VF range (V)	2.7~2.9	@20mA
Optical	Iv typ (mcd)	2,700	@20mA, E3
	Iv Range (mcd)	2,600~2,800	@20mA, E3
	Flux typ (lm)	7.6 [100lm/W ↑]	@20mA, E3
Phosphor		Silicate & RGY	

Comparison with Competitors

■ Part No. : [0.4T] (Cc : "E3")

■ : RGY ■ Silicate Yellow



■ Efficiency comparison

→ World Top Class

Company	IV(cd)	Im
Japan "N"	2.3~2.4	7.0~7.5
Korea "S"	2.4~2.5	6.5~7.0
Dongbu	2.4~2.5	7.0~7.5

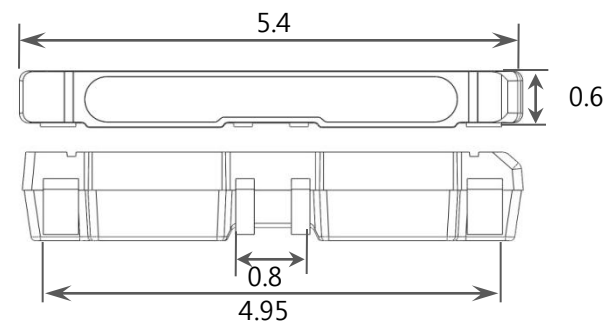
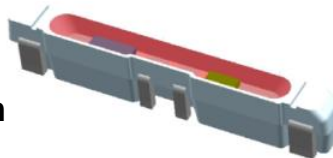
Sample and Mass production schedule

PKG	R&D	ES	MP	Remark
0.4T (3809)	2.1 -> 2.7 cd	'14.3	'14.5	2.7 cd ↑

NEW 0.6T High Color Gamut LED

NTSC 100% Reproduction

- Application : Tablet PC, Note PC
- High brightness LED – 5.4(L) x 1.0(W) x 0.6(T) mm
- Side-View 2 in 1







SPECIFICATIONS

Initial Electrical / Optical Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage(1)	V_F	Blue = 20mA	2.9	-	3.1	V
		Green = 30mA	3.2	-	3.3	
Reverse Current	I_R	Blue $V_R = 5V$	-	-	2.0	μA
		Green $V_R = 5V$	-	-	-	
Luminous Intensity(2)	I_V	Blue = 20mA Green = 30mA	-	2,000	-	mcd
Chromaticity Coordinate	C_x	Blue = 20mA Green = 30mA	-	0.300	-	-
	C_y	Blue = 20mA Green = 30mA	-	0.240	-	-

● BLU Compare Test : **Adobe 100%**

PKG	Gamut Adobe	Chip	Phosphor	Structure	Compare
High (New)	100%	Blue Green	Red		
Normal	58%	Blue	Yellow		

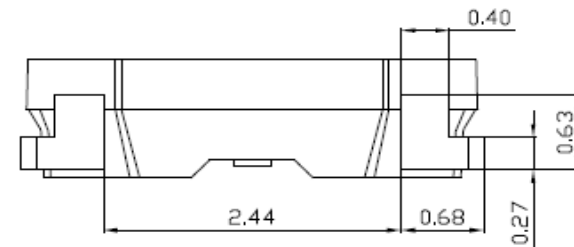
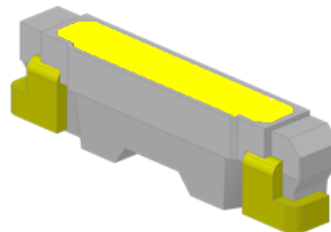
● Sample and Mass production schedule

PKG	Feb.	Mar.	Apr.	May.	Jun.
• 5410 BG	SAMPLE		MP		2.0cd ↑ NTSC 100%

0.6T High Brightness LED

FEATURES

- Application : Tablet PC, Ultra Note PC, Mobile BLU
- High brightness LED - 38(L) x 10(W) x 0.6(T) mm
- Side-view 1 in 1



SPECIFICATIONS

Items [0.6T]		Value	Remark
Electrical	IF max (mA)	60	
	IF typ (mA)	20	
	VF range (V)	3.0 ↓	@20mA.
Optical	Iv typ (mcd)	3,200	@20mA, E3
	Iv Range (mcd)	3,000~3,400	@20mA, E3
	Flux typ (lm)	9.3	@20mA, E3
Phosphor		Silicate & RGY	

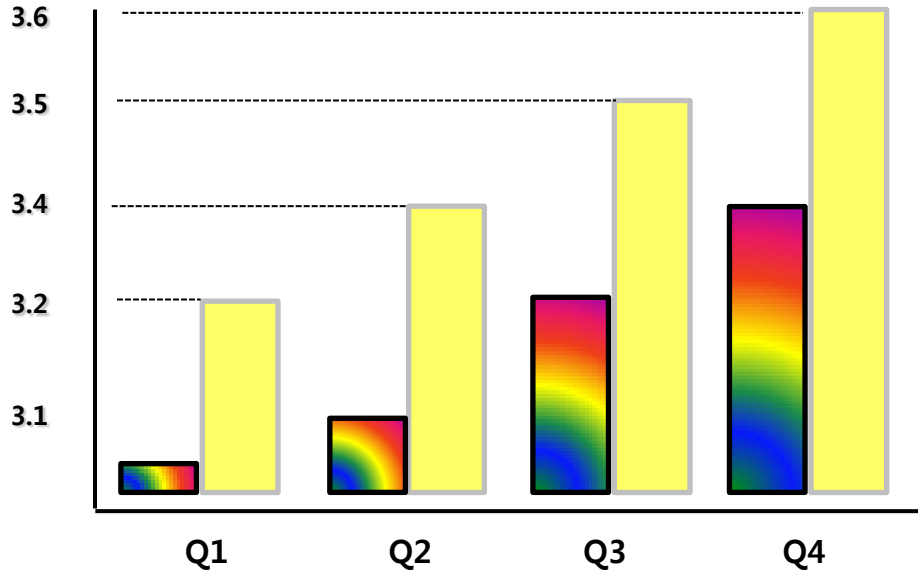
Comparison with Competitors

■ Part No. : AS482 [0.6T] (Cc : "E3")

■ : RGY ■ : Silicate Yellow

■ 5.0" BLU TEST result

→ Top efficiency on BLU



PKG	IV (cd)	BLU(Nit)	Nit GAP
Korea ("S" 0.6T)	3.0~3.1	11,800	95%
Taiwan ("E" 0.6T)	3.0~3.1	10,970	88%
China ("J" 0.6T)	2.9~2.8	9,120	73%
Dongbu (0.6T)	3.0~3.1	12,420	100%

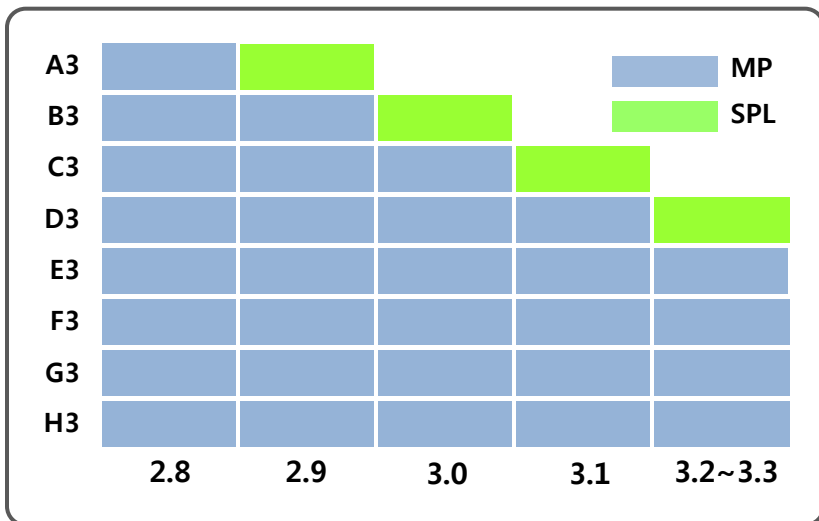
Sample and Mass production schedule

PKG	R&D	ES	MP	Remark
0.6T (3810)	3.2 → 3.5cd	'14.5	'14.7	3.5 cd ↑

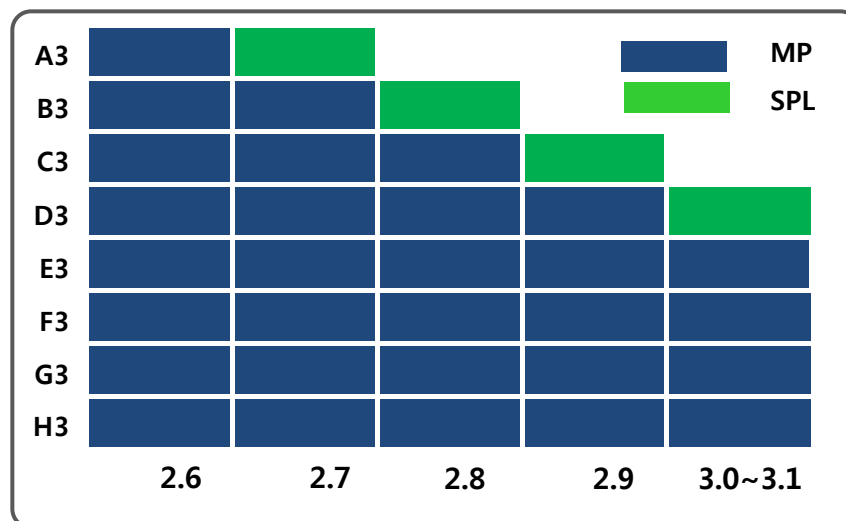
► Present Condition of 0.6T High Brightness LED

○'14. 1Q Bright spec area

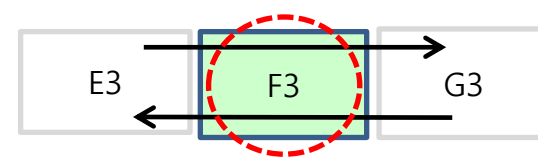
Silicate (Yellow)



YAG like (RGY)



Brightness	▶ Silicate Sample : 3.2~3.3cd (@ "D3" rank) M.P : 3.2~3.3 (@ "E3"rank)							
	▶ YAG Like Sample : 3.0~3.1cd (@ "D3" rank) M.P : 3.0~3.1 (@ "E3"rank)							
Color rank	▶ 3 color Ranks							
	▶ Possible Mixing (effect as an one BLU rank)							
	▶ Possible to produce 4 rank lines							
Voltage	▶ Supply proportion of Voltage							
	<table border="1" style="display: inline-table; vertical-align: middle;"> <thead> <tr> <th>2.8v</th> <th>2.9v</th> <th>3.0v</th> <th>3.1v</th> </tr> </thead> <tbody> <tr> <td>30%</td> <td>40%</td> <td>20%</td> <td>10%</td> </tr> </tbody> </table> <div style="display: inline-block; vertical-align: middle; margin-left: 20px;"> <p>Low Vf Trend (2.9 ~ 2.75 V)</p> </div>	2.8v	2.9v	3.0v	3.1v	30%	40%	20%
2.8v	2.9v	3.0v	3.1v					
30%	40%	20%	10%					



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