

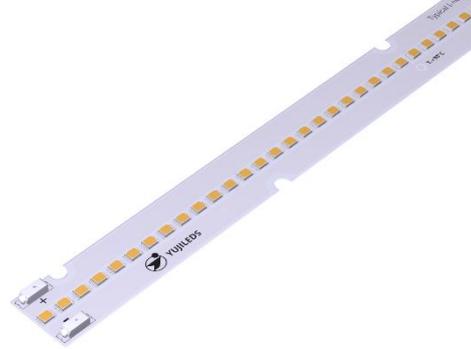


YJ-VTC-MOD-2835MX-1CC

LED Module

Applications

- High-end architectural lighting
- Photographic/broadcast lighting
- Horticulture lighting
- Human-centric lighting
- Photoelectric device and relevant research



Features

- Ultra homogeneous spectrum
- Industrial grade high CRI performance, TLCI & TM-30 specified
- Optimized efficacy for full-spectrum
- Ultra consistent and precise color with Yujileads® SimpleBinning technology (equal to <3-step MacAdam)
- 280mm (length) × 20mm (width), 48 LEDs
- Typical 480mA, 36V DC
- Aluminum substrate for excellent thermal dissipation
- Slim width, easy assembly

[About Yujileads®](#)

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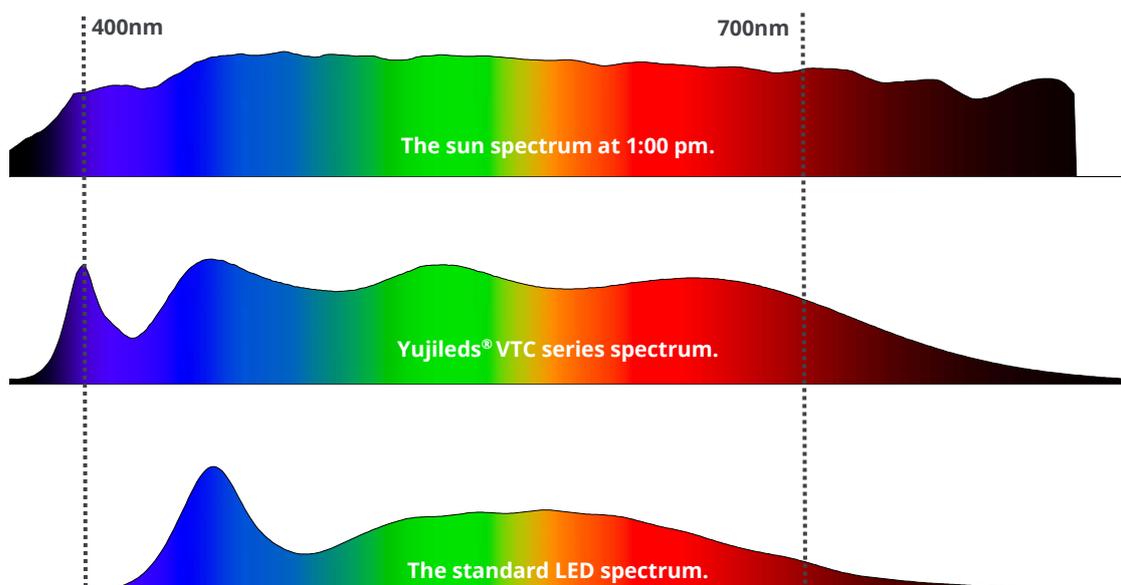
General description

The sun is well recognized as the perfect light source because of its completely uniform, continuous and broad spectrum. With the development of artificial lighting technologies, efficiency is improved significantly however the illumination quality gets worse. There is no longer a light source that is like incandescent or halogen with perfect spectrum, especially when LED is invented and widely applied, while achieving unprecedented energy saving benefits, we have sacrificed the illumination quality tremendously until the Yujileds® VTC series LEDs come out.

95% spectral similarity to the sunlight

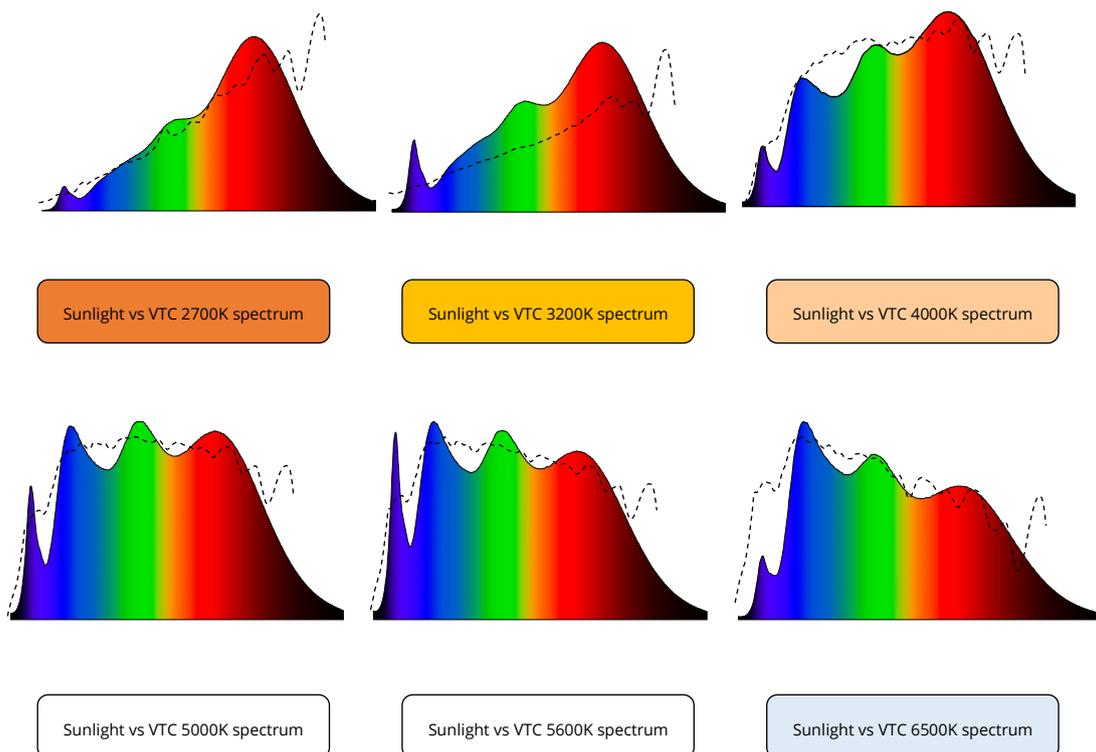
The wavelength range for human visual sensitivity is generally considered as 400nm – 700nm, for which the sun spectrum covers completely. On account of the illumination principle, a standard LED only covers 430nm – 670nm with at least 20% relative radiant power compared to the 450nm peak wavelength, therefore the purple and deep red light are missed in a standard LED, furthermore the sharp peak of the blue light has been an intractable challenge for many years.

Yujileds® VTC technology succeeds in broadening the spectrum coverage to 400nm – 730nm, which is 40% more coverage than a standard LED spectrum, in addition, the VTC technology eliminates the sharp blue peaks then achieves the homogeneous spectral power distribution hence it mimics 95% similarity to the sunlight within the visible spectrum.



No compromise on the spectral quality

Not limited to a fixed full spectrum, the VTC technology can extend to wider CCT scopes. The spectral recipe of each CCT is well designed with Yujileds® state-of-the-art LED phosphor and the well-chosen LED dies. By covering the practical solar spectra at any time all day, the illumination quality will never be compromised regardless of any CCT is selected. Eventually we can obtain a better light source than incandescent and halogen based on LED with the full flexibility of different white lights thanks to the VTC technology.



98 CRI for true color vividness

CRI (Color Rendering Index) is a most accepted colorimetric for evaluating the ability of a light source rendering the original color of an object. Benefiting from the full spectrum, the VTC series LED performs remarkable color rendition by achieving the CRI up to 98 (with minimum 95) where the full-score is 100. Comparatively, a standard 80 CRI LED which is still widely used performs less color fidelity and saturation.

Introduce the TM-30 metric for 99 color evaluation samples

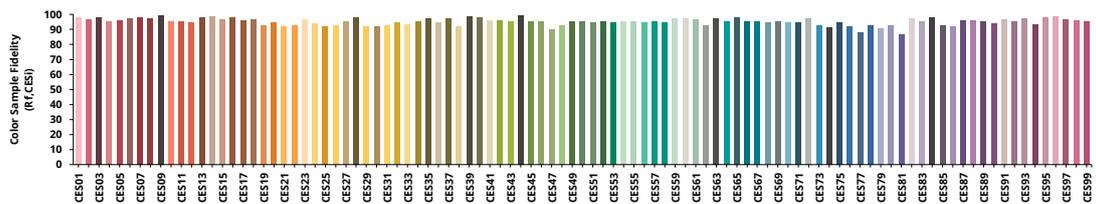
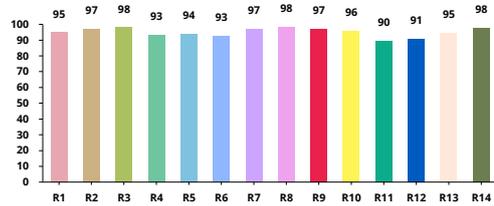
The TM-30 metric is defined and proposed by the Illuminating Engineering Society (IES), aiming to provide comprehensive evaluation on color quality of new light sources especially for LED and it is released as the supplement or even replacement of CRI in the

future. TM-30 utilizes 99 color evaluation samples which are selected from more than 100000 measured objects to be representative of the world of possible colors. Compared to CRI, the TM-30 is more critical on the spectral quality therefore when a standard LED has a CRI as 97, the Rf (Fidelity Index) of TM-30 is about 90, but for VTC series 99 CRI LED, the Rf is maintained as 95-97 which means the VTC technology provides extremely stable ability for rendering most of the possible colors.

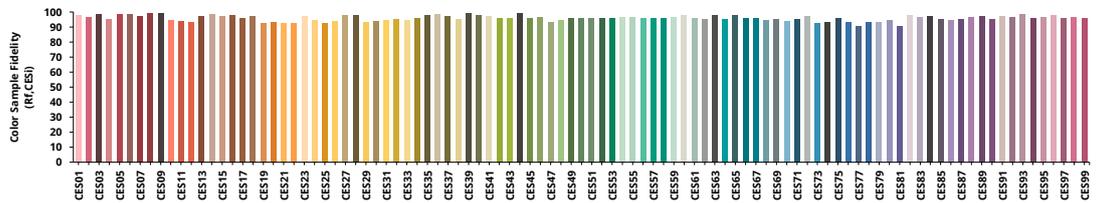
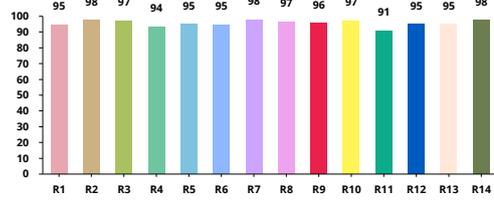
Constant color rendition

Colors are not only well rendered under one specific spectrum but for all CCTs covering from the warm white to daylight. As the result of the well-designed spectral recipes, CRI values are ensured to be constant and since the VTC technology focuses on the spectral quality, likewise the TM-30 scores are maintained at high values constantly.

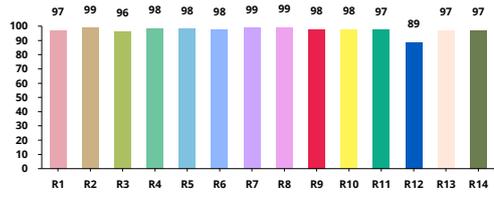
2700K

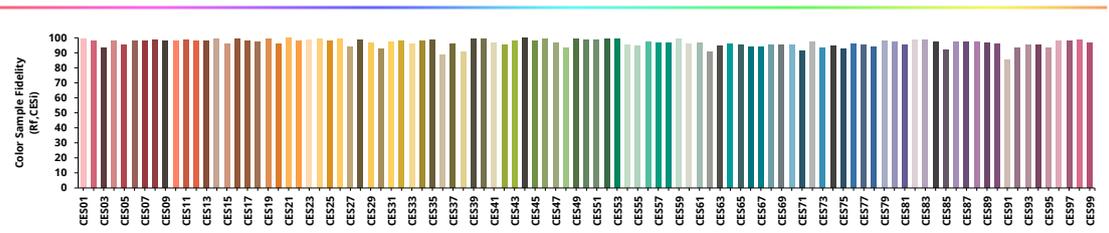


3200K

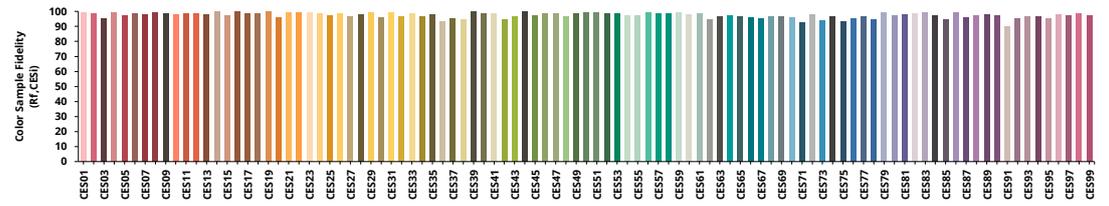
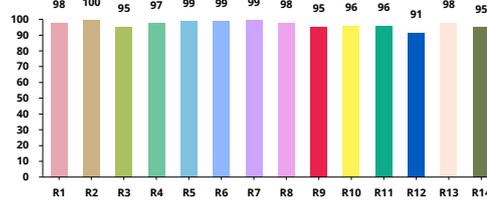


4000K

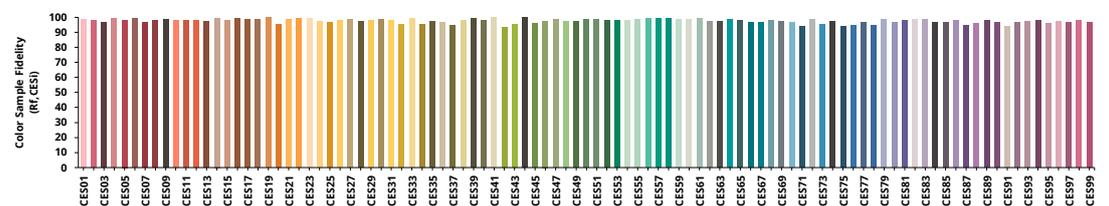
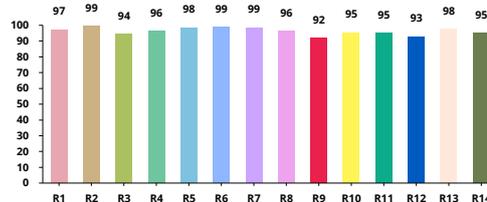




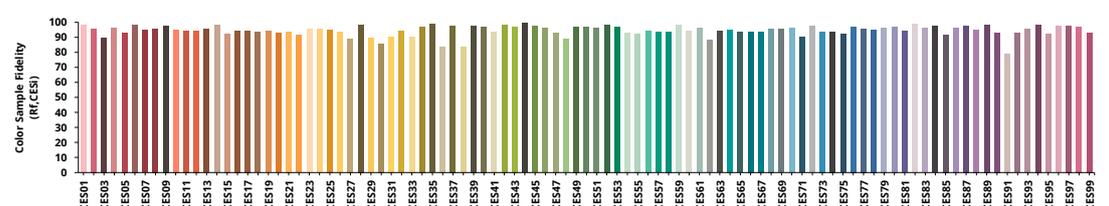
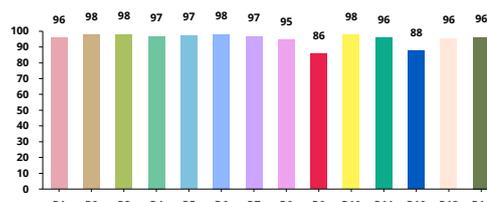
5000K



5600K



6500K



The Yujileds® module and customization service

The Yujileds® module and customized service are for professional customers who care

about the color accuracy, spectral consistency and other optical parameters besides the PCBA quality, therefore, we treat our LED module as an integral light source and control the specifications accordingly rather than a simple engineering procedure of SMT. The Yujileads® customized module is tailor-made for the customers who may have the requirement or difficulty solving the following:

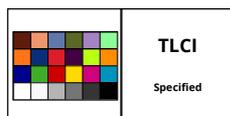
Individual LED vs LED module	Know well or don't understand the features and discrepancy between the individual LED and integrated LED module, but it is challenging to solve and control the consistency issues with balanced cost performance for yourself.
Rigorous datasheet and test report	The LED module plays a crucial role for your light, and you need serious specifications for exact calculation to create the maximum values to the products for your customer. Need professional test report, control and analysis for every batch of the LED module.
Performance upgrade	Focus on your product's duration, plan to upgrade timely, and need to track the historical data as references.
Confidential promise	Plan to run the confidential projects without disclosing any key information of know-how to the markets.
Crossover consultancy	Need professional consultancy in both technical and industrial ways, especially regarding the interaction between optics and electronics and precise control.
Duration	Need stable supplied materials up to 10 years no-change.

The module also supports the unique service/certification by Yujileads® as described below.



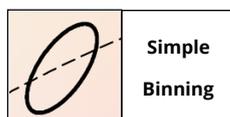
TM-30 specification

The most advanced colorimetric for color rendition, widely recognized as the successor of CRI.



TLCI specification

Based on the Macbeth ColorChecker, for evaluating the colorimetric quality of the broadcast lighting.



SimpleBinning specification

Simplify the chromaticity binning with TrueChroma data support to provide the most economical, simple, and practical solution to customers.

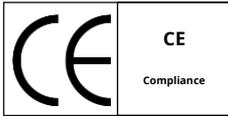


Photometric data

Luminous intensity distribution and illuminance data for simplifying the lighting design.



RoHS 2011/65/EU compliance



CE compliance



REACH compliance (Phosphor)

Ordering information

PART NUMBER	PRODUCT CODE	RATED CURRENT	CCT
YJ-VTC-MOD-2835MX-1CC-27	B3210004.27	480mA	2700K
YJ-VTC-MOD-2835MX-1CC-32	B3210004.32	480mA	3200K
YJ-VTC-MOD-2835MX-1CC-40	B3210004.40	480mA	4000K
YJ-VTC-MOD-2835MX-1CC-50	B3210004.50	480mA	5000K
YJ-VTC-MOD-2835MX-1CC-56	B3210004.56	480mA	5600K
YJ-VTC-MOD-2835MX-1CC-65	B3210004.65	480mA	6500K

Characteristic

Electrical-optical characteristics ($T_A = 25^\circ\text{C}$, 480mA⁽¹⁾)

PARAMETER	SYMBOL	VALUE			UNIT
		MIN.	TYP.	MAX.	
Power	P	-	18		W
Voltage	U	-	36	-	V
Luminous flux ⁽²⁾	$\Phi_{5000\text{K}}$	-	1200	-	lm
	$\Phi_{6500\text{K}}$	-	1200	-	
Color rendering index	Ra	-	98 ⁽³⁾	-	-
TCS R9 (CRI red)	R9	-	90	-	-
Fidelity index ⁽⁴⁾	Rf	-	97	-	-
Gamut index ⁽⁴⁾	Rg	-	100	-	-
TLCI 2012 ⁽⁵⁾	-	-	99	-	-
View angle	$2\theta_{1/2}$	-	120	-	Deg

(1). A heat dissipation device is necessary for the typical current driving.

(2). Tested by goniophotometer.

(3). Ra typical 95 at 6500K.

(4). Defined by the IES TM-30-18 method, this data is for trial.

(5). Defined by the EBU, TLCI is the abbreviation of Television Lighting Consistency Index, this data is for trial.

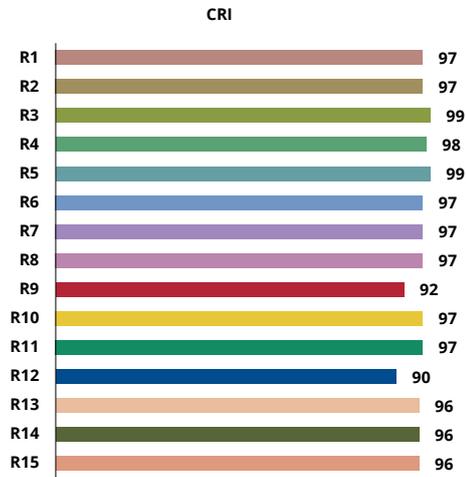
Luminous intensity distribution and illuminance⁽¹⁾ ($T_A = 25^\circ\text{C}$, 480mA)

CCT	HEIGHT	DIAMETER	AVG.	MAX.
			ILLUMINATION	ILLUMINATION
5000K	1m	301.16cm	128.3 lx	448.6 lx
6500K		309.83cm	112.6 lx	413.2 lx

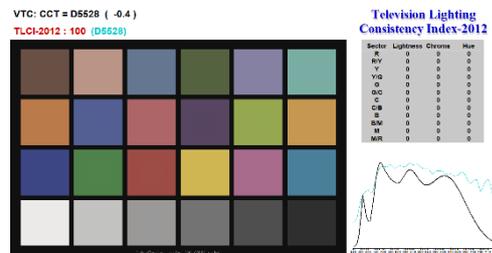
(1). The full luminaire photometric test report (IES/LDT file) can be downloaded from www.yujiintl.com.

Characteristic

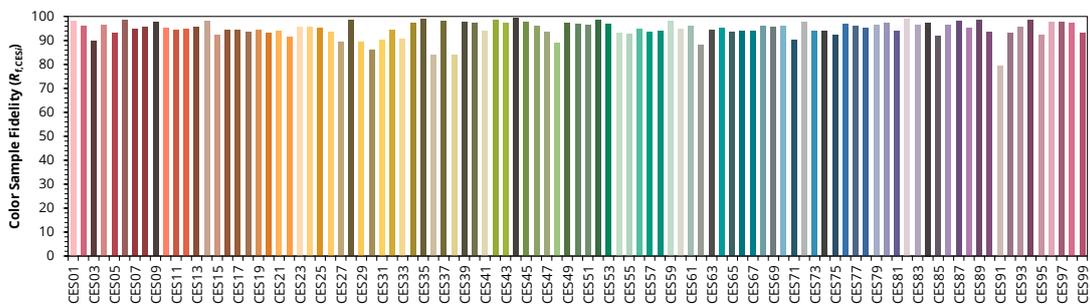
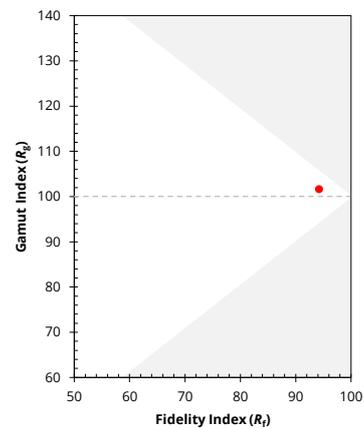
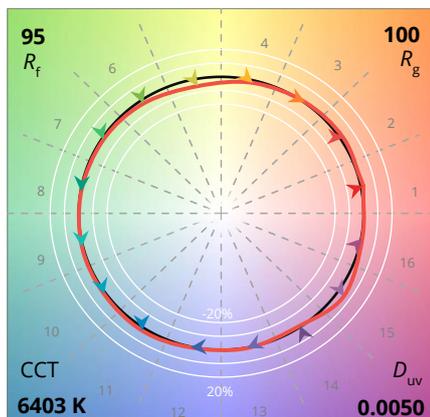
CRI graph (2700K)



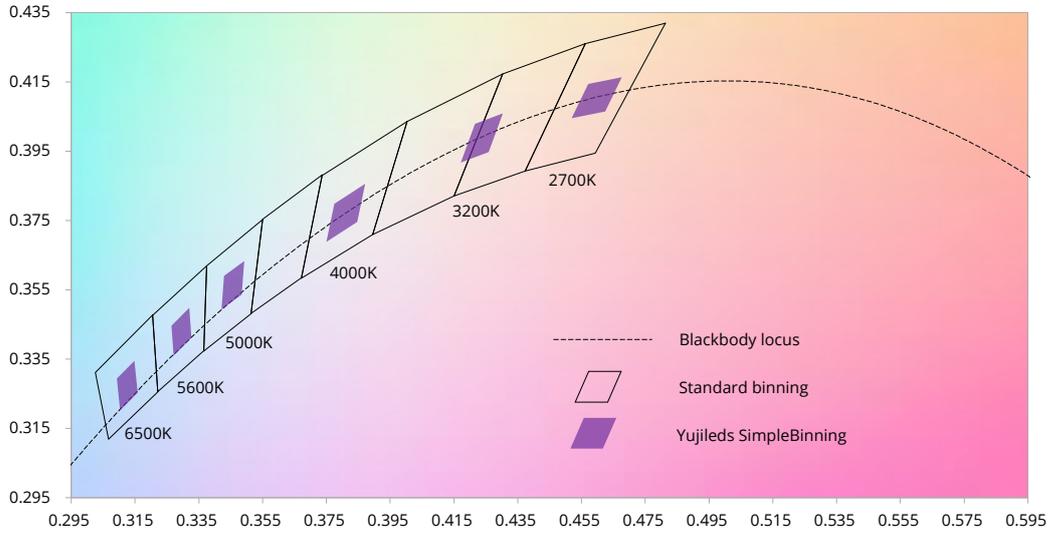
TLCI (5600K)



TM-30 graph (6500K)



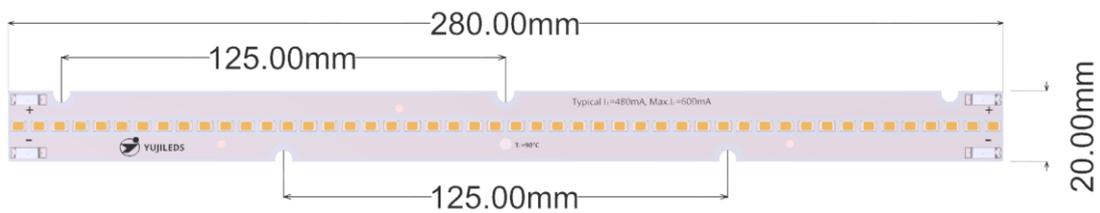
Chromaticity group and diagram



PCB characteristics

Property	Parameter
Material	MCPCB
Thickness	2.0 mm
Thermal conductivity	2.0 W/m•K
Copper thickness	1 Oz
Front side solder mask	White
Silkscreen color	Black
Solder	Pb-Free HASL

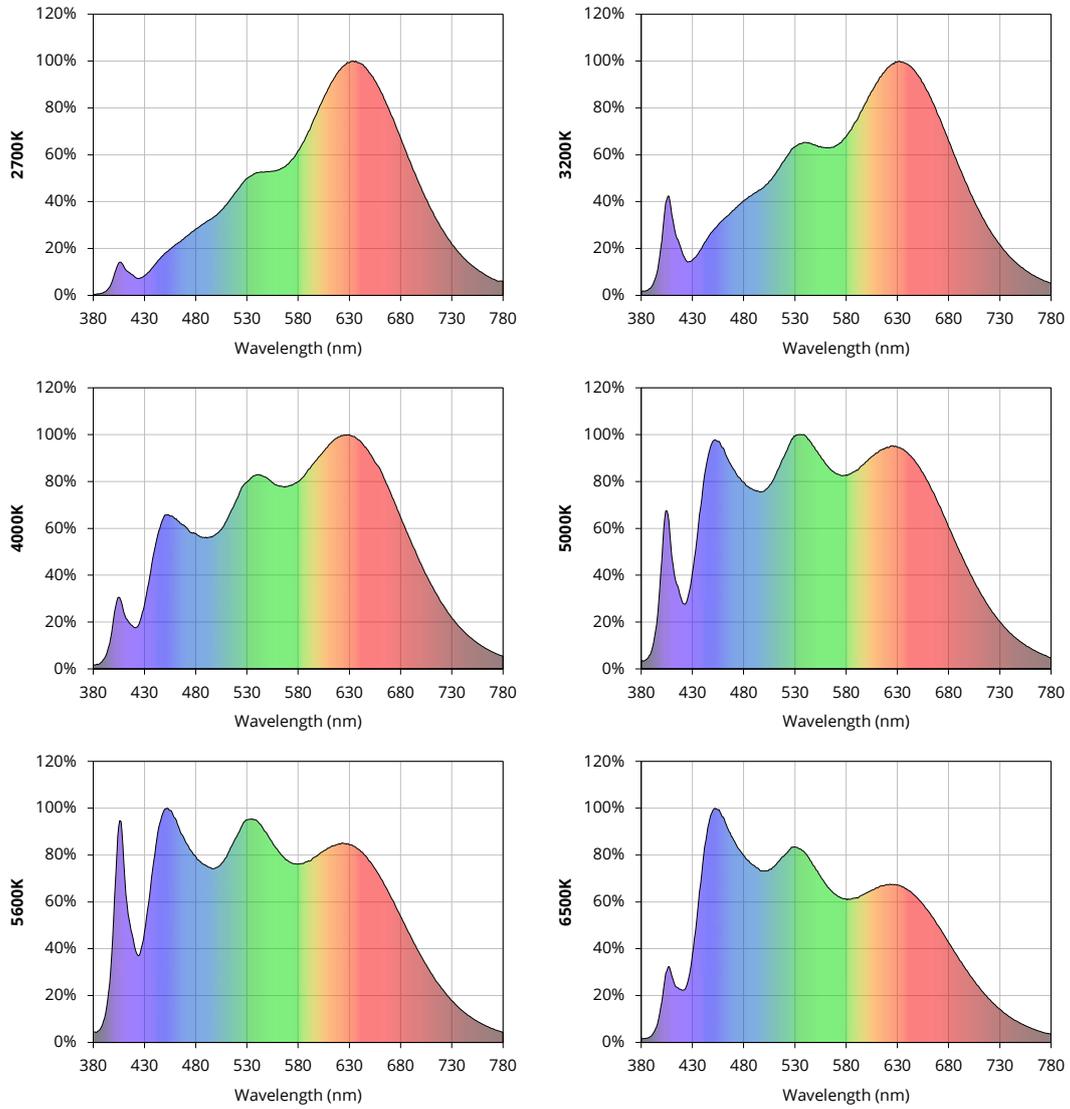
Dimensions



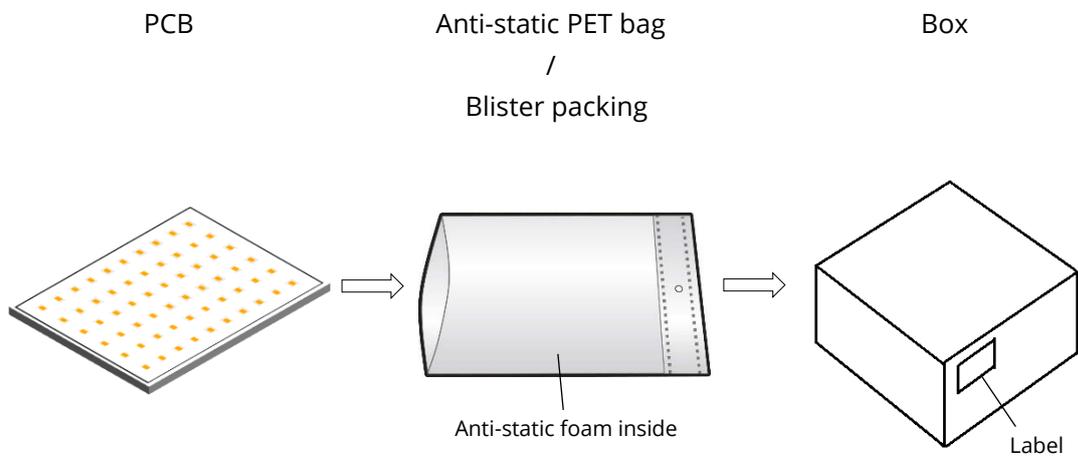
Characteristic graph

Typical spectral power distribution (normalized)

All characteristic curves are for reference only and not guaranteed.



Packaging



The size of box depends on the quantity.

About Yujileads



Our story - Start from the superior stable red LED phosphor.

We started to make LED phosphor materials in 2006. White LEDs were still in very early stage, the industry focused on improving device brightness and efficiency via yellow phosphor very much. No one cared about the light quality. Based on this situation, we took a different approach and focused on red phosphor technology, which is the most important phosphor recipe for high CRI and/or low CCT LEDs, and it made Yuji become a JV partner with Mitsubishi Chemical from 2012.

Today, we are well known for our comprehensive research and full line-up production of LED phosphor from ultra-violet to near-infrared, and we are proud to commit to providing superior stable and efficient phosphors to the worldwide markets.

Our technology - Focus on LED spectrum innovation.

The industrial structure of both phosphor and LED gives us a unique view to develop our spectrum recipes. Compared to the general LED manufacturers, we have comprehensive information in evaluating the feasibility for both technical and commercial aspects. LED spectrum technology is not only about the quality of white LEDs, but also for different applications which have specialized requirements in lighting.

Yuji is one of the few companies that provide the service of designing or customizing a specific spectrum for clients, our confidence comes from the years of accumulation in focusing on the spectrum technologies and the control of LED phosphor and LED die supply-chain with thousands of successful cases in the past years. Innovating LED technologies and giving them commercial values are our eternal driving forces.

Our product - Yujileads®, stands for high-performance LED.

The trademark of Yujileads® is the identification of the LED products developed and manufactured by Yuji. We put our understanding of the LED technologies and the standard of our quality control into every LED we make. Regardless of any product series, we pay attention to expressing the high-performance feature and achieving the product value for clients and never compromise in pursuing the true performance.

Furthermore, we also care about every detail of any documentation we prepare for the product because we understand the importance to transmit accurate information to clients. It is even more critical for clients to obtain

the truth to decide the solution, rather than just a nominal high-performance.

Our client - Outstanding game players in different fields.

Clients are our proudest achievements, now over 200 of our clients are the best game players in their fields in more than 33 countries. We regard the clients' successes as our biggest accomplishments and appreciate their contribution in different fields, clients use our LEDs not just for simple lighting, but to design the lighting for plants, cameras, sensors, health, circadian rhythm, animals, and other industries that we have never imagined that our technologies can be utilized, that makes our work so meaningful.

Our service - Professional supporting team.

There is a group of people in Yuji passionate about creating maximum value for our clients. We have accumulated experience in different projects. Currently, the company gathers more than 30 experts from various fields of semiconductor, chemistry, optics, photoelectricity, circuitry, materials and color science.

Our sales team is well trained in deep LED technologies and has skilled global communication experience. Not just for sales, our team is more like a specialized consultancy to help every client succeed in different projects, and we do not only provide professional business service, but also support in the supply chain, logistics, marketing and technical discussions.

Contact us - We look forward to providing our efficient service for you.

LED website: www.yujiintl.com

Find Yujileds® high-performance LEDs, read our insights into a variety of advanced technologies and applications.

Contact: info@yujigroup.com

LED lighting website: www.yujilighting.com

Find our state-of-art LED lamps and luminaires designed for improving the lighting experience with the vision of illuminating the future.

Contact: lighting@yujigroup.com

Online shop: store.yujiintl.com

Shop your favorite Yuji Lighting product with rapid and professional service.

Contact: webstore@yujigroup.com