



Lextar

LED Lighting Package Solution
照明元件&模組最佳方案

General Commercial – Indoor Luminaries
Outdoor & Industrial
Specialty Lighting
Target Customers

Lighting Component

Focus	White LED				Color LED																																													
	Low & Mid Power		High Power		Mono-Color		Multi-Color																																											
	PKG	Performance	PKG	Performance	PKG	Watt	PKG	Color/Watt																																										
Package Type	5630	 210LPW 0.2W	5050	 230lm 1W	3535	 1W	5050 4 in 1	 R/G/B/W 0.3W & 1W																																										
	2835	 220LPW 0.2W	3030	 170lm 1W	3030	 0.5W	5050 3 in 1	 R/G/B 1W																																										
	3030	 220LPW 0.2W	2835	 176lm 1W 6/9/18/36			5050 3 in 1	 R/G/B 0.2W																																										
	4014	 190 LPW 0.2W																																																
	3014	 178LPW 0.2W	COB	 36V 160LPW LES 9.8/14.5/22																																														
	3806	 SideView																																																
	CSP	Performance																																																
	0602	 0.015W																																																
	1717	 1W																																																
					<table><tr><th>Color</th><th>Wd/Wp</th><th>3535 Eco</th><th>3030</th></tr><tr><td>Royal Blue</td><td>450-465</td><td>●</td><td>●</td></tr><tr><td>Blue</td><td>465-475</td><td>●</td><td>●</td></tr><tr><td>Green</td><td>520-530</td><td>●</td><td>●</td></tr><tr><td>Amber</td><td>585-595</td><td>●</td><td>●</td></tr><tr><td>PC Amber</td><td></td><td>●</td><td>●</td></tr><tr><td>Orange</td><td>610-620</td><td></td><td>●</td></tr><tr><td>Red</td><td>620-630</td><td>●</td><td>●</td></tr><tr><td>Hyper Red</td><td>650-670</td><td>●</td><td>●</td></tr><tr><td>Far Red</td><td>720-740</td><td>●</td><td>●</td></tr><tr><td>White</td><td></td><td>●</td><td>●</td></tr></table>	Color	Wd/Wp	3535 Eco	3030	Royal Blue	450-465	●	●	Blue	465-475	●	●	Green	520-530	●	●	Amber	585-595	●	●	PC Amber		●	●	Orange	610-620		●	Red	620-630	●	●	Hyper Red	650-670	●	●	Far Red	720-740	●	●	White		●	●	
Color	Wd/Wp	3535 Eco	3030																																															
Royal Blue	450-465	●	●																																															
Blue	465-475	●	●																																															
Green	520-530	●	●																																															
Amber	585-595	●	●																																															
PC Amber		●	●																																															
Orange	610-620		●																																															
Red	620-630	●	●																																															
Hyper Red	650-670	●	●																																															
Far Red	720-740	●	●																																															
White		●	●																																															

Lighting Component Highlights



1. General Commercial

220lm/W 0.2W 2835PCT Ra80

220lm/W 0.2W 3030 Ra80

176lm 1W 2835PCT Ra80

2. Indoor Luminaries

210lm/W 0.2W 5630PCT Ra80

178lm/W 0.2W 3014PCT Ra80

KSF high CRI/ efficient solution

3. Outdoor Industrial

170lm/W 3030EMC Ra70

230lm/W@1W 5050EMC

Ra70

3. Color LEDs

3535 1W color platform

3030 0.5W color platform

4. Horticultural Lighting

660nm Red Highest PPF/W 4.05

Cool white 3030 230lm/W Ra70

Taylor-made spectrum

5. Spectrum Solution

Solar white / 1800-10000K Platform

FOOD Enhance Lighting

Technology

KSF high CRI/ high efficiency
solution

6. COB Portfolio

High CRI

Lighting Module Solution

Customization & Experienced Production

TEMO Integrated Solution. (光機電熱模組整合方案)

(Thermal · Electrical · Mechanical · Optical)

Optical: LED source



Mechanical: Connector suggestion



Thermal & Mechanical: PCB source



Electrical: Linear and Buck / Boost Driver Solutions for DOB



Electrical: E & E technical support Linear and Buck / Boost Driver Solutions for DOB

General Commercial Indoor Luminaries

■ 2835PCT 0.5W

■ 2835PCT 1W

■ 5630PCT

■ 3014/3806

■ 4014PCT

2835PCT 0.2-0.5W



Lextar

220lm/W	PC35H11 V7 220lm/W@65mA		PC35U16 V7 KSF 210lm/W@65mA
210lm/W	PC35H11 V4 212lm/W@65mA		PC35U16 V4 KSF 202lm/W@65mA
200lm/W	PC35H11 V5 205lm/W@65mA		PC35U16 V5 KSF 196lm/W@65mA
190lm/W	PC35H11 V3 197lm/W@65mA		PC35U16 V3 KSF 188lm/W@65mA
180lm/W	PC35H11 V1 180lm/W@65mA		PC35H11 V1 KSF 172lm/W@65mA
170lm/W		PC35U16 V3 170lm/W@65mA	
	PC35H12 V0 167lm/W@60mA		
150lm/W		PC35U16 V1 155lm/W@65mA	
CRI80		CRI90	CRI90 KSF

Premium DLC (4.0)

Standard DLC (4.0)

Remark: Based on Product at CCT 5000K

Lextar



- Best lm/\$ for indoor luminaries
- L70>60,000hrs @ 105°C/150mA
- L90>36,000hrs @ 85°C/150mA

Model	0.2-0.5W 2835											
Forward Current (mA)	60	65										
Forward Voltage (V)	2.95	2.85	2.78	2.75	2.72	2.69	2.85	2.78	2.75	2.72	2.69	2.78
CRI (min)	80	80					90					95
Flux @ 3000K/5000K (lm)	27.6/29.5	31.3/33.5	33.2/35.5	34.1/36.5	35/37.5	36/38.5	26.9/28.8	28.5/30.5	29.4/31.4	30.2/32.25	31.3/33.2	24.3/26.8
Lm/W	156/167	169/180	184/196	191/204	198/212	206/220	145/155	158/169	164/176	171/182	179/190	139/148
Model Name	PC35H12 V0	PC35H11 V1	PC35H11 V3	PC35H11 V5	PC35H11 V4	PC35H11 V7	PC35U16 V1	PC35U16 V3	PC35U16 V5	PC35U16 V4	PC35U16 V7	PC35U16 V6
Max Rating (mA)	80	180	300				180	300				
LM80 Certification	L70>60,000hrs @105°C/80mA	L70>60,000hrs @ 105°C/150mA L90>36,000hrs @ 85°C/150mA										

2835 0.2-0.5W (KSF)



3.5 X 2.8 X 0.7mm

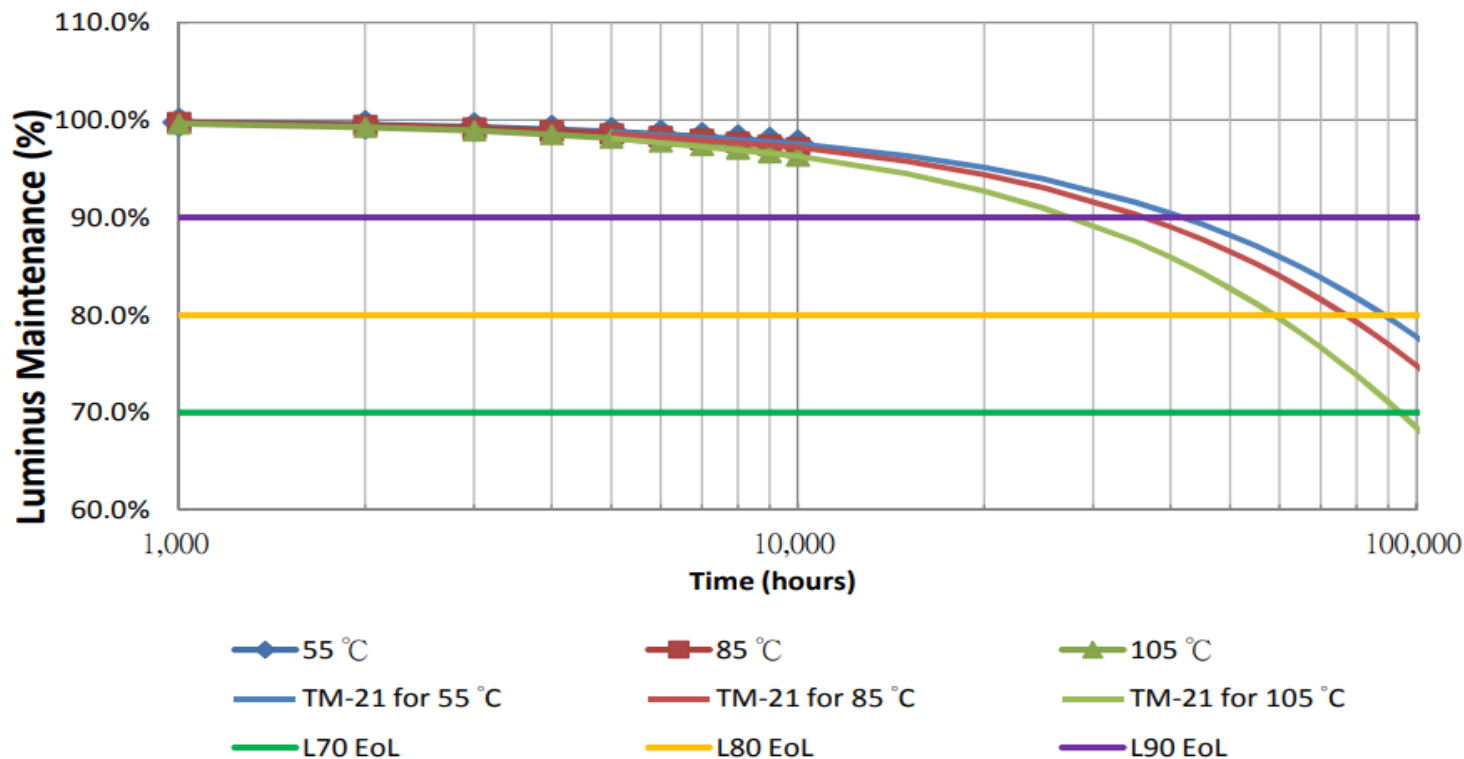
Features

- Best lm/\$ for indoor luminaries
- L70>60,000hrs @ 105°C/150mA
- L90>36,000hrs @ 85°C/150mA

Model	0.2-0.5W 2835				
Forward Current (mA)	65				
Forward Voltage (V)	2.85	2.78	2.72	2.75	2.69
CRI (min)	90 KSF				
Flux @ 3000K/5000K (lm)	30.5/32	33.3/35	34.2/36	33.7/35.5	35.2/37
Lm/W	164/172	184/194	194/204	189/199	201/212
Model Name	PC35U16 V1(KSF)	PC35U16 V3 (KSF)	PC35U16 V4 (KSF)	PC35U16 V5 (KSF)	PC35U16 V7 (KSF)
Max Rating (mA)	180	300			
LM80 Certification	L70>60,000hrs @ 105°C/150mA L90>36,000hrs @ 85°C/150mA				

2835 0.2-0.5W LM80 report

Luminus Maintenance vs Time



2835 Ra80 0.2~0.5W BMK



Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H11 V0	150mA	Ra80	5000K	68	3.15	144
LM281B+ SA Rank	150mA	Ra80	5000K	63	3.1	135
Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H11 V1	150mA	Ra80	5000K	73	3.1	157
LM281B+ SC Rank	150mA	Ra80	5000K	67	2.9	154
Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H11 V3	150mA	Ra80	5000K	79	2.93	180
LM281B+ Pro VJ Rank	150mA	Ra80	5000K	79	2.93	180
Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H11 V5	65mA	Ra80	5000K	36.5	2.75	204
LM281B+ Pro VK Rank	65mA	Ra80	5000K	36.5	2.75	204
Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H11 V7	65mA	Ra80	5000K	38.5	2.69	220
PC35H11 V4	65mA	Ra80	5000K	37.5	2.72	212
LM281B+ Pro VL Rank	65mA	Ra80	5000K	37.5	2.72	212

2835 KSF Ra90 0.2~0.5W BMK



Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35U16 V3 KSF	150mA	Ra90	5000K	75	2.93	171
LM281B+ Pro S90 VJ Rank	150mA	Ra90	5000K	73.5	2.95	166

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35U16 V3 KSF	65mA	Ra90	5000K	35	2.78	194
LM281B+ Pro S90 VK Rank	65mA	Ra90	5000K	34.5	2.78	193

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35U16 V7 KSF	65mA	Ra90	5000K	37	2.69	212
PC35U16 V4 KSF	65mA	Ra90	5000K	36	2.72	204
LM281B+ Pro S90 VL Rank	65mA	Ra90	5000K	36	2.72	204

2835 1W



170lm				
160lm				
150lm			PC35H39.0 150lm(typ.)	
140lm	PC35H15.0 142lm (typ.)	PC35H13.4 142lm (typ.)	PC35H38.1 140lm(typ.)	
130lm	PC35H15.2 132lm (typ.)	PC35H13.2 132lm (typ.)	PC35H38.0 132lm(typ.)	
120lm				
110lm				
100lm				
	6V/150mA	9V/100mA	18V/50mA	36V/30mA

Remark: Based on Product at CCT 2700K, Ra>80

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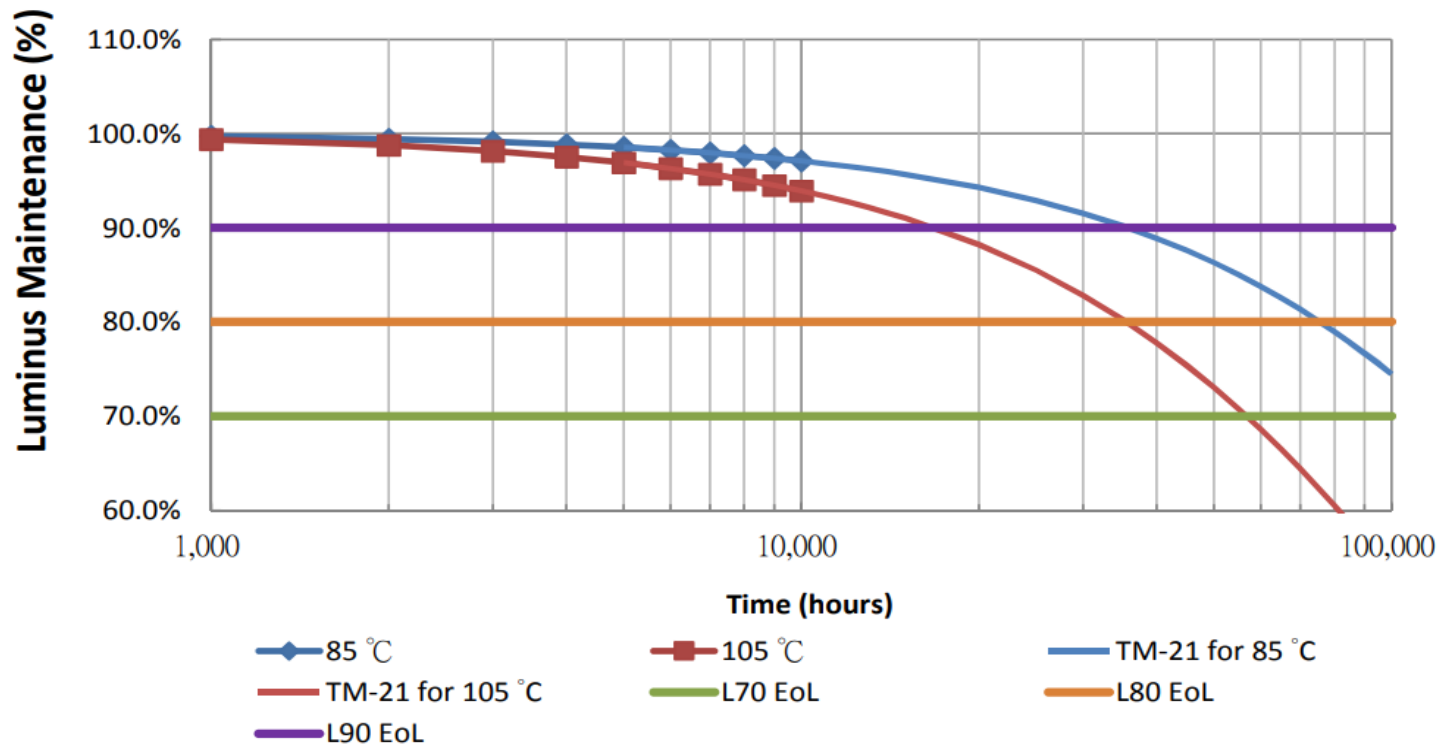


- Best suits linear driver application
- Highest Lumen/\$ for bulbs
- LM-80 certified >50Khrs @105°C

Model	1W 2835									
Forward Current (mA)	150	150	100	100	50	50	30	150	100	50
Forward Voltage (V)	6.2	6.15	9.1	9.05	18.5	18.5	36	6.2	9.1	18.8
CRI (min)	80							90		
Flux (lm) @ 2700K/5000K	132/146	142/157	132/146	142/157	132/146	142/157	150/165	114/126	114/126	114/126
Model name	PC35H15 V2	PC35H15 V0	PC35H13 V2	PC35H13 V4	PC35H3 8 V0	PC35H38 V1	PC35H39 V0	PC35U42 V0	PC35U27 V2	PC35U4 1 V0
Max Rating (mA)	180	180	120	120	60	60	30	180	120	60
LM80 Certification	L70>50,000hrs @ 105°C/1W L90>36,000hrs @ 85°C/1W									

2835 1W LM80 report

Luminus Maintenance vs Time



2835 1W BMK



Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H13 V0	100mA	Ra80	5000K	136	9.1	149
LM283B+ SL SM Rank	100mA	Ra80	5000K	132	9.1	145

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H15 V2	150mA	Ra80	5000K	146	6.2	157
LM282B+ SA SB Rank	150mA	Ra80	5000K	133	6.3	141

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H38 V0	50mA	Ra80	5000K	146	18.5	158
LM286B+ SB Rank	50mA	Ra80	5000K	144	18.5	156

2835 1W BMK



Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H13 V0	100mA	Ra80	5000K	136	9.15	149
Bridgelux 2835 1W (13H-98)	100mA	Ra80	5000K	129	9.3	139

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H13 V1	100mA	Ra80	5000K	143	9.1	157
Bridgelux 2835 1W (13H-9C1)	100mA	Ra80	5000K	138	9.1	152

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC35H38 V0	100mA	Ra80	5000K	146	18.5	158
Bridgelux 2835, 1W (12H-18A)	100mA	Ra80	5000K	140	18.1	155

5630PCT



56A



5.6 X 3.0 X 0.65 mm

Features

- High Efficiency up to 210 lm/W
- ANSI 1800K-8000K available
- Excellent lifetime $L_{70} > 100\text{Khrs}$

Model	56A	
Forward Current (mA)	65	
Forward Voltage (V)	2.75	2.75
CRI (min)	80	90
Flux @ 3000K/5000K (lm)	35/37.5	30.2/32.3
Lm/W	196/210	1670/181
Model Name	PC56H19 V2	PC56U21 V2
Max Rating (mA)	180	
LM80 Certification	L90>36,000hrs @ 85°C/150mA; L70>100K hrs	

3014/3806 Slim LEDs



3.0 X 1.4 X 0.67 mm



3.8 X 0.6 X 1.0 mm

Features

- ANSI 1800K-10000K available
- 178lm/W 3014 @0.2W CRI80
- Ideal for slim lighting, 5X lm/\$ than OLED

Model	Top View 3014				Side View 3806	Top View 3014		
Forward Current (mA)	65				20	65	65	65
Forward Voltage (V)	2.94	2.92	2.96	2.9	2.85	2.9	2.9	2.96
Flux @ 3000K/5000 K	29.9/32	30.9/33	29/31	31.3/33.5	8.5/9.1	27.4/29.2	30.5/32.2	22.5/25.9
lm/W	156/167	163/174	151/161	166/178	149/160	146/155	162/171	117/135
CRI (min)	80					90	90 KSF	95
Model name	PC30H08.1	PC30H08.3	PC30H08.4	PC30H08.5	PC38H01	PC30U12 V1	PC30U12 V4 KSF	PC30V21 V0
Max Rating (mA)	150				30	150		
LM80 Certification	L80> 50Khrs @85°C/80mA				L70>50Khrs@ 55°C/25mA	L80> 50Khrs @85°C/80mA		

4014 PCT



4.0 X 1.4 X 0.65 mm

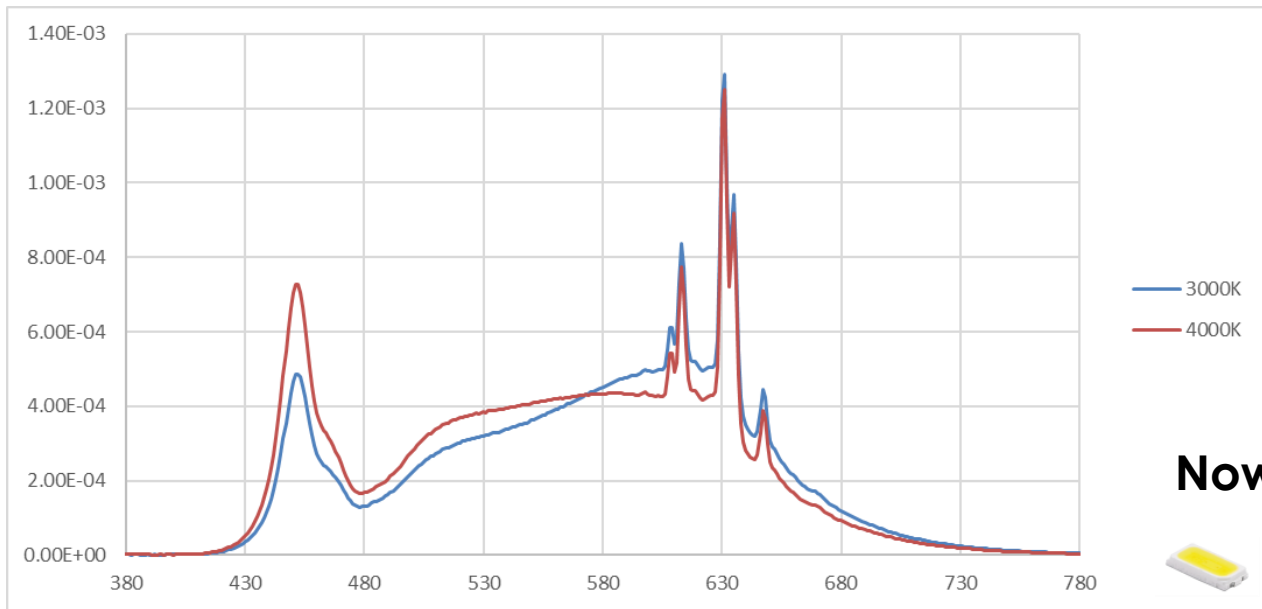
Features

- ANSI 2700K-6500K available for 4014
- High Efficacy & High lm/\$ for panel light
- Ideal for slim lighting

Model	Top View 4014			
Forward Current (mA)	60		60	60
Forward Voltage (V)	2.88	2.85	2.86	2.86
Flux @ 3000K/5000K	27.3/29	31/33	26.8/28.5	30/31.5
Lm/W(5000K)	168	193	166	184
CRI (min)	80		90	90 KSF
Model name	PC40H03.0	PC40H04.3	PC40U06.2	PC40U06 V2 KSF
Max Rating (mA)	150		150	
LM80 Certification	L80> 50Khrs @85°C/60mA		L80> 50Khrs @85°C/60mA	

KSF high CRI/ high efficiency solution

Lextar



Now Available On:



3014 PCT



2835PCT



5630 PCT



3030 EMC

	Normal phosphor lv typ.	KSF phosphor lv typ.	Ra	Efficiency improvement(%)
3000K	28.39lm	32.37lm	>90	14%
4000K	30.41lm	33.68lm	>90	10%

Ra90 solution (featuring KSF phosphor):
Efficiency optimization **>10%**

Outdoor & Industrial

■ 3030EMC

■ 5050EMC

3030EMC 1W



33A



3.2 X 3.0 X 0.6mm

33B



3.2 X 3.0 X 0.67mm

Features

- High lumen density, easy optical lens design
- High Efficacy ~160 lm/W @1W, CRI80
- High reliability, L90>36,000hrs@105°C, 1W

Model	33A			33B
Forward Current (mA)	150			
Forward Voltage (V)	6.15			
CRI (min)	70	80	90	95
Flux @ 2700/5000K(lm)	146/162	137/152	119/132	97/112
Model name	PC33N58 V0	PC33H11 V2	PC33U06 V3	PC33V67 V0
Max Rating (mA)	240			
LM80 Certification	L70>100,000hrs, L80>60,000hrs, L90>36,000hrs @ 105°C/150mA			

3030EMC 0.2W



33A



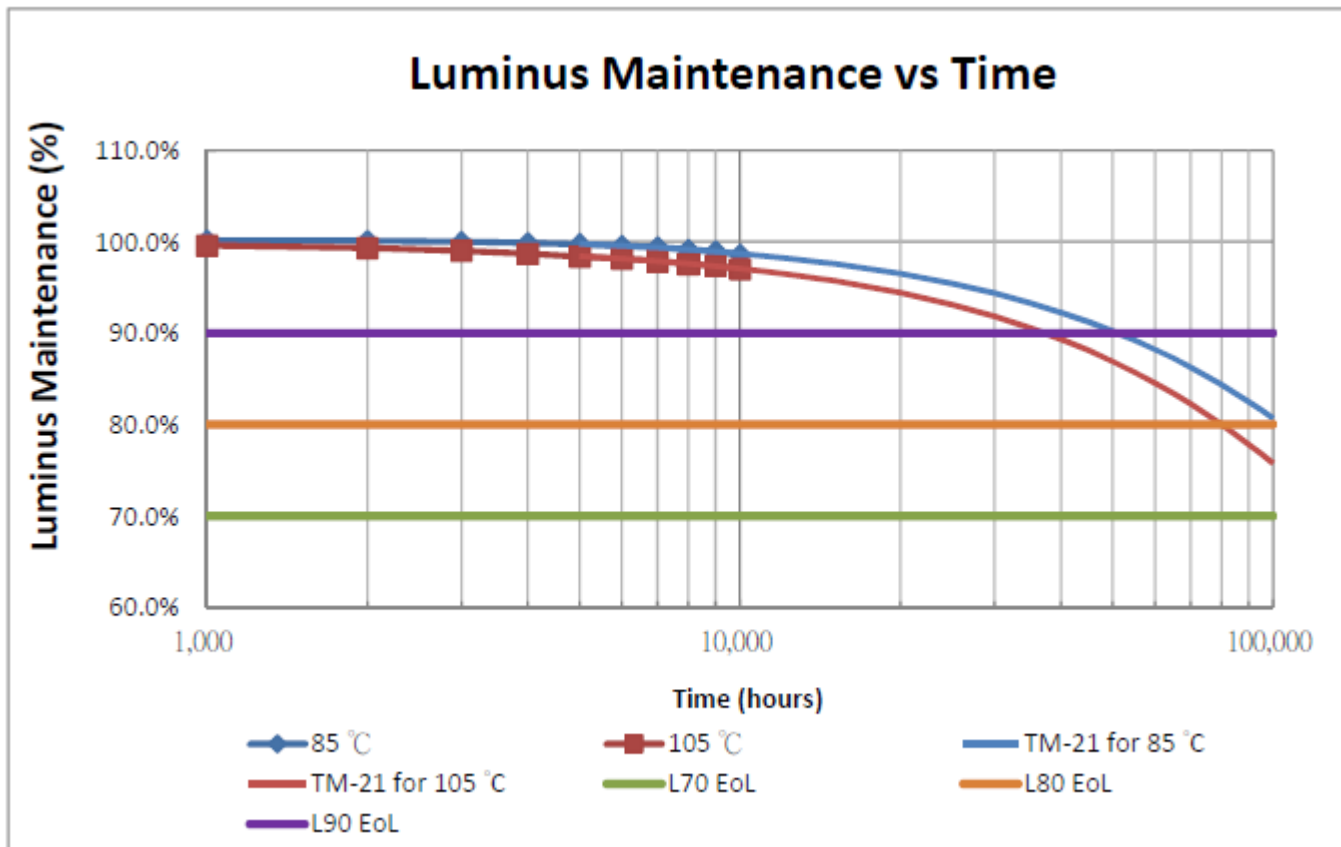
3.2 X 3.0 X 0.6mm

Features

- High lumen density, easy optical lens design
- High Efficacy ~200 lm/W @0.2W CRI80
- High reliability, L90>36,000hrs@105°C, 1W

Model	33A		
Forward Current (mA)	65		
Forward Voltage (V)	2.72		
CRI (min)	70	80	90
Flux @ 2700/5000K(lm)	34.2/38	32.4/36	28.2/31.3
Model name	PC33N60 V0	PC33H61 V0	PC33U62 V0
Max Rating (mA)	300		
LM80 Certification	L70>100,000hrs, L80>60,000hrs, L90>36,000hrs @ 105°C/300mA		

3030EMC LM80 Performance



TM21 lifetime projection : L90>50000hrs @ 85C

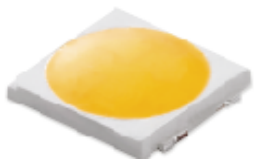
3030EMC H2S test

	H2S test with 15ppm, 40°C, 80%			
	96hrs	168hrs	252hrs	504hrs
LX3030-2018	97.90%	96.80%	95.30%	90.60%
N Company-2017/B	97.30%	95.36%	NA	NA

Features :

- Silver-plating quality improvement
- Using better anti - oxygen/moisture ability encapsulant to prevent sulfur/air damage silver layer

55A



5.8 X 5.2 X 0.7mm

55B HE



NEW

5.0 X 5.0 X 0.7mm

Features

- High lumen density, easy optical lens design
- High Efficacy >208lm/W @1W CRI70
- High reliability

Model	55A		55B		
Forward Current (mA)	160/640		160/640		
Forward Voltage (V)	24/6		24/6		
CRI (min)	70	80	70	80	90
Flux @ 4000K(lm)_ 1W	200	190	230	215	187
Model name	PC55N11	PC55H10	PC55N24 V3 HE	PC55H26 V3 HE	PC55U18 V3 HE
Max Rating (mA)	220/800		250/1000		
LM80 Certification	L70>100,000hrs @ 85°C/2.88W L90>50,000hrs @ 85°C/2.88W		L70>170,000hrs @ 85°C/2W L90>54,000hrs @ 85°C/ 2W		

5050 EMC H2S test

Test Condition: Exposure to 15 ppm H₂S,
40 °C, RH = 80%

Duration: **156** hours

Reference: JIS C 60068-2-43

Test Type	Sample Size	Failed Units	$\Delta\Phi$ [%]			$\Delta u'v'$ [x1000]		ΔVf [%]		
			min.	ave.	max.	ave.	max.	min.	ave.	max.
55B HE 	30	0	-5.5	-3.9	-1.1	2.1	4.5	-0.4	-0.2	-0.08
LUXEON 5050 	30	0	-7.1	-4.2	-1.9	2.2	4.6	-0.6	-0.2	-0.1

5050 BMK



Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W	Max Forward Current (mA)
				Typ.	Typ.		
PC55N24 V3 HE	640mA	Ra70	5000K	740	6.05	190	1000mA
SSC STW0LAPA	640mA	Ra70	5000K	716.9	6.05	185	1000mA
LUXEON 5050 HE 6V	640mA	Ra70	5000K	714	6.05	184.4	800mA
Osram GW P9LR35.PM	640mA	Ra70	5000K	703	6.07	181	800mA
CREE JR5050B 6-V K Class	640mA	Ra70	5000K	720	6.05	186	1000mA

Specialty Lighting

- ***Spectrum Solution***
 - *Human Centric Lighting*
 - *Multi Color Solution*
 - *Vehicle Emergency Light*
 - *Horticultural Lighting*
 - *Vehicle Emergency Light*
 - *Yellow Light/Endoscope/CSP*
 - *UV Curing*
 - *UV disinfection*

Solar White



LES 14.5

LES 9.8

LES 22

SMD Type



3014

3.0 × 1.4 × 0.65 (mm)



3030

3.2 × 3.0 × 0.6 (mm)



COB Type



LES 9.8

13.5 × 13.5 × 1.5 (mm)



LES 14.5

19.0 × 19.0 × 1.5 (mm)



LES 22.0

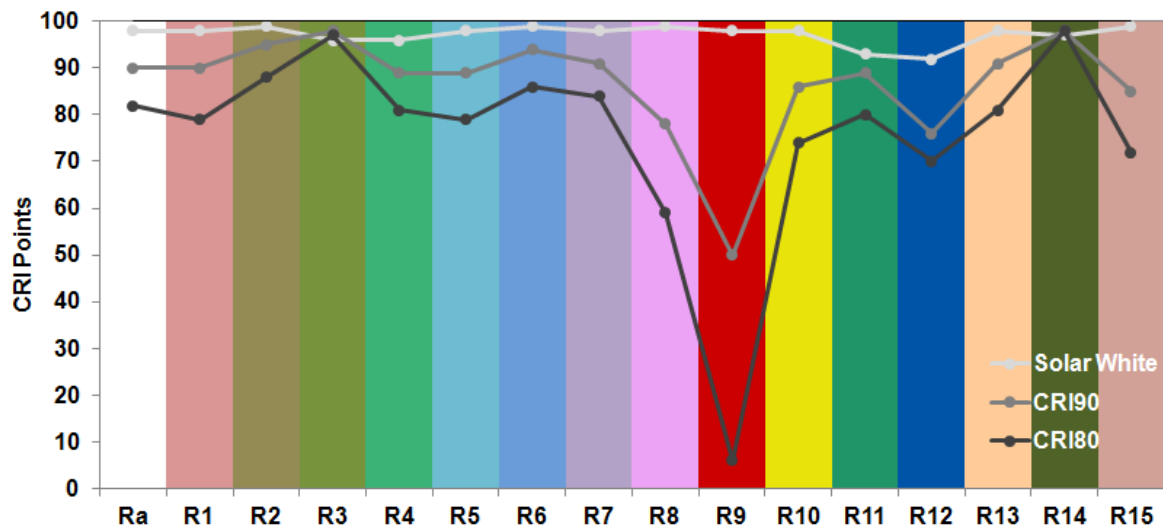
28.0 × 28.0 × 1.5 (mm)



Solar White in comparison with CRI 80 / 90



- ✓ Excellent color rating, **CRI 97** ,**Rf 95** & **Rg 101** for applications that requires premium light quality



- ✓ Recommended for high-end light environment, hotel/retail/luxury shops etc.

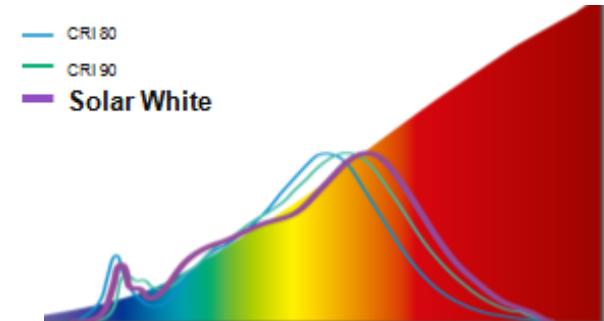
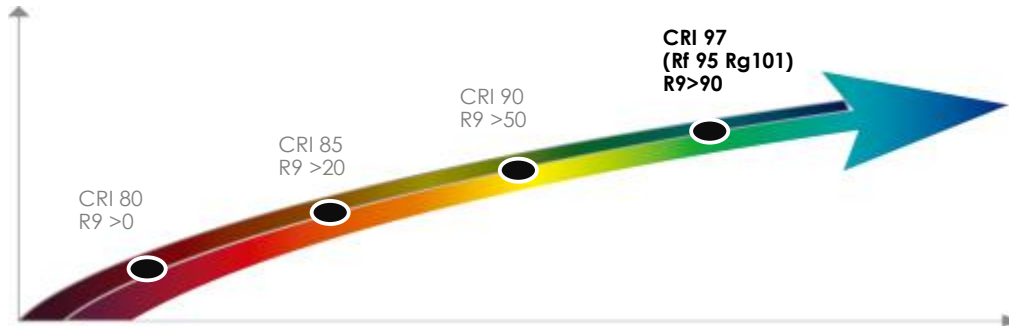


Solar White in comparison with CRI 80 / 90

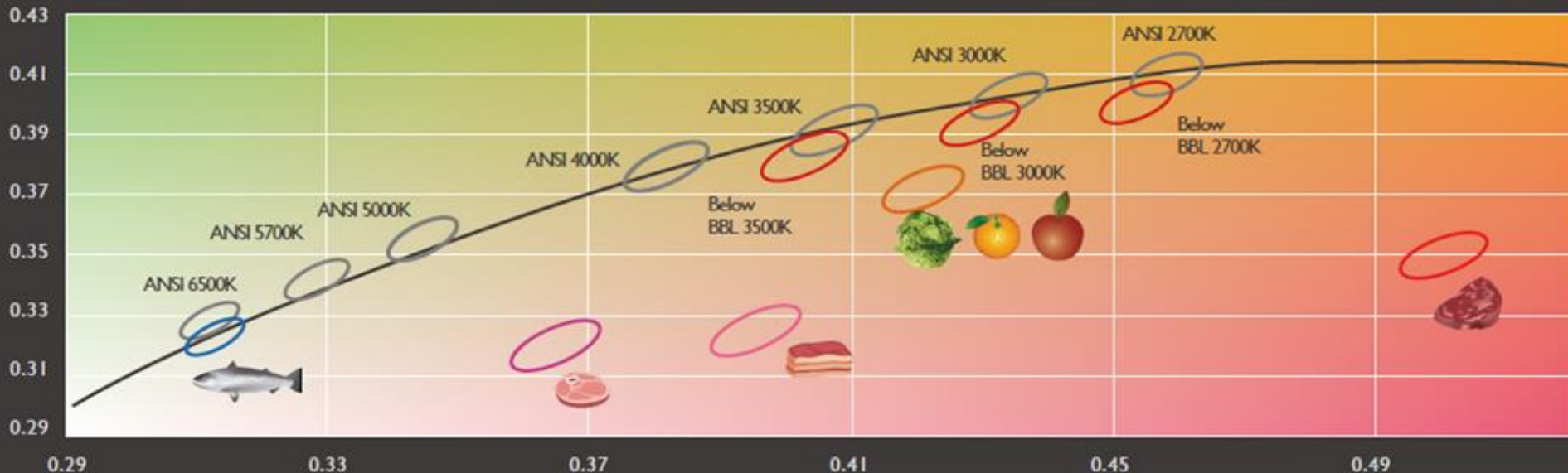
- ✓ Shorter wavelength blue chip + RGB phosphor technology minimize lumen penalty and yellowish in warm

Test @ 3000K		Indoor lighting		Solar White
CRI Ra		>80	>90	>95
R9		>0	>50	>90
TM-30-15	Rf (Fidelity)	82	87	95
	Rg (Gamut)	94	95	101
Efficacy ratio		100%	86%	75%

TM-30-15: CRI is not enough for color identification.



FOOD Enhance Lighting Technology



Color Setting
Application

Frost
(Fish)

Purplish Pink
(Pork)

Pink
(Streaky Pork)

Authentic
(Produce)

Rose
(Beef)

Track Light



Linear



Pendant

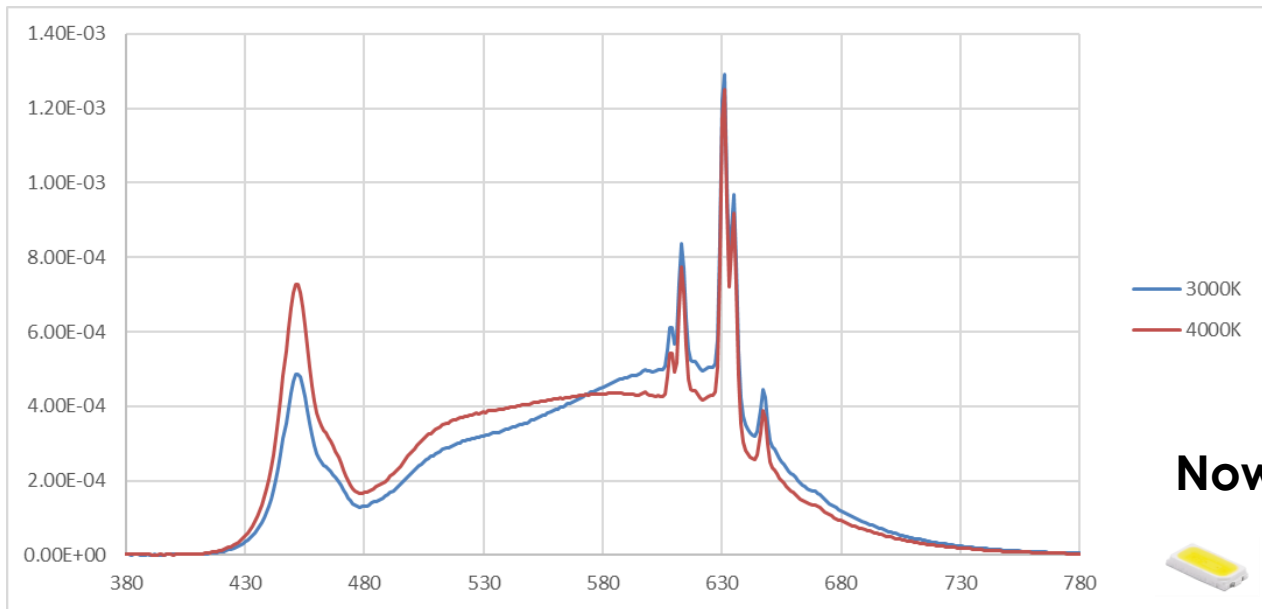


Downlight



KSF high CRI/ high efficiency solution

Lextar



Now Available On:



3014 PCT



2835PCT



5630 PCT



3030 EMC

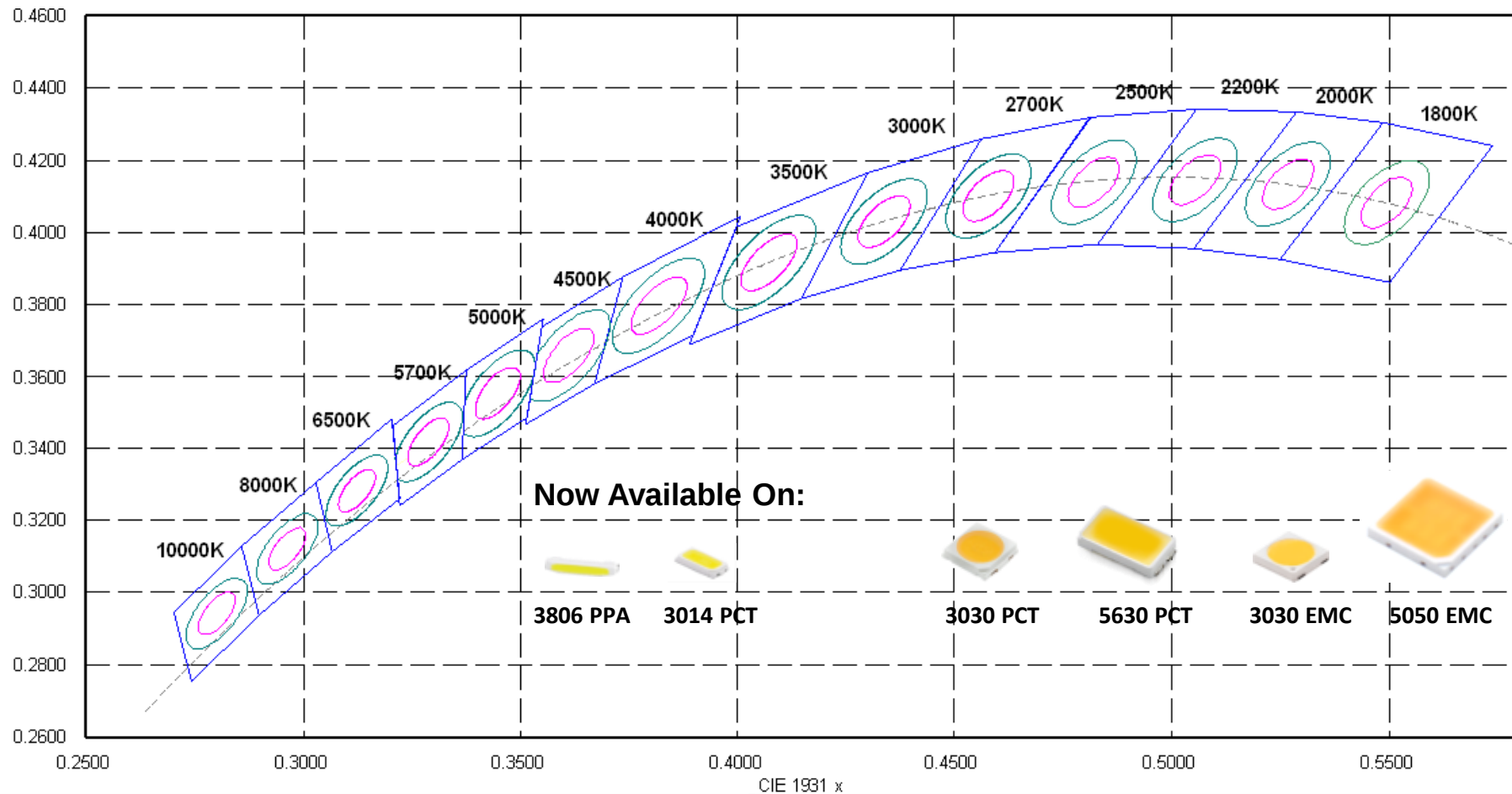
	Normal phosphor lv typ.	KSF phosphor lv typ.	Ra	Efficiency improvement(%)
3000K	28.39lm	32.37lm	>90	14%
4000K	30.41lm	33.68lm	>90	10%

Ra90 solution (featuring KSF phosphor):
Efficiency optimization **>10%**

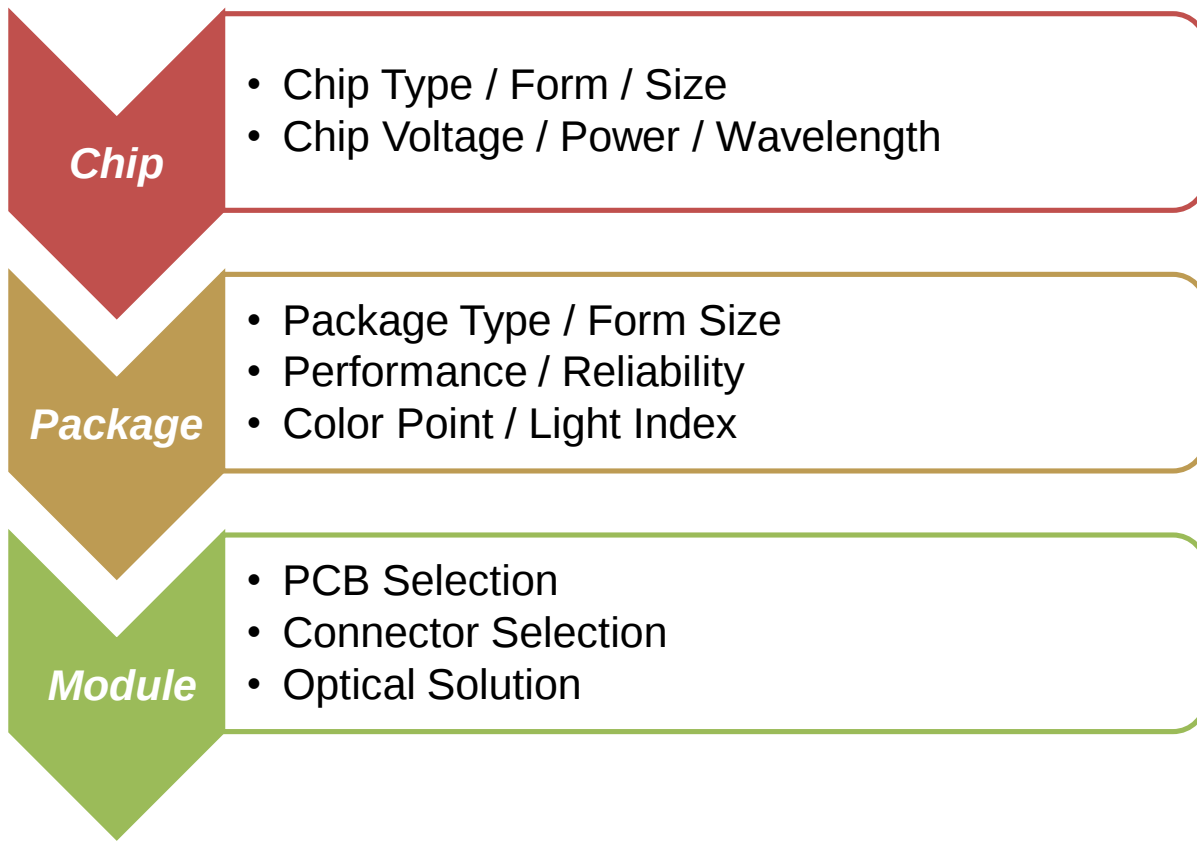
1800K-10000K Solution

Lextar

CIE 1931 y



Customization Flexibility



Specialty Lighting

- *Spectrum Solution*
- ***Human Centric Lighting***
- *Multi Color Solution*
- *Vehicle Emergency Light*
- *Horticultural Lighting*
- *Yellow Light/Endoscope/CSP*
- *UV Curing*
- *UV disinfection*

Low Blue Light Solution for Eyes Protection



- ✓ Long exposure in blue light may affect vision and could prematurely age the eyes.
- ✓ Recommended for reading light/school/study room etc.

Available On:

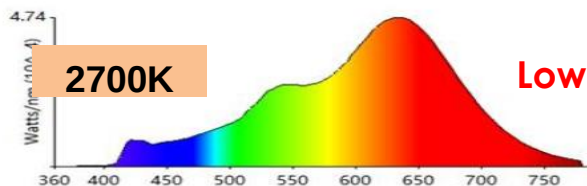


3030

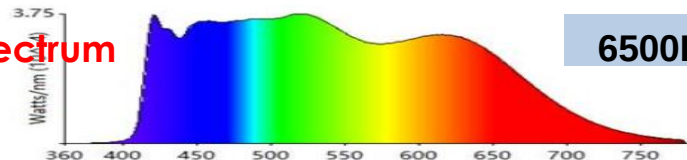


3014

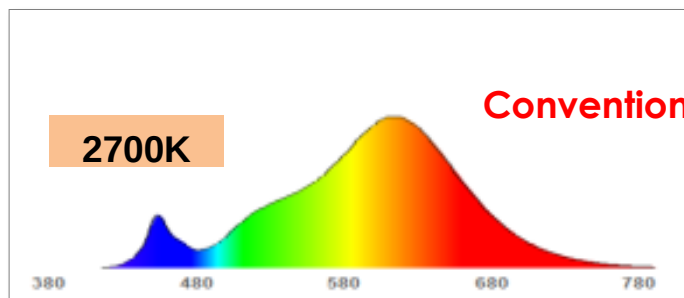
CCT	Efficacy	CRI	R9
2700K	93lm/W	>95	>90
6500K	104lm/W	>95	>90



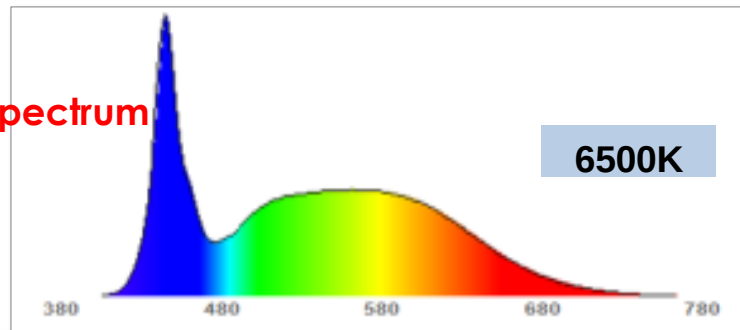
Low blue light spectrum



6500K



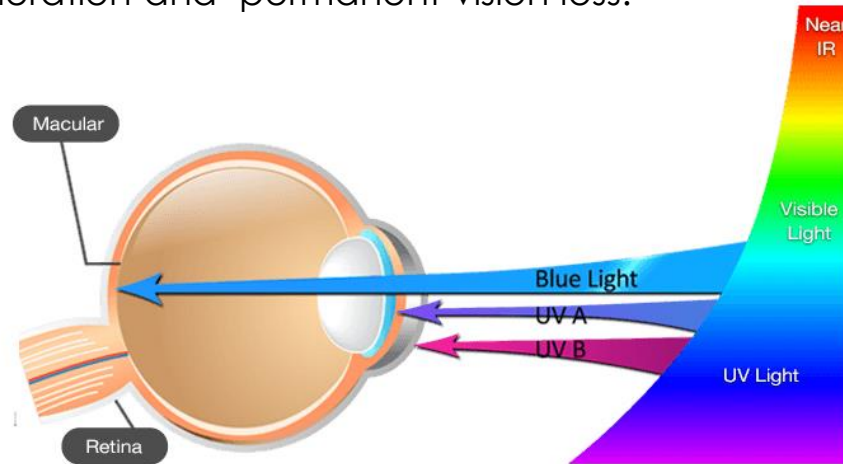
Conventional White spectrum



6500K

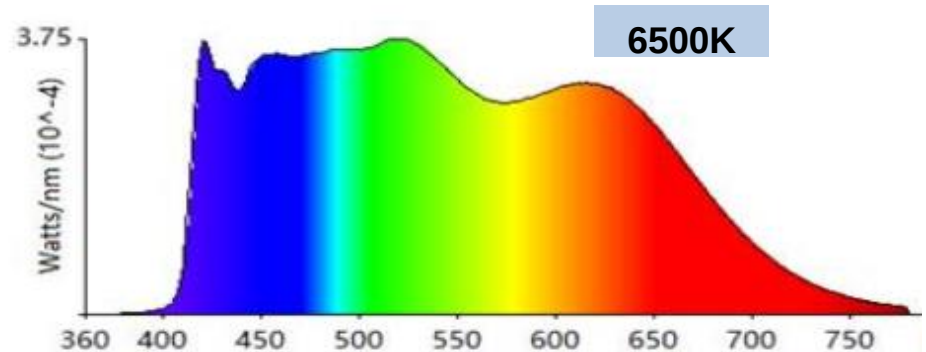
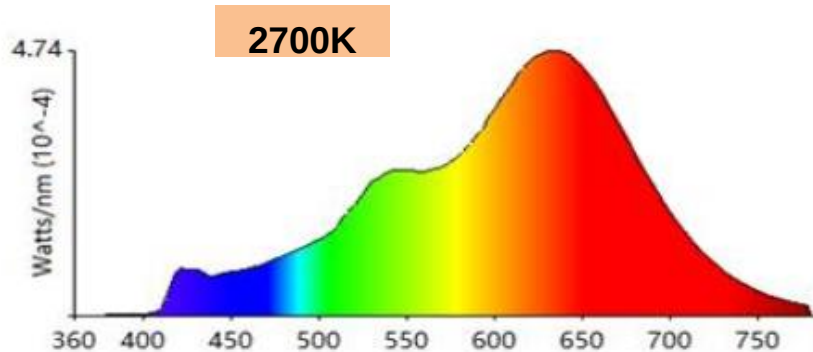
Blue light damages vision

- The blue light is dangerous as it not only adversely affects our vision but also our overall health.
- The cornea and lens in the human eye are very effective at blocking UV rays from reaching the light-sensitive retina at the back of the eyeball. Unlike other forms of light, the eyes cannot effectively filter blue light, so more can pass through the eye to the retina.
- Too much blue light exposure can damage light-sensitive cells in the retina causing macular degeneration and permanent vision loss.



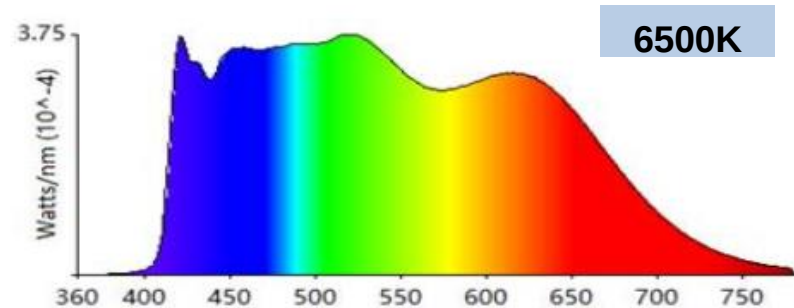
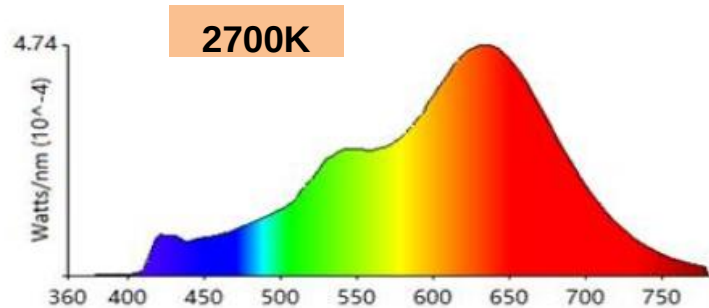
Return to the natural light

- Life on Earth evolved on the day-night cycle of sunlight.
And Light deeply affects human life, but traditional LEDs may damage human vision.
If humans are exposed to blue light for a long time, it will inhibit the production of melatonin and have a negative impact on sleep.
- Therefore, it is necessary to improve high-quality and safe lighting.
In order to be more suitable for biological work and rest, the development of solar spectrum LED is the trend of future development.



3030 low blue light 1W BMK

Lextar



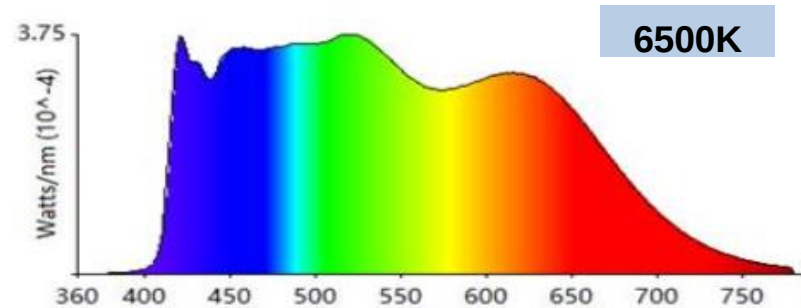
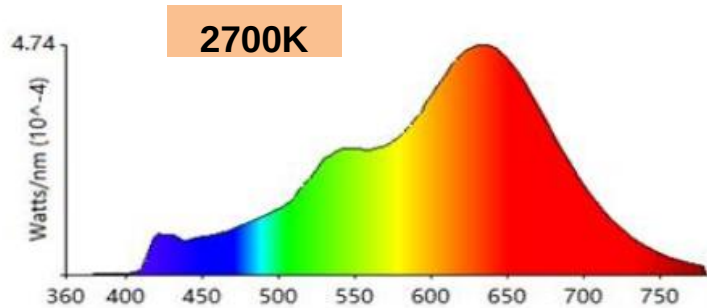
廠商	LM80測試結果	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
SSC	55C	100.3%	99.7%	98.3%	97.3%	95.9%	94.3%
	85C	100.0%	99.3%	97.8%	96.4%	94.8%	93.0%
	105C	99.0%	97.8%	95.6%	93.9%	91.6%	89.2%
LX	55C	100.2%	100.0%	99.8%	99.6%	99.3%	99.2%
	85C	100.1%	99.8%	99.6%	99.4%	99.1%	98.9%
	105C	100.0%	99.7%	99.4%	99.0%	98.7%	98.4%

3030 low blue light 1W @ 6V 150mA	Iv (lm)	lm/W	Ra	R9
Lextar 2700K	88.3	92.6	>95	90
SSC 2700K (STW9C2SB-S)	89	93	>95	85
Lextar 6500K	102	104.4	>95	90
SSC 6500K (STW9C2SB-S)	95	101	>95	85

- The efficacy for CCT2700K is similar with SSC's. For CCT 6500K, efficacy is 3.4% higher than SSC's. with greater R9 performance.
- LM80 result shows the reliability is better than SSC.

3030 low blue light 0.2W BMK

Lextar



3030 low blue light-0.2W 65mA	lv (lm)	Lm/W	CRI	R9
LX-2700K PC33V52 V0	21.7	114	95	90
LX-2700K PC33V52 V1	22.2	118.2	95	90
SSC-2700K-STWSC12S-E2	21.7	112.4	95	90
LX-6500K PC33V52 V0	25.1	131.9	95	90
LX-6500K PC33V52 V1	25.8	137.3	95	90
SSC-6500K-STWSC12S-E2	25.2	131.4	95	90

- Lextar double chips version. It's with 1% greater efficacy than SSC's with price advantage.
- Lextar triple chips version, efficacy boots for 5%.
- LM80 and reliability report are scheduled for testing.

High/Low MP Ratio Solutions for Circadian Rhythm Lighting

Lextar

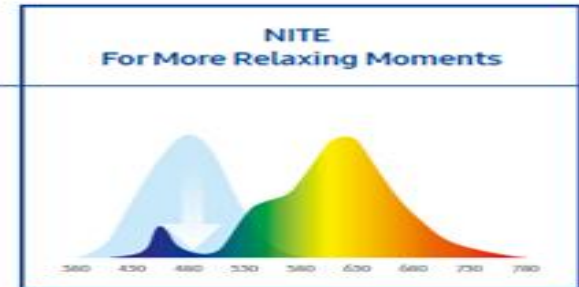
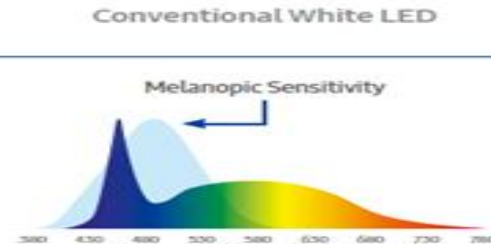
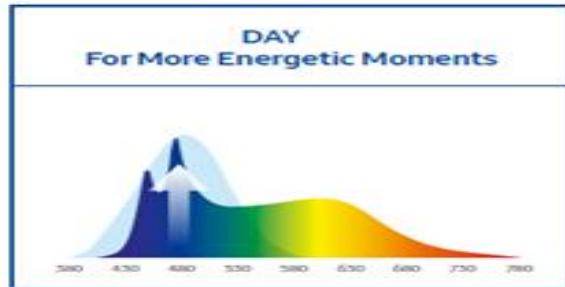
- ✓ M/P ratio, which is also called the Melanopic/Photopic ratio, it attempts to characterize a light source's potential to affect circadian rhythms.
- ✓ In day time, high M/P ratio suppressing melatonin production and thus it promotes alertness and wakefulness. Conversely, for night time, a low M/P ratio is recommended.
- ✓ Recommended for circadian.
- ✓ rhythm lighting, residential/office/medical etc

Available On:



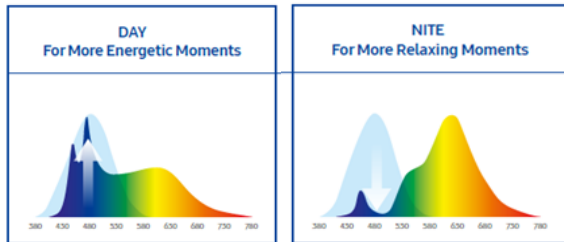
3030

	MP Ratio	Efficacy	CRI
2000K (Night)	0.27	115lm/W	>90
4000K (Day)	0.8	140lm/W	>90

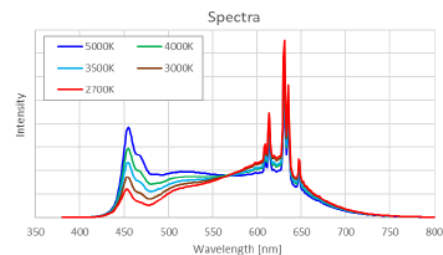
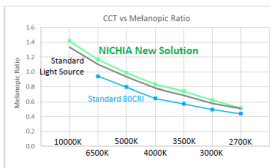
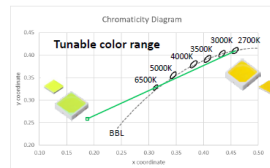
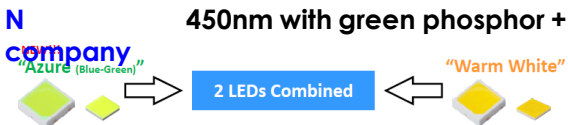


Circadian Rhythm Lighting BMK

450nm Ra80 for Night Time
450+480nm Ra80 for Day Time



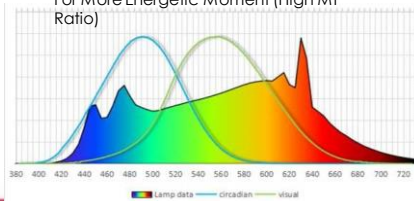
450nm with green phosphor + 450nm Ra90 for Day and Night Time



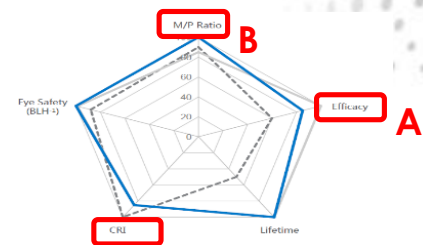
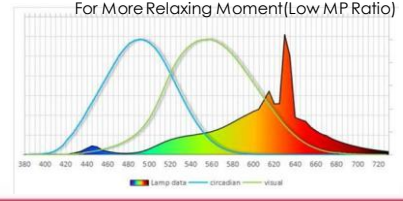
The Melanopic Ratio of NICHIA New Solution is based on using "757 Blue-Green" and "NF5W757H-VJH6 2700K for Warm White LED". The showing value is tentative.

450nm Ra90 for Night Time
450+480nm Ra90 for Day Time

For More Energetic Moment (High MP Ratio)



For More Relaxing Moment (Low MP Ratio)



S company	MP Ratio	Effacacy@1W	Ra
2000K (Night)	0.25	102	>80
4000K (Day)	0.84	136	>80

N company	MP Ratio	Effacacy@1W	Ra
2000K (Night)	0.37	115	>90
4000K (Day)	0.78	140	>90

Lextar	MP Ratio	Effacacy@1W	Ra
2000K (Night)	0.27	115	>90
4000K (Day)	0.82	140	>90

Lextar solution considers the best MP ratio and highest Efficacy & Ra

Specialty Lighting

- *Spectrum Solution*
- *Human Centric Lighting*
- ***Multi Color Solution***
- *Vehicle Emergency Light*
- *Horticultural Lighting*
- *Yellow Light/Endoscope/CSP*

Color Component (Multi-Color)

✓ Recommended for urban nightscape/architecture/decoration lighting etc.

Focus	Color LED		
	Multi-Color		
	PKG	Color	
Package Type	5050 4 in 1	 	R/G/B/W 0.7W & 2W
	5050 3 in 1		R/G/B 1W
	5050 3 in 1		R/G/B 0.5W
	3535 3 in 1		R/G/B 3W
	3535 4 in 1		R/G/B/W 4W



5050 4in1 RGBW (1 W)



PC50X02 V1
5.4 x 5.0 x 1.55 mm



PC50X02 V2
5.4 x 5.0 x 1.05 mm

Features

- Integrated mix color solution
- Lead frame package with individual 8 pins
- Article color lamp, lamp belt. Landscape lighting ,Trademark logo.

Model Name	Color	Wd (nm)	Luminous Intensity (mcd)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Max	Typ	Max		
PC50X02 V1 (20mA)	RGBW IN 1	R : 618~623	700	1000	2.0	2.3	20	25
		G : 521~536	1800	2400	2.95	3.25	20	25
		B : 467~472	350	650	2.85	3.25	20	25
		Ra80	6.5 lm	9.5 lm	2.75	3.05	20	25
Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Max	Typ	Max		
PC50X02 V2 (150mA)	RGBW IN 1	R : 615~630	18	24	1.8	2.4	150	160
		G : 520~530	35	50	2.8	3.6	150	160
		B : 465~475	8	12	2.8	3.6	150	160
		Ra80 3000K/4000K/6500K	50	65	2.8	3.6	150	160

Under Development

5050 3in1 RGB (1W)



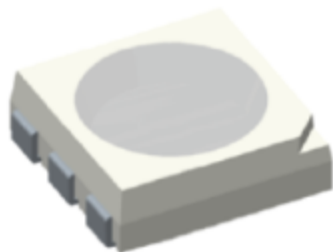
5.4X 5.2 X 0.7mm

Features

- Integrated mix color solution
- Lead frame package with individual 6 pins
- High sensitivity for red, green and blue light

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Max	Typ	Max		
PC50X01.0	RGB IN 1	R : 620~630	10	16	1.8	2.6	100	120
		G : 525~535	20	26	2.9	3.4	100	120
		B : 457~467	3	7	2.8	3.3	100	120

5050 3in1 RGB (0.2-0.5W)



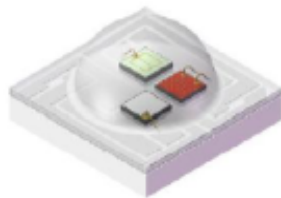
5.4 x 5.0 x 1.6 mm

Features

- Lead frame package with individual 6 pins
- High sensitivity for red, green and blue light

Model Name	Color	Wd (nm)	Luminous Flux (mcd)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Max	Typ	Max		
PC50X03.1	RGB IN 1	R:620-630	530	1200	1.8	2.4	20	30
		G:525~535	1200	1800	2.8	3.6	20	30
		B:450~465	230	530	2.8	3.6	20	30

3535 3in1 RGB (3W)



3.45 x 3.45 x 2.00 mm

Features

- Lead frame package with individual 8 pins
- High sensitivity for red, green and blue light

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Typ	Max		
PEX3X09.5	RGB IN 1	R : 620~630	40	60	2.0	3.0	350	500
		G : 520~525	75	85	2.5	3.5	350	500
		B : 450~455	15	20	2.5	3.5	350	500

3535 3in1 RGB (3W)



3.45 x 3.45 x 2.00 mm

Features

- Lead frame package with individual 8 pins
- High sensitivity for red, green and blue light

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Typ	Max		
PEX3X09.6	RGBW IN 1	R : 615~630	35	60	2.0	3.0	350	500
		G : 515~530	70	85	2.5	3.5	350	500
		B : 450~460	10	20	2.5	3.5	350	500
		W:6500K	60	80	2.5	3.5	350	500

Specialty Lighting

- *Spectrum Solution*
- *Human Centric Lighting*
- *Multi Color Solution*
- **Vehicle Emergency Light**
- *Horticultural Lighting*
- *Yellow Light/Endoscope/CSP*
- *UV Curing*
- *UV disinfection*

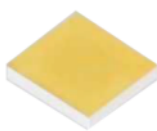
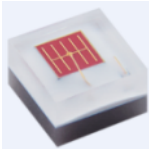
Emergency Warning Lights



Key Colors

- Blue
- PC Amber
- Red
- White
- Green

Emergency Warning Lights Solution Package

Color	PKG	2835	1414 CSP (Flat)	1717 CSP (Flat)	2020 (Flat)	3030 (Flat)	3535 (Dome)
	Watt	0.5W	1W	1W	1W	0.5W	1W
	Wd/Wp						
Blue	465-480nm	●	●	●	●	●	●
Green	520-530nm	●			●	●	●
Amber	585-595nm				●	●	●
Red	620-630nm	●		●	●	●	●
White	5000~5700K	●	●	●	●	●	●
PC Amber	NA	●		●	●	●	●
PC Red	NA		●	●		●	
PC Green	NA		●	●			
Model Name		PC35X80 V0	PC14X01.0	PC17X01.0	PC20X09.0	PC33X50.0 PC33X50.2 PC33H23.0	PEX3X09.2 PEX3N10.0 PEX3N10.1

2835 Color



2.8 x 3.5 x 0.7mm

Features

- High lumen output in a directional application
- Excellent reliability meeting professional requirement

Model Name	Color	Wd (nm)	Luminous Flux (lm)			Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Max	Min	Max		
PC35X80.0	Red	615~625	26	-	36	2.0	2.4	150	300
	Blue	470-475	18	-	24	2.7	3.1	150	300
	PC Amber	NA		67		2.8	3.3	150	300
	Cool White			82		2.8	3.3	150	300
	Green	520-530		95		2.8	3.3	150	300

2835 Performance Benchmark



Tj=25C @ 150mA



Brand	Color Wd/Wp(nm)	Blue 465-475	Green 520-530	PC Amber	Red 620-630	White 5700K
C-Company	JE2835 Color	16.6-25.7lm	64-77lm	60-73lm	25.7-34.3lm	80-90lm
Lextar	PC35X80 V0	18-24lm	65-75lm	65-75lm	26-36lm	80-90lm
Wavelength		Wd	Wd		Wd	
Unit		Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)

3535 Color / White



PEX3X09.2

3.5 x 3.5 x 2.24 mm



PEX3X09.2
PEX3N10.0

3.5 x 3.5 x 2.24 mm

Features

Lexar

- Excellent reliability meeting professional requirement
- Standard 3535 foot print for drop-in replacement Designs
- Best thermal solution /High performance
- Superior efficiency PPF/W in horticulture application

Model Name	Color	Wd (nm)		Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3X09.2	Red	615	635	60	70	1.8	2.2	350	1000	XP-E XP-E2 XPG3
	Green	495	550	120	130	2.4	3.2	350	1000	
	Amber	580	600	50	60	2.0	2.6	350	1000	
	Color	Wp(nm)		Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	
		Min	Max	Min	Typ	Min	Max			
	Royal Blue	445	460	650	700	2.8	3.2	350	1000	
	Hyper Red	655	665	400	450	1.8	2.2	350	1000	
	Far Red	720	740	250	300	1.9	2.6	350	1000	
Model Name	Color	CCT		Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3X09.2	PC Amber	NA	NA	110	125	2.7	3.2	350	1000	XPG3, G6_LEMW A33X, LH351B
PEX3N10.0	White CRI70	2700K	6500K	160	190	2.7	3.2	350	1500	
Model Name	Color	CCT		Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3N10.1	Hyper Red	650	670	1050	1150	1.8	2.2	700	1500	
	Blue	450	475	200	1110	2.8	3.2	700	1500	

3535 Performance Benchmark

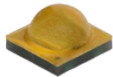
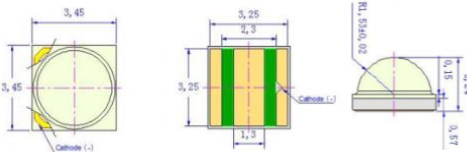
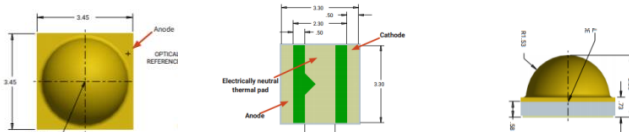
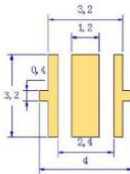
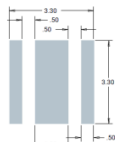


Tj=25C @ 350mA



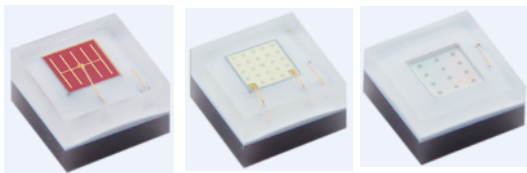
Brand	Color Wd/Wp(nm)	Blue 465-475	Green 520-530	PC Amber	Red 620-630	White 5700K
C-Company	XP-E	31-40	81-114		46-74	100-122
	XP-E2	31-46	87-122	87-107	57-81	116-151
	XP-G3					170-187
Lextar	PEX3X09.2	55-65	140-160	105-120	75-85	175-195
	PEX3N10.0					175-195
Wavelength		Wd	Wd		Wd	
Unit		Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)

3535 (Ceramic) Dimension / Footprint BMK

Brand	Lextar	C Company (XPG3)
Appearance		
Outline		
Solder Pad Comparison		
Model Name	PEX3X09.2 (Color) PEX3N10.0 (White)	XPG3

Solder Pad: pin to pin

2020 Color



2.0 X 2.0 X 0.85 mm

Features

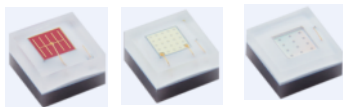
- High lumen output in a directional application
- Excellent reliability meeting professional requirement
- For narrow beam angles requirement

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
			Min	Typ	Min	Max			
PC20X09.0	Red	620-630	47	61	1.8	2.6	350	1050	LUXEON CZ
	Green	520-540	110	137	2.6	3.4	350	1050	
	Blue	465-480	39	50	2.6	3.4	350	1050	
	Amber	585-600	38	47	1.8	2.6	350	1050	
	PC Amber	NA	100	102	2.6	3.4	350	1050	
	WW CRI80	2600K~3700K	100	128	2.6	3.4	350	1050	
	NW CRI80	3700K~4700K	110	140	2.6	3.4	350	1050	
	CW CRI70	4700K~7000K	115	160	2.6	3.4	350	1050	
	Color	Wp (nm)	Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	
			Min	Typ	Min	Max			
	Royal Blue	450-460	360	468	2.5	3.5	350	1050	

2020 Performance Benchmark



Tj=25C @ 350mA



Brand	Color	Blue	Green	PC Amber	Red	White
	Wd/Wp(nm)	465-485	520-540		624-634	5700K
P-Company	LUXEON CZ	25-33	80-99	65-78	20-31	100-109
Lextar	PC20X09.0	39-50	110-137	100-102	47-61	130-160
Wavelength		Wd	Wd		Wd	
Unit		Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)	Luminous Flux (lm)

1717 (CSP) Flat Color

NEW



PC17X01 V0
1.7 X 1.7 X 0.3mm / 1.7 X 1.7 X 0.35mm

Features

- High lumen output in a directional application
- Excellent reliability meeting professional requirement
- For narrow beam angles requirement

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min.	Typ.	Min.	Max.		
PC17X01 V0 (Flat)	*Red	620-630	50	60	1.8	2.6	350	700
	PC Red	CIE BIN	50	60	2.6	3.1	350	700
	Blue	465~485nm	30	45	2.6	3.1	350	700
	White	5700K CRI70	155	175	2.6	3.1	350	700
	PC Amber	CIE BIN	110	125	2.6	3.1	350	700
	PC Green	CIE BIN	200	205	2.6	3.1	350	550

*under development

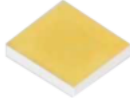
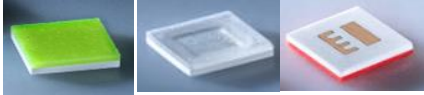
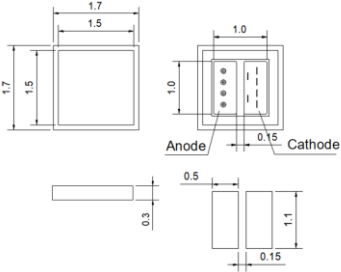
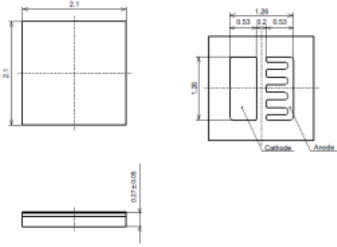
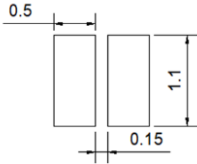
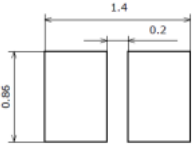
1717 Performance Benchmark



Brand / Model Name	Blue Wd: 465-485	PC Amber	Red Wd:615-630	White Ra70 5700K	PC Green
C-Company 1616 XQ-E	M2: 39.8~45.7 lm	P3:73.9~80.6 lm	P3:73.9~80.6 lm	R2:114~122lm (Tj=85C)	
N-Company CSP1717 NCS*E17AT	Typ. 42 lm	Typ.124 lm	Typ. 31 lm (PC Red)	Typ. 150 lm	Typ. 210lm
Lextar CSP1717 PC17X01 V0	Typ. 45 lm	Typ.125 lm	Typ. 60 lm(PC Red) Typ. 60 lm (Red)	Typ. 175 lm	Typ. 205lm

Tj=25C @ 350mA

1717 CSP- Configuration Comparison

Brand	Lextar	N Company
Model Name	1717 CSP	17A series
Appearance		
Outline		
Solder Pad Comparison		
PKG SIZE	1.7x1.7x0.3 mm	1.7x1.7x0.27 mm 1.7x1.7x0.35 mm

1414 (CSP) Flat Color

NEW



PC14X01 V0
1.40*1.40*0.38mm

Features

- High lumen output in a directional application
- Excellent reliability meeting professional requirement
- For narrow beam angles requirement

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min.	Typ.	Min.	Max.		
PC14X01 V0 (Flat)	PC Red	CIE BIN	30	60	2.7	3.2	350	700
	PC Green	CIE BIN	180	220	2.7	3.2	350	700
	PC Blue	CIE BIN	40	70	2.7	3.2	350	700
	Cool White Ra70	CIE BIN	130	170	2.7	3.2	350	700
	Warm White Ra70	CIE BIN	110	140	2.7	3.2	350	700

*under development

3030 (Color / Horticulture)



3.0 X 3.0 X 0.6 mm

Features

- Excellent reliability meeting professional requirement
- Standard 3030 foot print for drop-in replacement Designs
- Best thermal solution / JEDEC Level 1

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max		
PC33X50.0 PCT(round)	Red	620-630	16	19	2.2	2.6	150	200
	Green	522.5-535	20	37	3.2	3.6	150	200
	Blue	457-467	9	12	3.2	3.6	150	200
	Amber	580-595	14	20	2.2	2.6	150	200
	Orange	605-620	14	20	2.2	2.6	150	200
	Color	Wd /Wp (nm)	Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max		
	Royal Blue	450-457	190	250	3.2	3.6	150	200
	Hyper Red	650-670	100	110	2.2	2.6	150	200
	Far Red	715-745	70	85	2.2	2.6	150	200
PC33X50.2 EMC(round)	PC Amber	NA	46	52	2.8	3.4	150	200
	PC Red	NA	12	15	2.8	3.4	150	200

Specialty Lighting

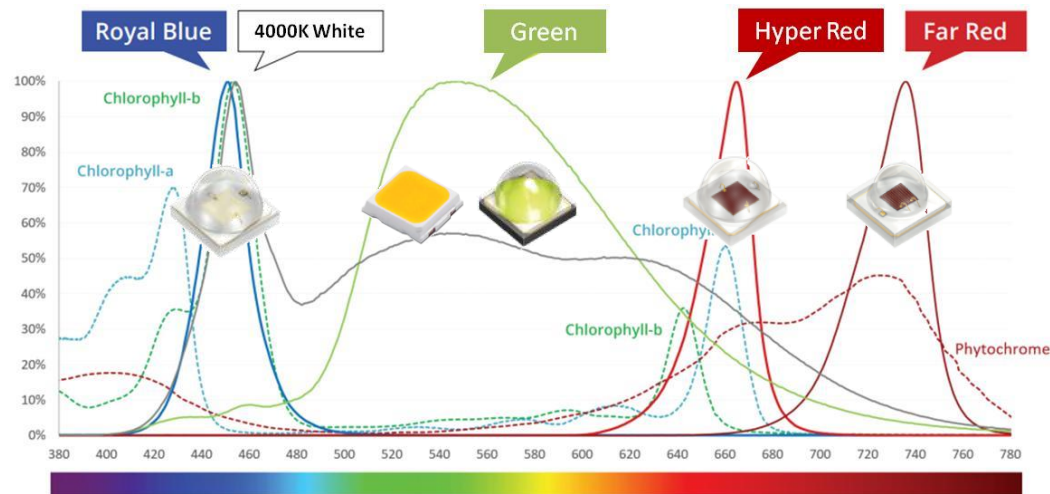
- *Spectrum Solution*
- *Human Centric Lighting*
- *Multi Color Solution*
- *Vehicle Emergency Light*
- ***Horticultural Lighting***
- *Yellow Light/Endoscope/CSP*
- *UV Curing*
- *UV disinfection*

Features

- High efficacy in PPF/W (Product range form 0.2W to 100W)
- High reliability design with great lifetime performance
- Spectrum tunable solution
- Total solution provider
 - PKG selection and arrangement
 - Lighting condition simulation
 - Optical lens recommendation
 - PCB board layout and safety check



Horticultural Spectra Solution



■ Recipe by Various Purposes

Purpose	LED Lighting Condition	4000K White	Royal Blue 450nm	Hyper Red 660nm	Far Red 730nm
Plant growth	Major lighting	80%		20%	
	Supplemental lighting		10%	90%	
Propagation	Major lighting	25%	35%	25%	
	Supplemental lighting		75%	25%	15%
Flowering	Major lighting	60%		20%	20%
	Supplemental lighting		20%	60%	20%
Fruiting	Major lighting	60%		30%	10%
	Supplemental lighting	20%		70%	10%

Focus	Color LED		
	High Power		
	PKG	Performance	
Package Type	3535	 	1W
	3030	  	0.5W
	COB		6~100W

Horticultural Component

Focus	Color LED	
	High Power	
	PKG	Performance
Package Type	3535	 1W
	3030	 0.5W
	COB	 6~100W

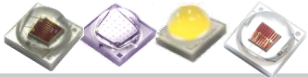
	White CRI 70 4000K	Blue		Red		
		Royal	Normal	Normal	Hyper	Far
		450nm	460nm	620nm	660nm	730nm
   3030 0.2~0.5W	V	V	V	V	V	V
   3535 1~3W	V	V	V	V	V	V
 COB 6~100W	V	V		V*	V*	V*

Green Light: Optional (525nm)

*phosphor converted

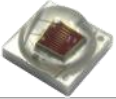
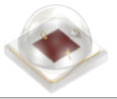
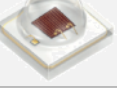
Horticultural Lights Solution (3535 & 3030PCT)



		3535		3030 PCT	
		2W		0.5W	
					
		700mA		150mA	
		PPF	PPF/W	PPF	PPF/W
Royal Blue	450~457nm	5.34	2.56	1.02	2.2
Hyper Red	650~670nm	6.19	4.29	0.79	2.6
Far Red	715~745nm	4.67	3.50	0.60	2.2
White	Ra70 3700~7000K	5.01	2.43	0.54	3.1
Model Name		PEX3X09.2 PEX3N10.1		PC33X50.0 color PC33N53.0 white	

3535 Horticultural Led Performance Comparison



Color	Photo	Lexar @700mA				Photo	OSRAM @700mA				Δ PPE (LX vs. OS)
		Model Name	W	PPF	PPE		Model Name	W	PPF	PPE	
Hyper Red		PEX3N10 V1	1.10	6.19	4.29		GH CSSRM4.24-V7V9 -1-1 BIN V8-1-E2	1.06	5.76	4.11	104.3%
Deep Blue		PEX3N10 V1	2.08	5.34	2.56		GD CSRRM2.14-ASAK-24 BIN AS-2-L1	2.02	5.13	2.53	101.3%
White Ra70		PEX3N10 V0	2.06	5.01	2.43		GW CSSRM3.PM-N6N8- XX53-1 BIN N6-H3-L1	2.04	4.77	2.35	103.5%
Far Red		PEX3X09 V2	1.33	4.67	3.50		TBD				

3535 Color / White



PEX3X09.2

3.5 x 3.5 x 2.24 mm



PEX3X09.2
PEX3N10.0

3.5 x 3.5 x 2.24 mm

Features

Lexstar

- Excellent reliability meeting professional requirement
- Standard 3535 foot print for drop-in replacement Designs
- Best thermal solution /High performance
- Superior efficiency PPF/W in horticulture application

Model Name	Color	Wd (nm)		Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3X09.2	Red	615	635	60	70	1.8	2.2	350	1000	XP-E XP-E2 XPG3
	Green	495	550	120	130	2.4	3.2	350	1000	
	Amber	580	600	50	60	2.0	2.6	350	1000	
	Color	Wp(nm)		Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	
		Min	Max	Min	Typ	Min	Max			
	Royal Blue	445	460	650	700	2.8	3.2	350	1000	
	Hyper Red	655	665	400	450	1.8	2.2	350	1000	
	Far Red	720	740	250	300	1.9	2.6	350	1000	
Model Name	Color	CCT		Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3X09.2	PC Amber	NA	NA	110	125	2.7	3.2	350	1000	XPG3, G6_LEMW A33X, LH351B
PEX3N10.0	White CRI70	2700K	6500K	160	190	2.7	3.2	350	1500	
Model Name	Color	CCT		Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)	Replacement
		Min	Max	Min	Typ	Min	Max			
PEX3N10.1	Hyper Red	650	670	1050	1150	1.8	2.2	700	1500	
	Blue	450	475	200	1110	2.8	3.2	700	1500	

3030 (Color / Horticulture)

NEW



3.0 X 3.0 X 0.6 mm

Features

- Excellent reliability meeting professional requirement
- Standard 3030 foot print for drop-in replacement Designs

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max		
PC33X50.0	Red	620-630	16	19	2.2	2.6	150	200
	Green	522.5-535	20	37	3.2	3.6	150	200
	Blue	457-467	9	12	3.2	3.6	150	200
	Amber	580-595	14	20	2.2	2.6	150	200
	Orange	605-620	14	20	2.2	2.6	150	200
	Color	Wd /Wp (nm)	Power (mW)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max		
	Royal Blue	450-457	190	250	3.2	3.6	150	200
	Hyper Red	650-670	100	110	2.2	2.6	150	200
	Far Red	715-745	70	85	2.2	2.6	150	200

3030 White High efficiency (230LPW)

NEW



3.2 x 3.0 x 0.65 mm

Features

- Excellent reliability meeting professional requirement
- Standard 3030 foot print for drop-in replacement Designs
- Best thermal solution /High performance

Model Name	Color	CCT	CRI	Luminous Flux (lm)		Forward Voltage (V)		PPF typ. (μmol/s)	PPE typ. (μmol/J)	Forward Current (mA)	Max Forward Current (mA)
				Min	Max	Min	Max				
PC33N53.0	White	2600K~3700K	70	36	42	2.5	2.8	0.51	2.87	65	200
		3700K~7000K	70	38	44	2.5	2.8	0.54	3.05	65	200

Model Name	Forward Current (mA)	Ra	CCT	Luminous Flux (lm)	Forward Voltage (V)	Lm/W
				Typ.	Typ.	
PC33N53.0	65mA	Ra70	5000K	40.5	2.7	231
LM301B Ra70	65mA	Ra70	5000K	40	2.71	227
LM301H Evo Ra70	65mA	Ra70	5000K	41	2.7	234

NEW



19 X 19 X 1.5.X mm

Features

- Low thermal resistance and 2.5X operating available
- High efficacy and long life time (L70 > 50,000@105°C)
- High PPF/W > 2 @ Tj=85C

Tj=85C

Model Name	Color	Wd (nm)	Luminous Flux (lm)		Forward Voltage (V)		PPF/W typ.	Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max			
PC26H01.1	Royal Blue	440-460	515	550	30.7	36.1	2.06	720	1800
	PC Hyper Red	655-675	990	1050	30.7	36.1	2.11	720	1800

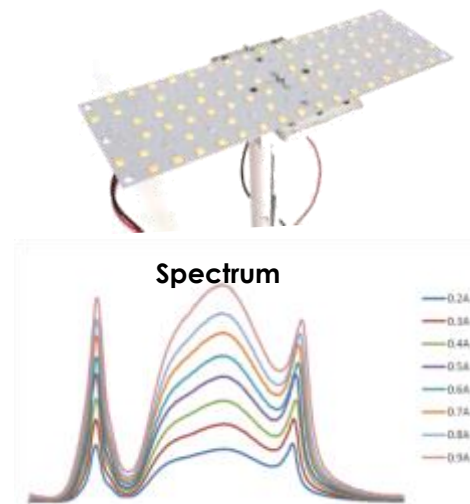
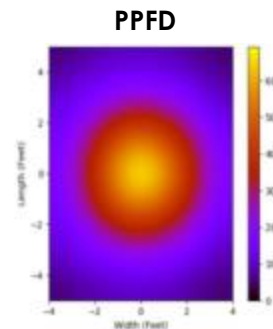
Reference Module Design - A

Lexar

LED	Size	Q'ty
White(5000K/CRI70)	5050	60
Red(660nm)	3030	36
Far Red(730nm)	3030	4



Threshold $\geq 1.9 \text{ umol/J}$



Input current (A, constant current)	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
Input Voltage (V)	196.6	199.8	203.1	205.7	208.4	210.7	213	214.05
Power consumption (W)	39.9	61	83.7	102.8	125.65	147.3	170.3	193.6
PPF (umole/S)	132.3	199.4	264.2	328	384.1	429.5	496.6	551
PPF/W (umol/J)	3.06	2.99	2.88	2.86	2.8	2.74	2.68	2.47
Blue (400-490)	13.2%	13.3%	13.3%	13.34%	13.41%	13.46%	13.53%	13.89%
Green (491-600)	39.4%	39.2%	39.1%	39.01%	38.82%	38.76%	38.65%	38.05%
Red (601-700)	42.9%	43%	43.1%	43.2%	43.27%	43.39%	43.45%	43.55%
Near Infrared (701-850)	4.3%	4.34%	4.27%	4.22%	4.26%	4.18%	4.16%	4.29%

Reference Module Design - B

Fixed Recipe

- Full Spectrum (suit for most kind of plant)
- Various Spectrum Configuration Available (customized)
- R/B Ratio ~ 8.9 (suit for flowering stage)
- IP65

LED:

Specifications



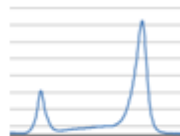
Power (W)	29 (typ.)
IF (mA)	1200
VF (V)	22~24
PPF ($\mu\text{mol/s}$)	40

3-Color Tunable

- 3 Independent Channels for Different Color LEDs
- Various Spectrum configuration available (customized)
- Adjustable for Different Stage of Growth
- Single Color and Full Range Spectrum Available

LED:

Specifications



Power (W)	3.36(B) / 6.72(W) / 10.8(R)
IF (mA)	1200 (per channel)
PPF ($\mu\text{mol/s}$)	37.5 (3 color)
IP	65

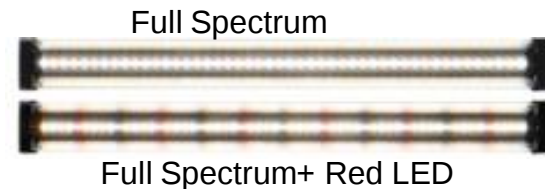


Reference Module Design - C



•Features & Benefits

- ✓ Qualified spectrum for plants need
- ✓ Excellent PPE delivering $>2.7 \text{ umol/J}$ by adopting optimized PKG solution designed by Lextar
- ✓ Optional conformal coating
- ✓ Two length variation, 1ft / 2ft



Length	Module Efficacy	LED		Color LED		PCB			
	PPF/W	LED	Amount (pcs)	Type	Qty (pcs)	Type	Dim.1 (mm)	Dim.2 (mm)	Thick (mm)
1ft	$>2.7 \text{ umol/J}$	3030	48	3535	8	FR4 single layer	280	41	1
2ft	$>2.7 \text{ umol/J}$	3030	96	3535	16	FR4 single layer	561	41	1

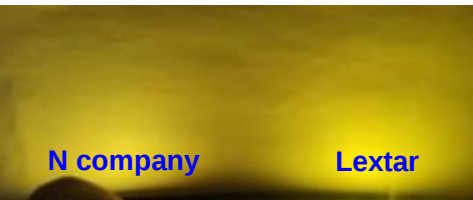
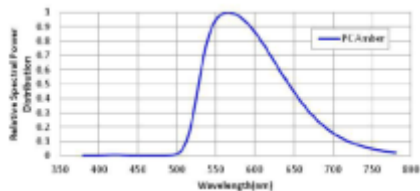


Specialty Lighting

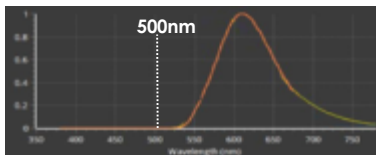
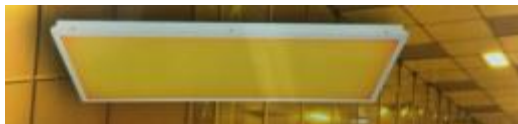
- *Spectrum Solution*
- *Human Centric Lighting*
- *Multi Color Solution*
- *Vehicle Emergency Light*
- *Horticultural Lighting*
- ***Yellow Light/Endoscope/CSP***

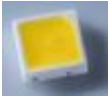
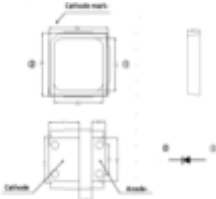
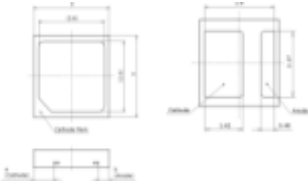
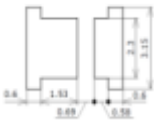
Lextar

3030EMC



L2



Brand	Lextar	N Company
Model Name	PC33X50 V1	NFSY757GT-E(4118)
Sorting current	150m	65mA
Max. current	200mA	150mA
Appearance		
Outline		
Solder Pad Comparison		
PKG SIZE	3.2x3.0x0.67 mm	3.0x3.0x0.65 mm
Luminous	Typ. 66lm	Typ. 59lm
Voltage	2.8~3.4V	Typ. 3.1V

3030 (PC Amber / Clean Room Yellow)



NEW

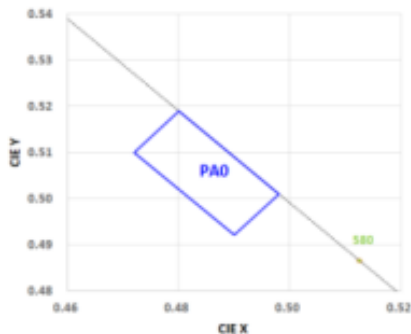


3.2 X 3.0 X 0.67 mm

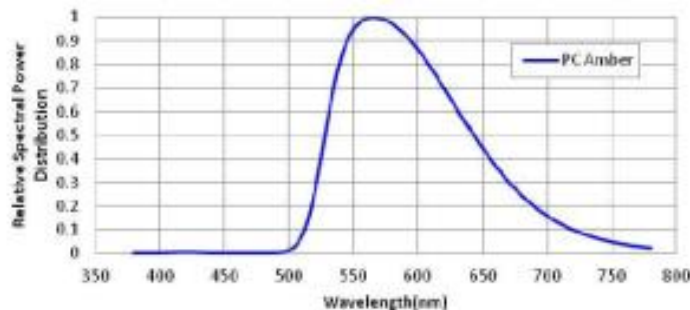
Features

- Excellent reliability meeting professional requirement
- Standard 3030 foot print for drop-in replacement Designs
- Best thermal solution / JEDEC Level 1

Model Name	Color	CIE	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min	Typ	Min	Max		
PC33X50 V1	PC Amber	PA0	58	66	2.2	2.6	150	200



PC Amber	CIE-X	CIE-Y
PA0	0.4980	0.5010
	0.4900	0.4920
	0.4720	0.5100
	0.4800	0.5190



Digital Endoscope Lights Solution



End Product

Application : Nasopharyngeal tube

- Ø OD3.8mm
- LED 8pcs/board
- 5mA drive ,total lumen >10lm

Application : disposable Digital Endoscope

- Ø 2mm,
- LED 3~4pcs/board
- 5mA drive, total lumen >5lm

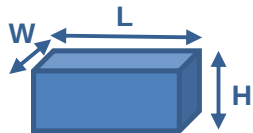


CSP LED	0602
Model Name	PG04W01 V1
PKG SIZE	570 x 200 x 250um
Sorting current	20
Max. current	30
Outline	
Luminous	Typ. 4.5 lm
Voltage	2.7~3.0V



Appearance

NEW



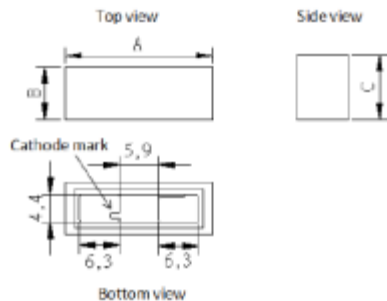
• PKG Size : 570um(L) x 200um(W) x 250um(H) $\pm 25\mu\text{m}$

Features

- Digital Endoscope Solution
- CSP structure

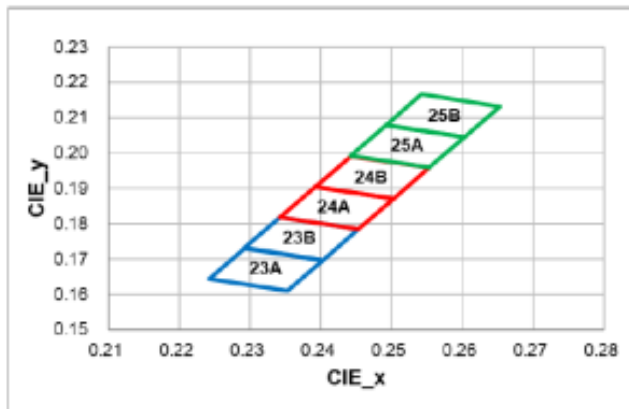
Model Name	Color	CCT	Luminous Flux (lm)		Forward Voltage (V)		Forward Current (mA)	Max Forward Current (mA)
			Min.	Max.	Min.	Max.		
PG04W01 V1	Cold White CRI70	CIE X =0.245 CIE Y=0.19	3	6	2.7	3.0	20	30

●Packing :10,000 pcs/wafer



Unit: um
Tolerance: $\pm 25\mu\text{m}$

0602 : A: 570um / B:200um / C:250um





Lextar  *Smart Innovation, Amazing Life*