YJ-VTC-HRB-2835X-24V

LED Flexible Ribbon

Applications

- High-end architectural/residential lighting
- Photographic/broadcast lighting
- Human-centric lighting

Features

- Natural light spectrum, mimic the sun light
- Industrial grade high CRI performance, TLCI & TM-30 specified
- Ultra consistent and precise tunable white color with Yujileds® SimpleBinning technology (equal to <3-step MacAdam)
- 12V DC, 120 LEDs per meter, can be cut every 12 LEDs (100mm)
- 2700K / 3200K: 500lm; 5600K / 6500: 600lm
- 5000mm (length) × 10mm (width), 140g per reel
- Improved adhesive backing for easy installation

[About Yujileds®]

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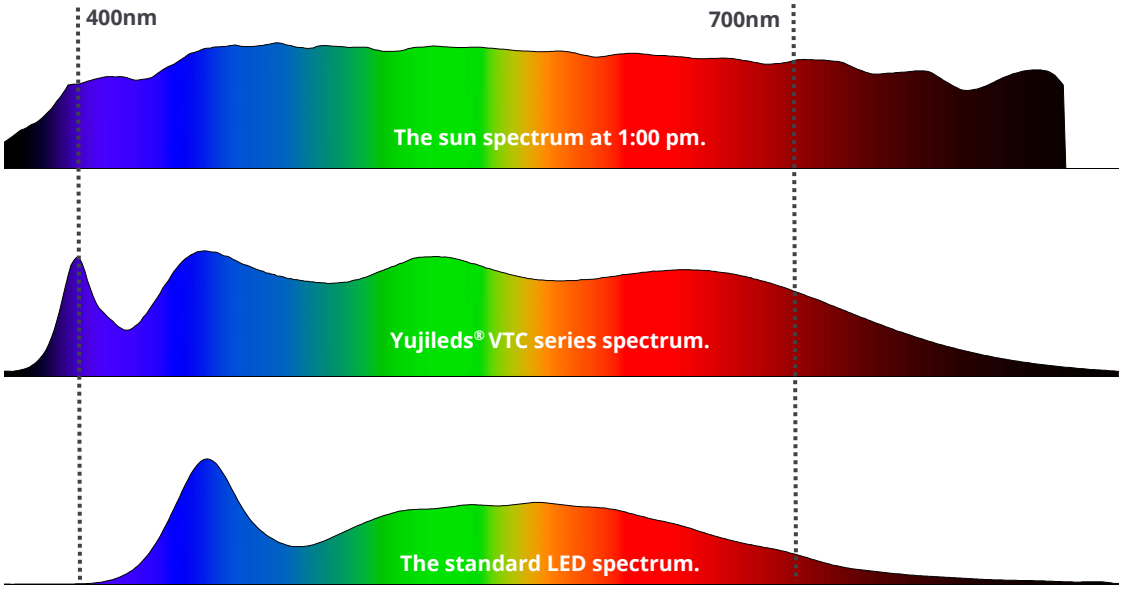
General description

The sun is well recognized as the perfect light source because of its completely uniform, continues 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

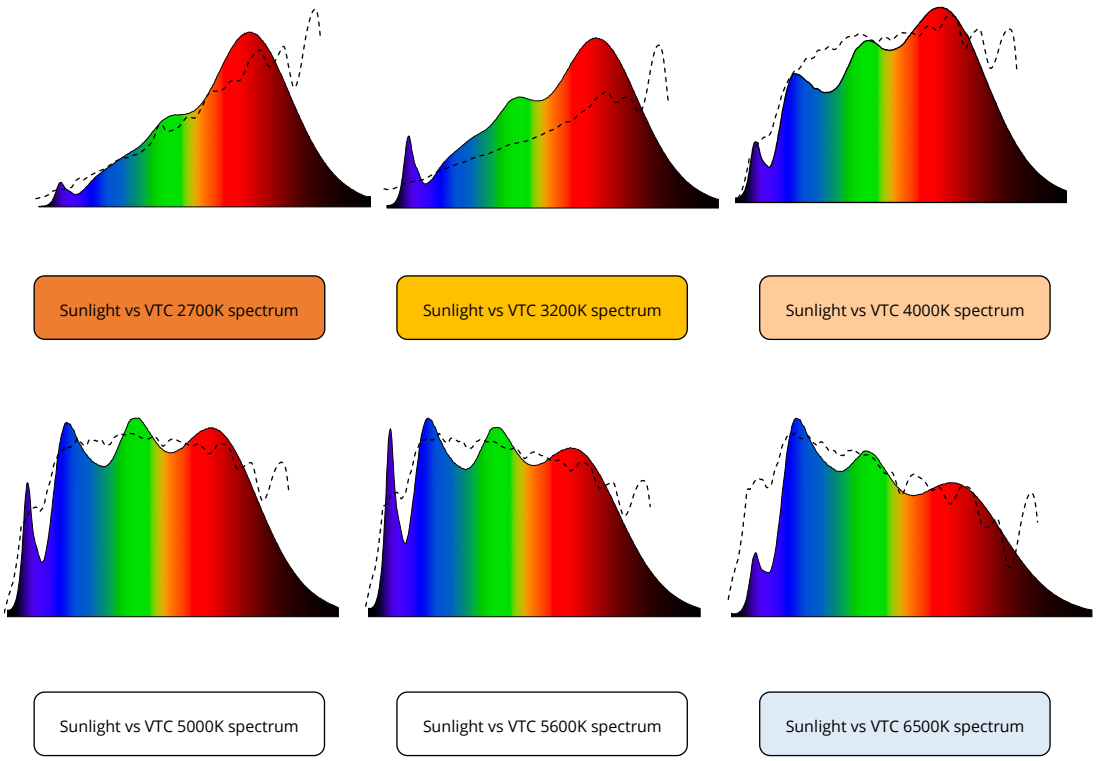
The wavelength range for human visual sensitivity is generally considered as 400nm – 700nm, for which the sun spectrum covers completely. On account of the illumination principle, a standard LED only covers 430nm – 670nm with at least 20% relative radiant power compared to the 450nm peak wavelength, 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

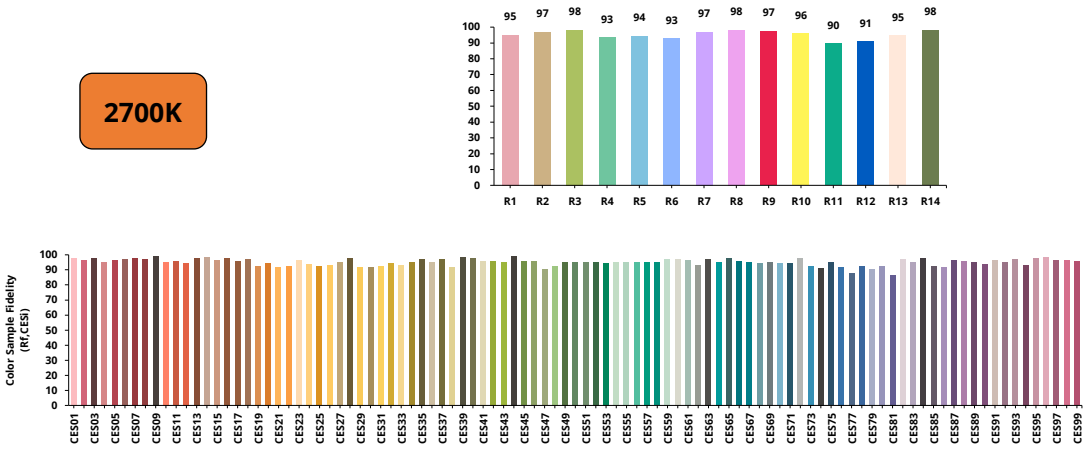
The TM-30 metric is defined and proposed by the Illuminating Engineering Society (IES), aiming to provide comprehensive evaluation on color quality of new light sources especially for LED and it is released as the supplement or even replacement of CRI in the future. TM-30 utilizes 99 color evaluation 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.

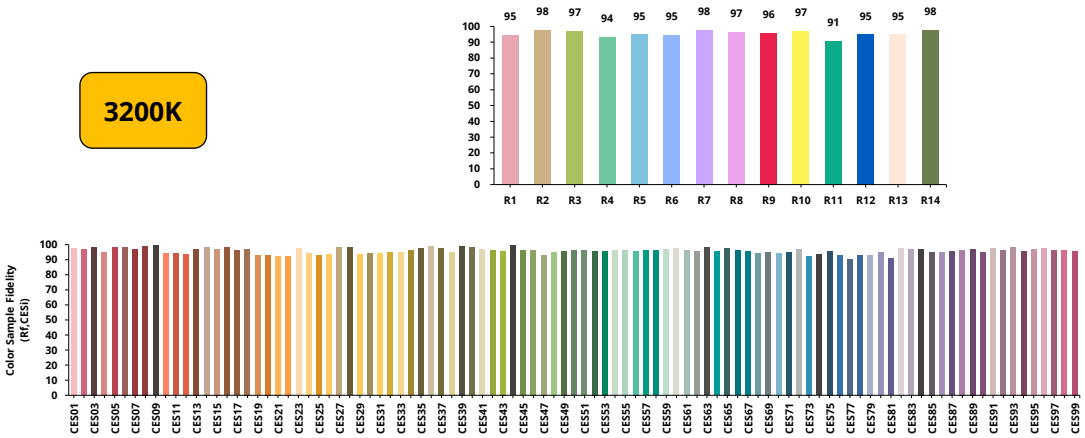
Constant color rendition

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.

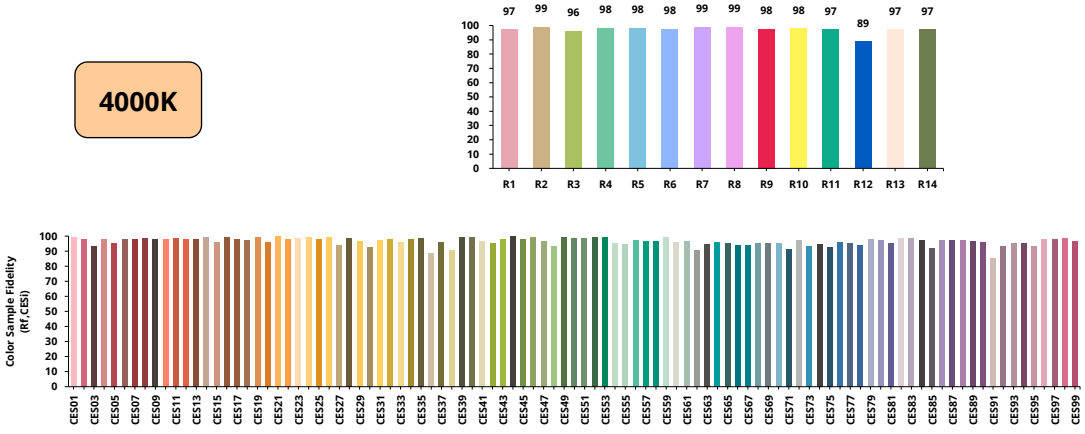
2700K



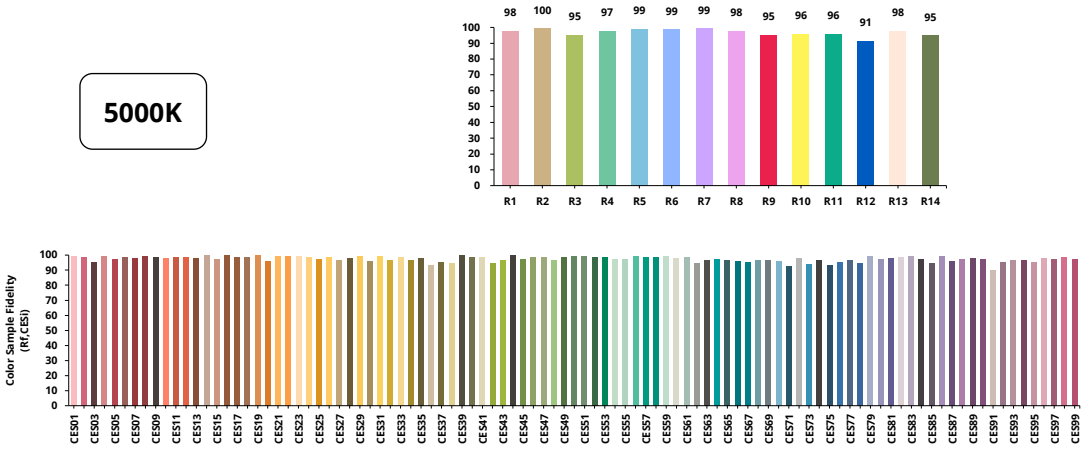
3200K



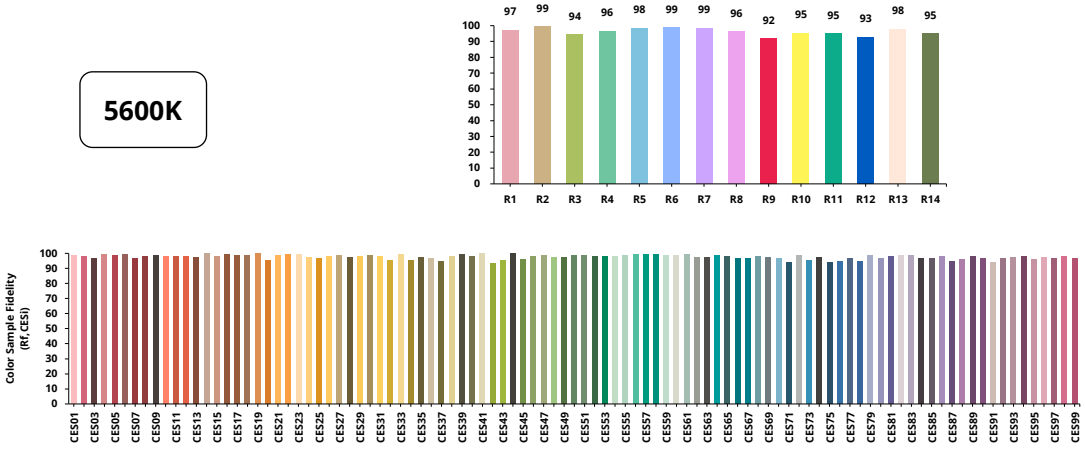
4000K



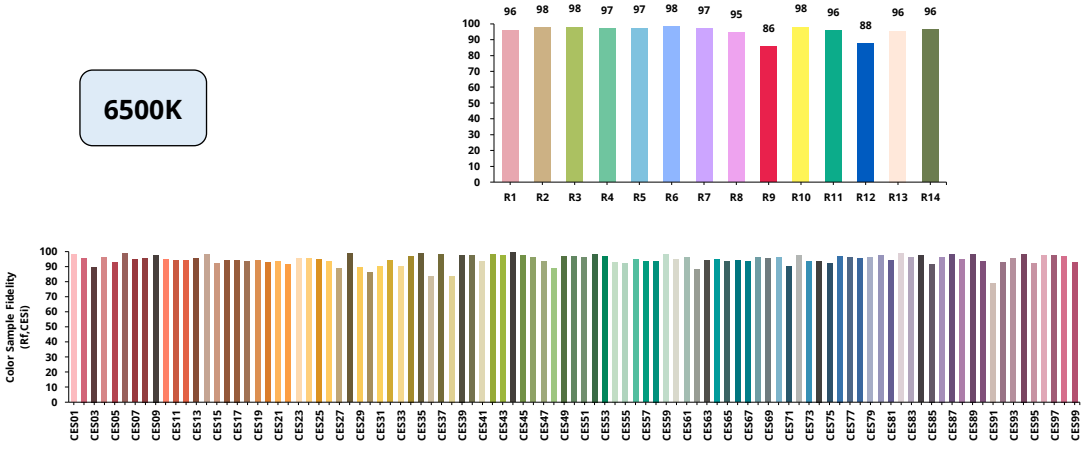
5000K



5600K



6500K



Yujileds® VTC series flexible strip provides industrial grade high CRI with full CCT options. It is extremely versatile and can be installed in a variety of linear and curved surface alike where demands high color quality and homogeneous lighting distribution. The 12V DC strip can be cut and connected individually every 3 LEDs (25 mm), the enhanced 3oz copper traces with precise SMT resistors provide consistently high power and brightness. The improved adhesive backing is upgraded for easy installation.

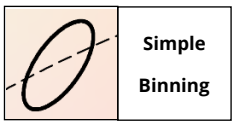
The strip also supports the unique service/certification by Yujileds® as described below.

TM-30 specification

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

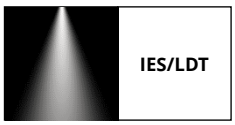
TLCI specification

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	Voltage (DC)	CCT
YJ-VTC-HRB-2835X-24V-2765	F3180004.26	24V	2700K - 6500K
YJ-VTC-HRB-2835X-24V-3256	F3180004.35	24V	3200K - 5600K
YJ-VTC-HRB-2835X-24V-XXXX	F3180004.XX	24V	Custom CCT

Characteristic

Electrical-optical characteristics (T_A = 25°C, 24V DC)

PARAMETER		SYMBOL	VALUE			UNIT
			MIN.	TYP.	MAX.	
Power	**per meter**	-	14.85	-	18.15	W
Luminous flux(1)	**per meter**	Φ_{2700K}	-	500	-	lm
		Φ_{3200K}	-	500	-	
		Φ_{5600K}	-	600	-	
		Φ_{6500K}	-	600	-	
Color rendering index		Ra	95(2)	-	-	-
TCS R9 (CRI red)		R9	-	90	-	-
Fidelity index(3)		Rf	-	97	-	-
Gamut index(3)		Rg	-	100	-	-
TLCI 2012(4)		-	-	99	-	-
View angle		$2\theta_{1/2}$	-	120	-	Deg

(1). Tested by goniophotometer with one-meter cut.

(2). Ra minimum 93 at 6500K.

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

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

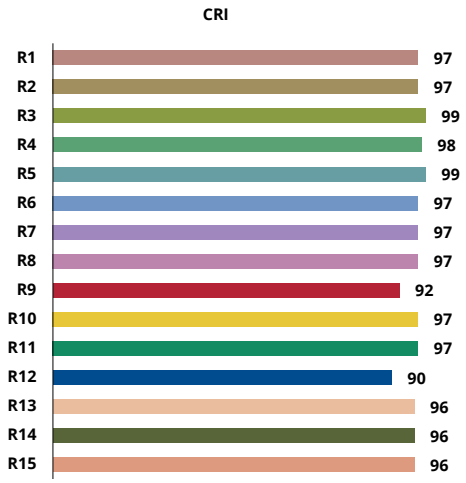
Luminous intensity distribution and illuminance(1) (T_A = 25°C, 24V DC, one-meter cut)

CCT	HEIGHT	DIAMETER	AVG. ILLUMINATION	MAX. ILLUMINATION
2700K	1m	305.16cm	47.5 lx	165.7 lx
3200K		302.48cm	46.1 lx	161.0 lx
5600K		313.45cm	48.8 lx	178.1 lx
6500K		311.88cm	51.9 lx	189.5 lx

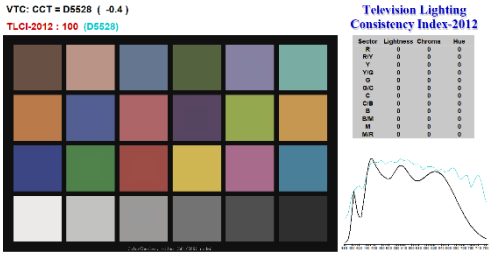
(1). The full luminaire photometric test report (IES/LDT file) can be downloaded from www.yujiintl.com.

Characteristic

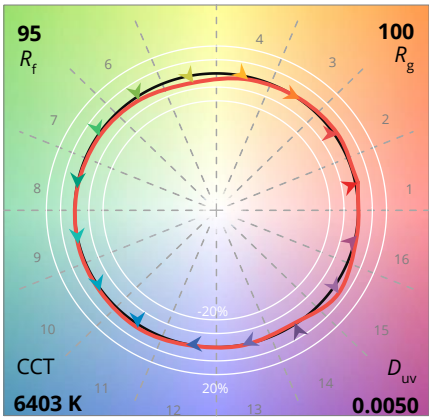
CRI graph (2700K)

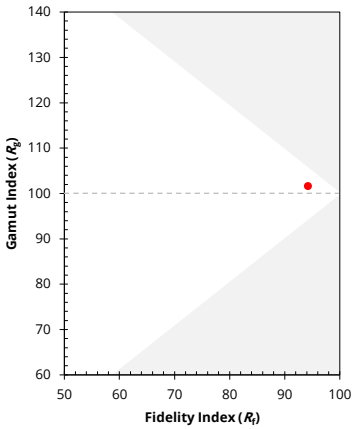


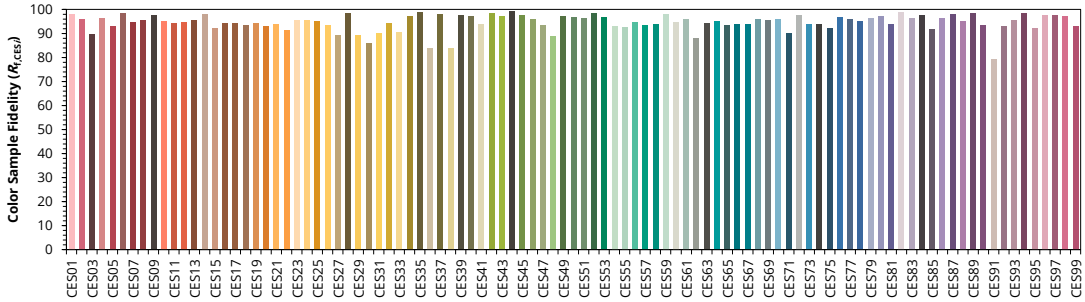
TLCI (5600K)



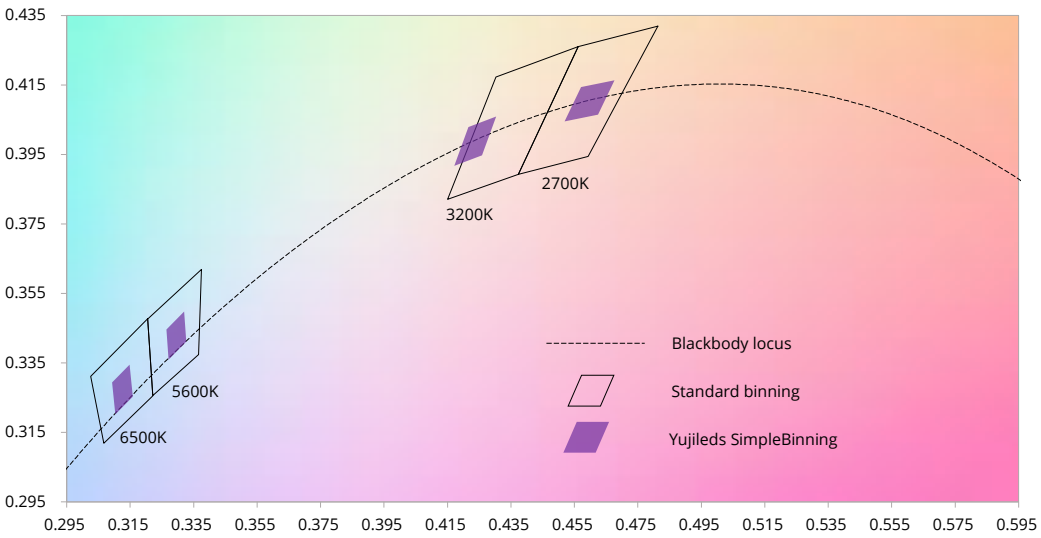
TM-30 graph (6500K)







Chromaticity group and diagram

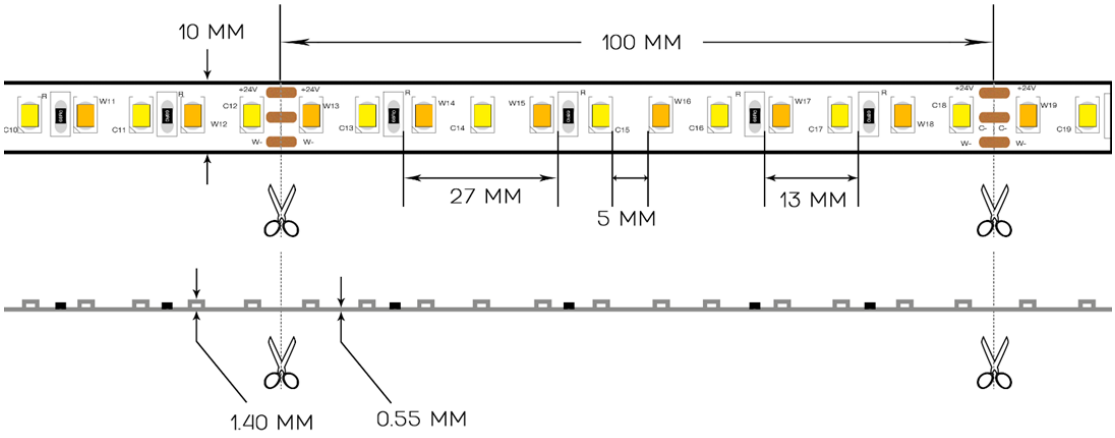


Thermal data

Condition and recommendation:

1. Ambient temperature 25°C, hang in the air without a heatsink.
2. The test devices are thermocouple and infrared imagery.
3. Test after 20 minutes at the hottest spot of the strip.
4. The temperature is typical 58.6°C.
5. A metal-based heatsink is recommended.

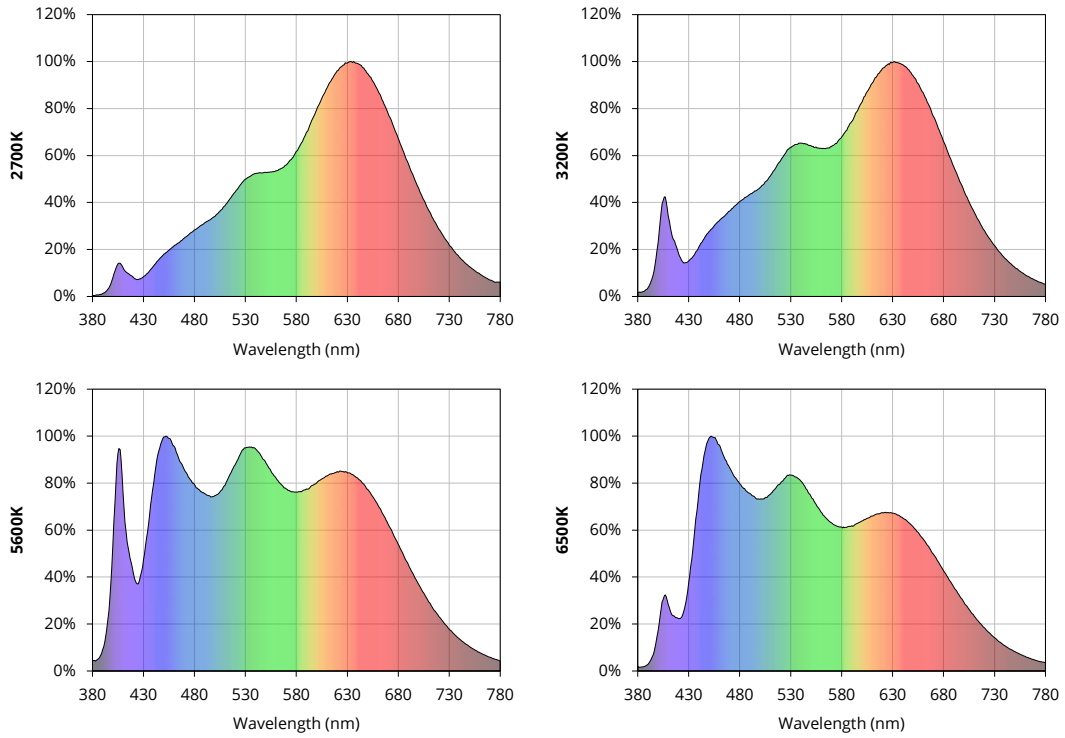
Dimensions



Characteristic graph

Typical spectral power distribution (normalized)

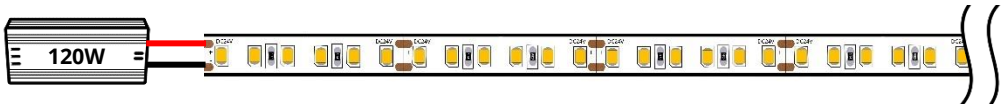
All characteristic curves are for reference only and not guaranteed.



Characteristic graph

Connection and derating (one reel of 5000mm)

1. Single-ended side connection



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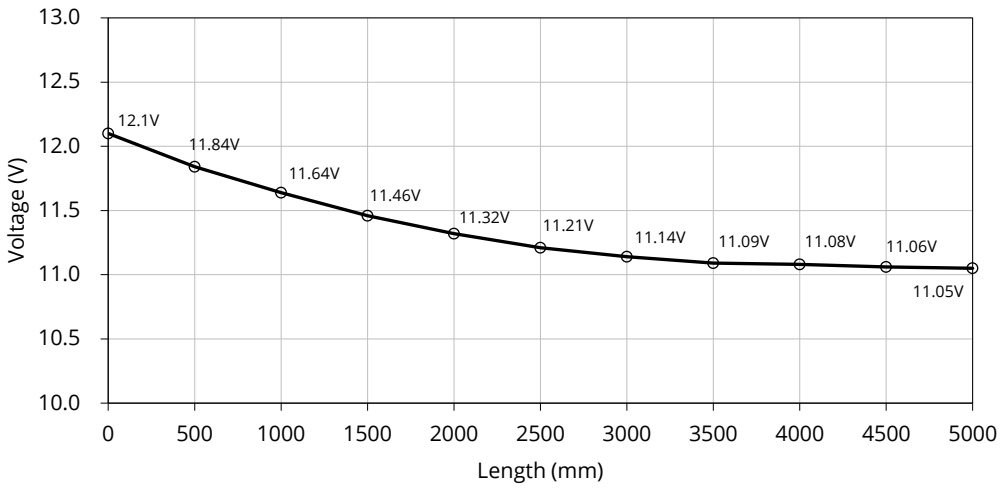
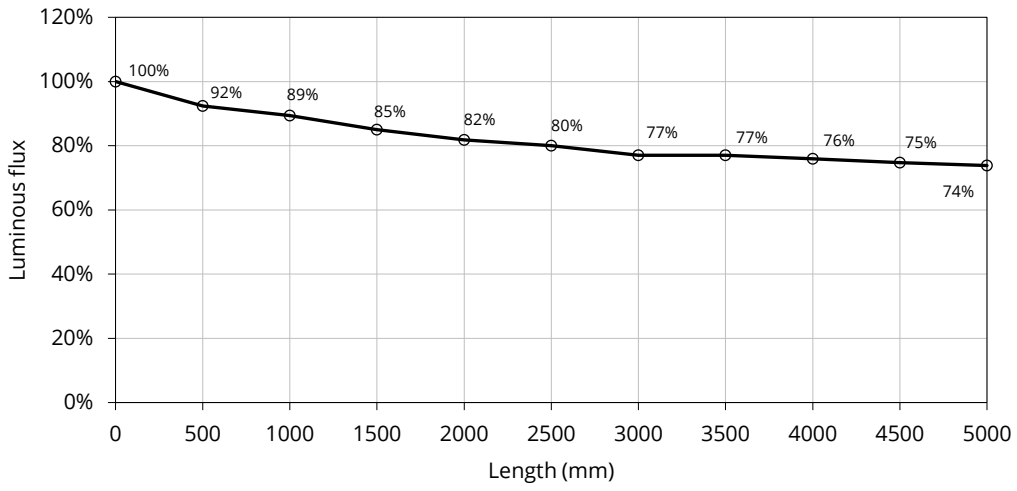
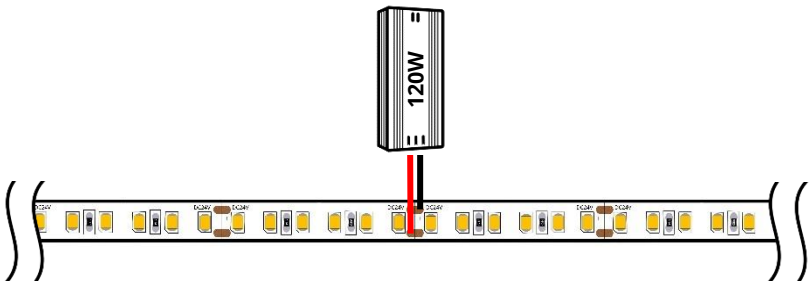




Characteristic graph

Connection and derating (one reel of 5000mm) (continued)

2. Single-ended middle connection



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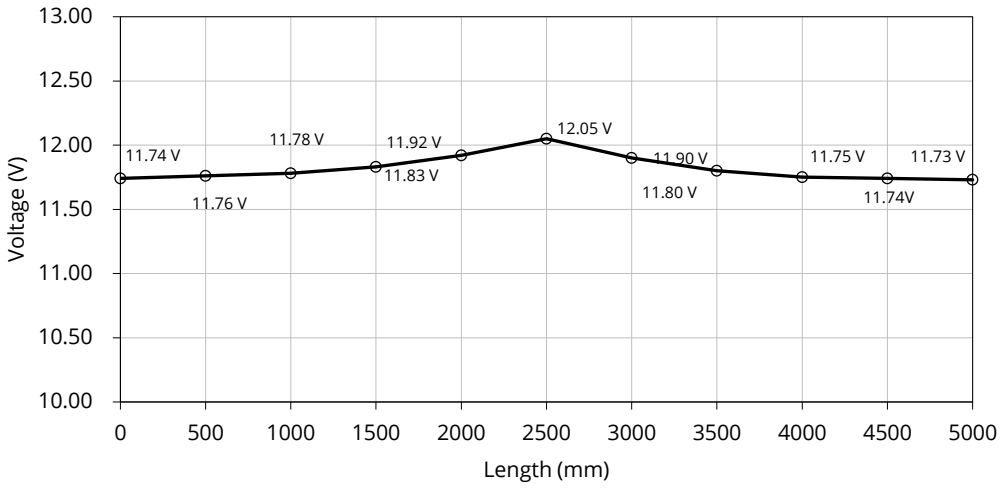
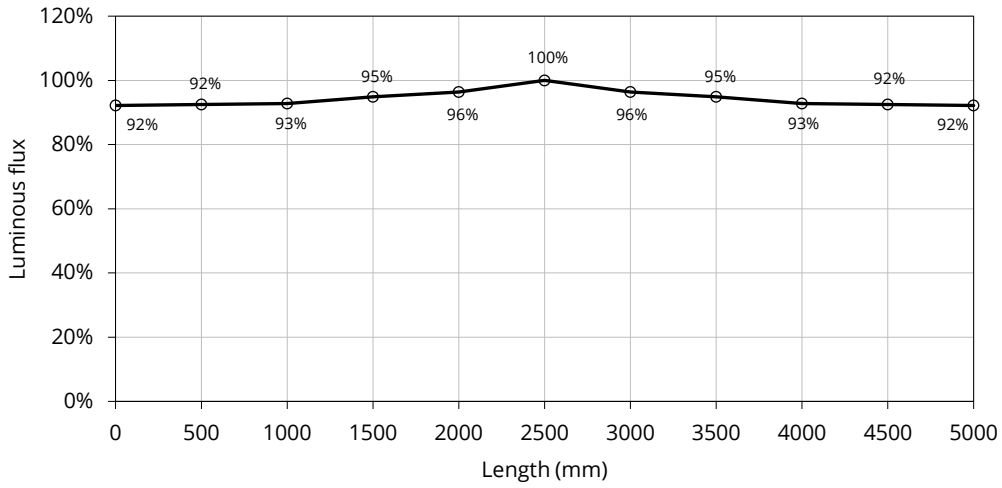
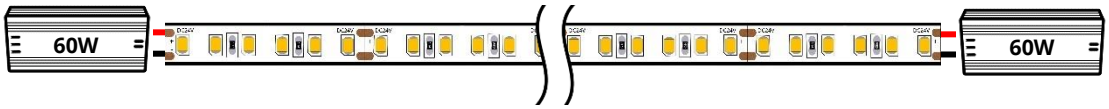




Characteristic graph

Connection and derating (one reel of 5000mm) (continued)

3. Double-ended connection (1/2 power supply at each side)



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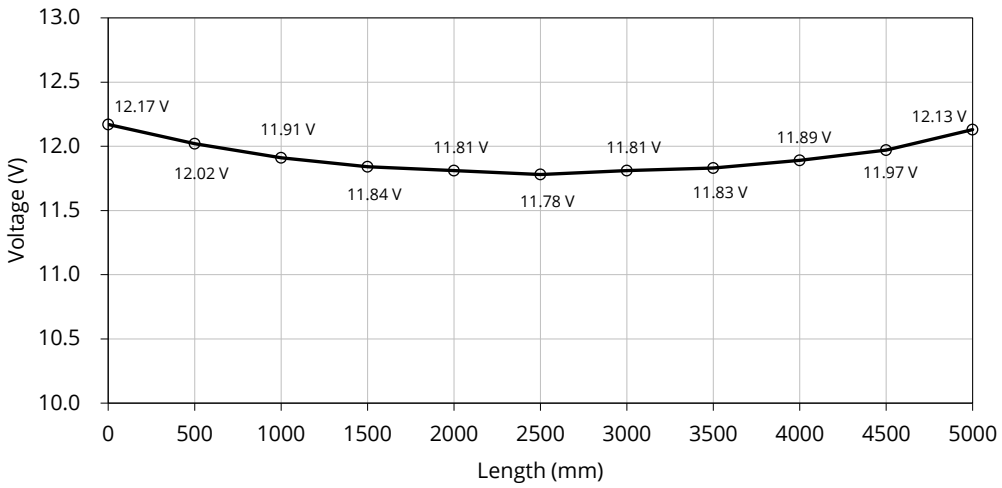
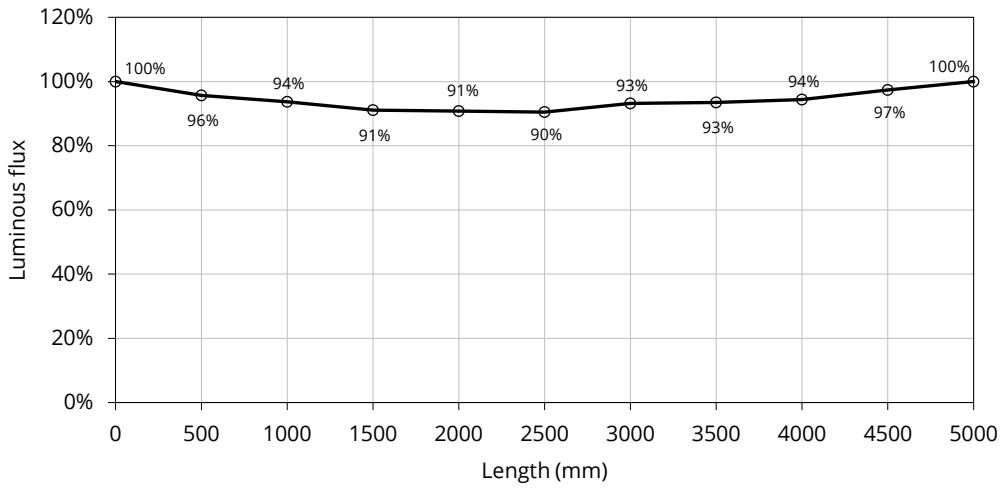




Additional notes

Selecting power supply

The wattage / amperage requirement is directly proportional to the length of LED flexible strip installed. Calculate the power requirement by multiplying the total length in meters by the maximum wattage or amperage per meter. For additional power supply stability, we recommend specifying 25% additional power capacity above the requirement. For example, a 5 meter length would require 5 meters x 18W / meter = 90W; for power supply stability, we would recommend a power supply that is capable of supplying at least 112.5W (90W + 25% * 90W).

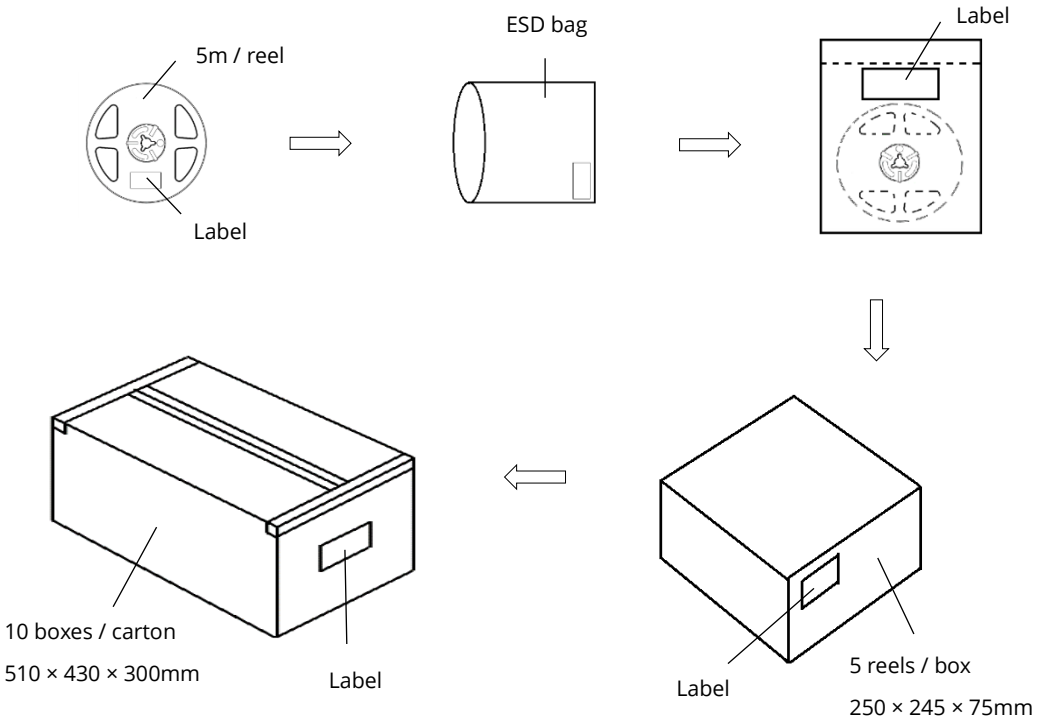
Dimming

Our LED flex strips are compatible with 1-10V and PWM dimming systems.

Heat management

Heatsinking is not necessary if product is used in standard indoor environments where ambient temperatures do not exceed 50°C. Our testing at Ta = 25°C shows LED solder point temperatures stabilizing at 50-60°C. Maximum allowed LED solder point temperature is 105°C.

Box packaging



- Each inner box contains up to 5 reels (total maximum length is 25m). Box package size: 250 mm × 245 mm × 75 mm.
- Each outer package contains 10 inner boxes. Box size: 510 mm × 430 mm × 300 mm.
- Outer package is sealed with protective bubble wrap and foam. (Part numbers, lot numbers, quantity should appear on the label on the moisture-proof bag, part numbers).
- This packaging merely intended as a reference for standard quantity orders only – please note that actual packaging can differ depending on the order circumstances.

About Yujileds

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 - Yujileds®, stands for high-performance LED.

The trademark of Yujileds® 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, aminals, 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