



P3210004.00

Surface Mount Device



Applications

- Hyperspectral device
- Reference / Background light source
- Spectral tuning and calibration
- Visible and infrared optical analyser

Features

- Full-spectrum coverage between 350nm – 1000nm
- Homogeneous spectral power distribution
- 5.0mm × 5.0mm package
- Enhanced optical radiation density

[About Yujileads[®]](#)

Document Number: YJWJ141

Rev Version: 2.0

P3210004.00

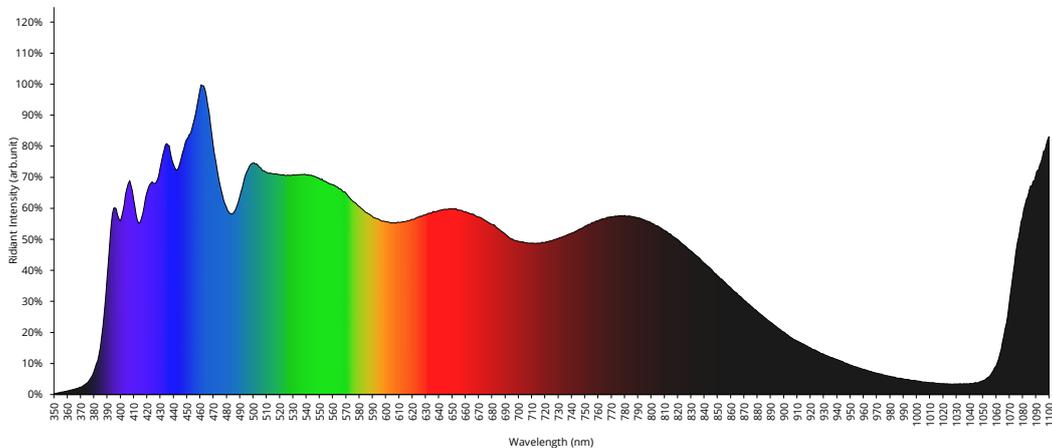
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General description

The advantage of solid-state LED lighting technology is not only spectral diversity, but also the compactability in light-emitting surface (LES). Compact LES could increase more spaces for device engineer in the secondary optical design to collimate, focus or diverge the light. During the optical path, the majority of light will be inevitably wasted by shading, scattering, absorption and other undesirable mechanisms. So, sufficient initial radiant flux of the light source is also essential in those optical systems.

This LED was developed to provide broad wavelength coverage, flat spectral shape and high radiant flux density for scientific research and industrial inspection applications.



- Caution.**
 This full-spectrum LED is designed and considered for non-visual and non-human-centric purpose, the potential biological risk due to the spectral content of UV is reminded and emphasized here. Users should well understand the risk and take appropriate protections when applying this LED.

This LED also supports the unique service/certification by Yujileds® as described below.



RoHS 2011/65/EU compliance



CE compliance

Ordering information

PRODUCT CODE	CCT	CHROMATICITY BINS	VOLTAGE RANGE
P3210004.01	7500K	-	0.2V

Characteristics

Electrical-optical characteristics ($T_A = 25^\circ\text{C}$, 400mA)

PARAMETER	SYMBOL	VALUE			UNIT	TOLERANCE
		MIN.	TYP.	MAX.		
Forward voltage	V_F	-	9	-	V	± 0.1
Luminous flux	Φ_v	-	130	-	lm	-
Radiant flux	Φ_e	-	900	-	mW	-
Correlated color temperature¹	CCT	-	7500	-	K	-
Color rendering index	Ra	-	95	-	-	± 1
Reverse current	I_r	-	-	10	μA	± 0.1 ($V_r = 10\text{V}$)
View angle	$2\theta_{1/2}$	-	120	-	Deg	± 5

1. CCT is listed for reference only.

Absolute maximum ratings ($T_A = 25^\circ\text{C}$)

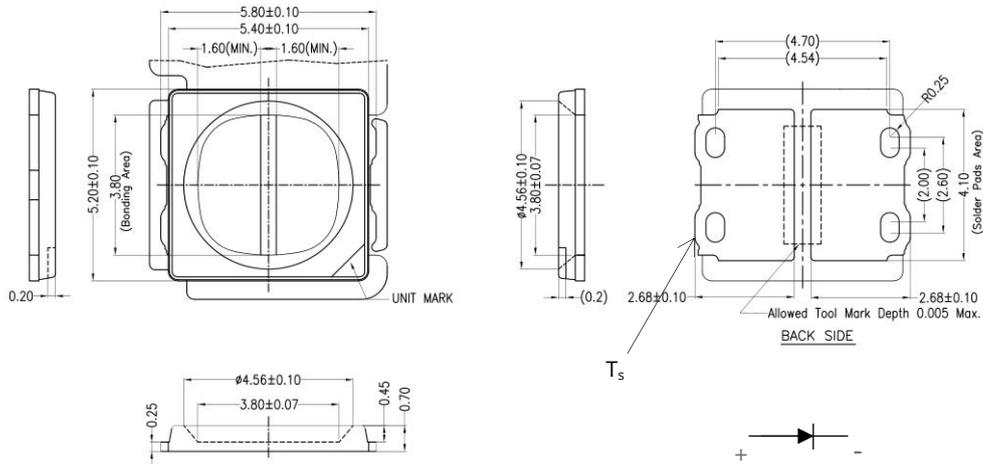
PARAMETER	SYMBOL	LIMIT	UNIT
Power Consumption	P_D	5400	mW
DC Forward Current (pulsed)¹	I_{FP}	720^2	mA
DC Forward Current	I_F	600	mA
Reverse Voltage	V_R	12	V
Junction Temperature³	T_j	105	$^\circ\text{C}$
Solder Point Temperature³	T_s	65	$^\circ\text{C}$
Operating Temperature	T_{opr}	-25 ~ +60	$^\circ\text{C}$
Storage Temperature	T_{stg}	-30 ~ +85	$^\circ\text{C}$
Soldering Temperature	T_{sol}	260 ± 5	$^\circ\text{C}$
Reflow Cycles Allowed	-	2	-

1. Pulse width $\leq 0.1\text{ms}$, duty $\leq 1/10$.
2. Theoretical data.
3. Recommend to control as lower as possible to 25°C to ensure the best optical performance in the long term, see page [Package material and dimension](#).

Package material and dimension

Package layout

All dimensions in mm, tolerance unless mentioned is ± 0.1 mm.



Package materials

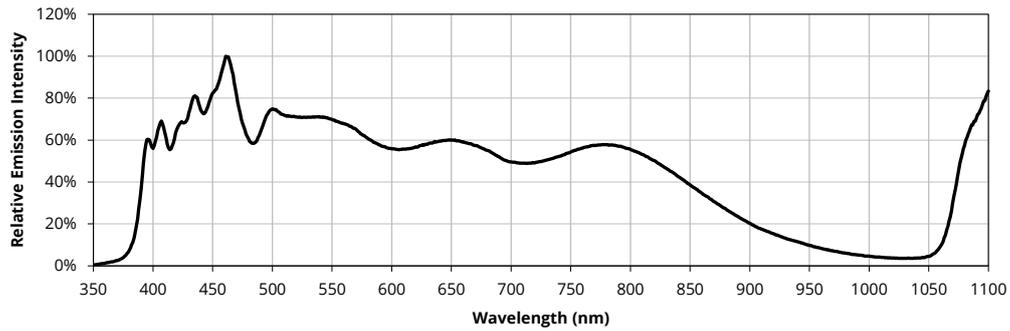
ITEM	DESCRIPTION
Die material	InGaN
Lead frame material	EMC
Encapsulant resin material	Silicon + Phosphor
Electrodes material	Silver-plated copper

Characteristic graph

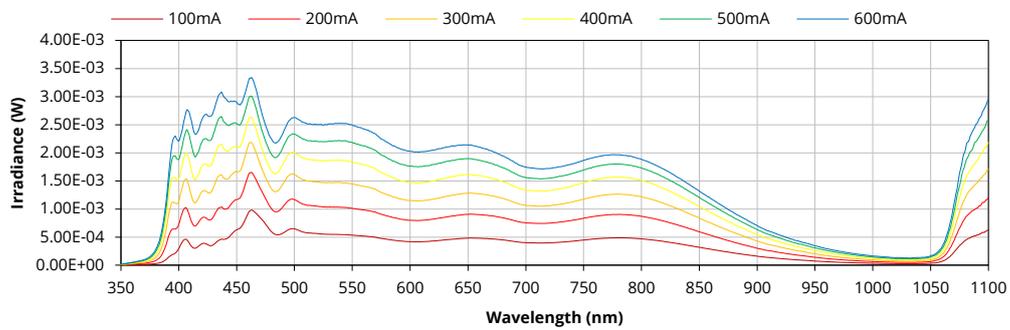
Typical spectral power distribution

All characteristic curves are for reference only and not guaranteed.

Normalized



Absolute by different currents



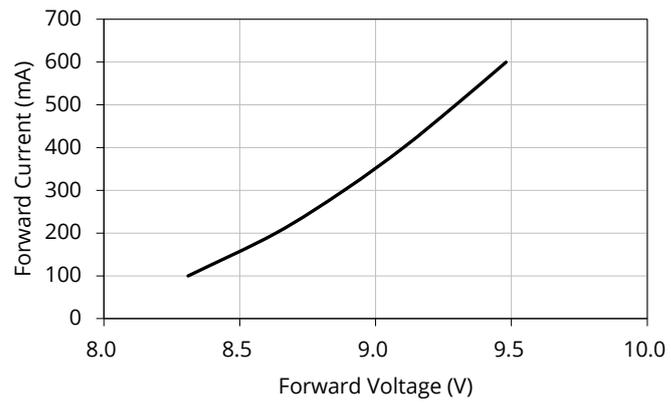
Characteristic graph

Forward current

All characteristic curves are for reference only and not guaranteed.

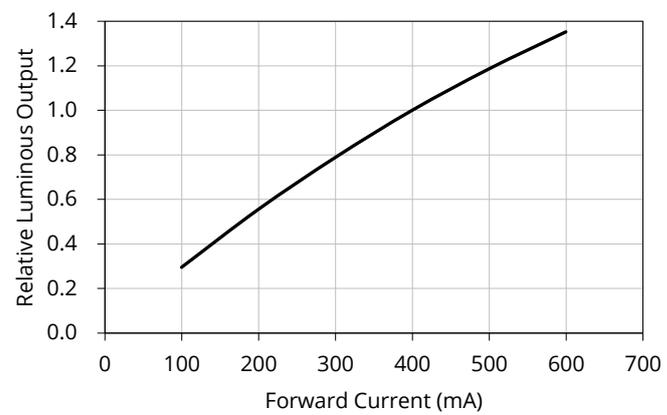
Vs. forward voltage

(T_A = 25°C)



Vs. relative luminous flux

(T_A = 25°C)



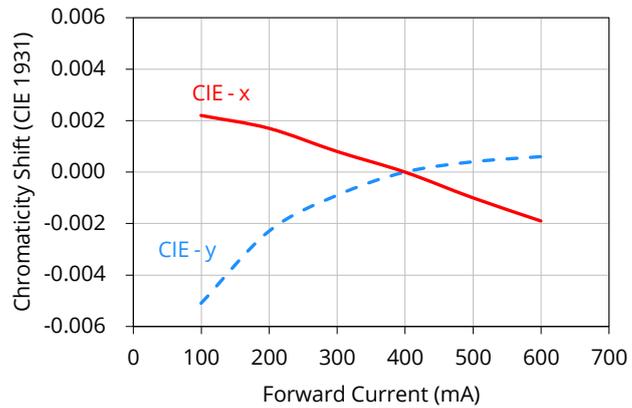
Characteristic graph

Forward current (continued)

All characteristic curves are for reference only and not guaranteed.

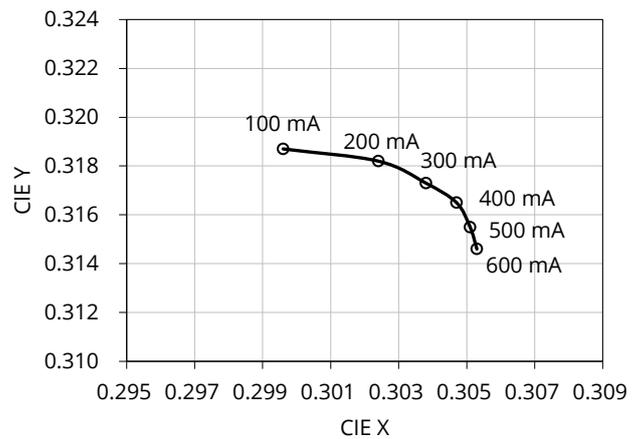
Vs. relative chromaticity shift

($T_A = 25^\circ\text{C}$)



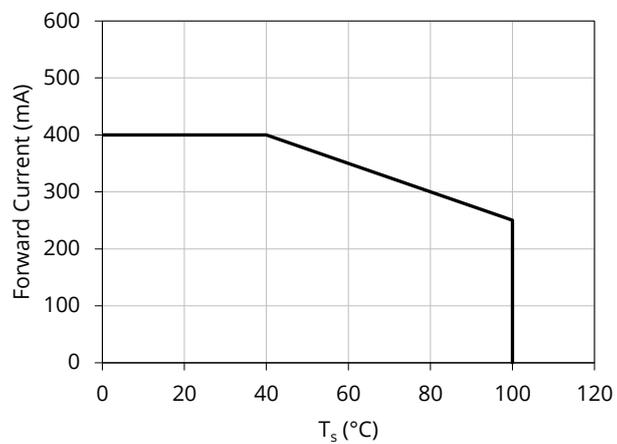
Vs. absolute chromaticity shift

($T_A = 25^\circ\text{C}$)



Derating based on solder point

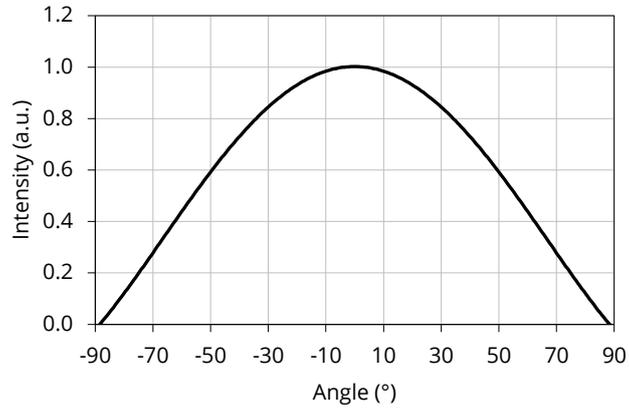
Note: De-rating curves are meant for recommendation only and are not meant to provide guarantees of product stability and longevity.



Characteristic graph

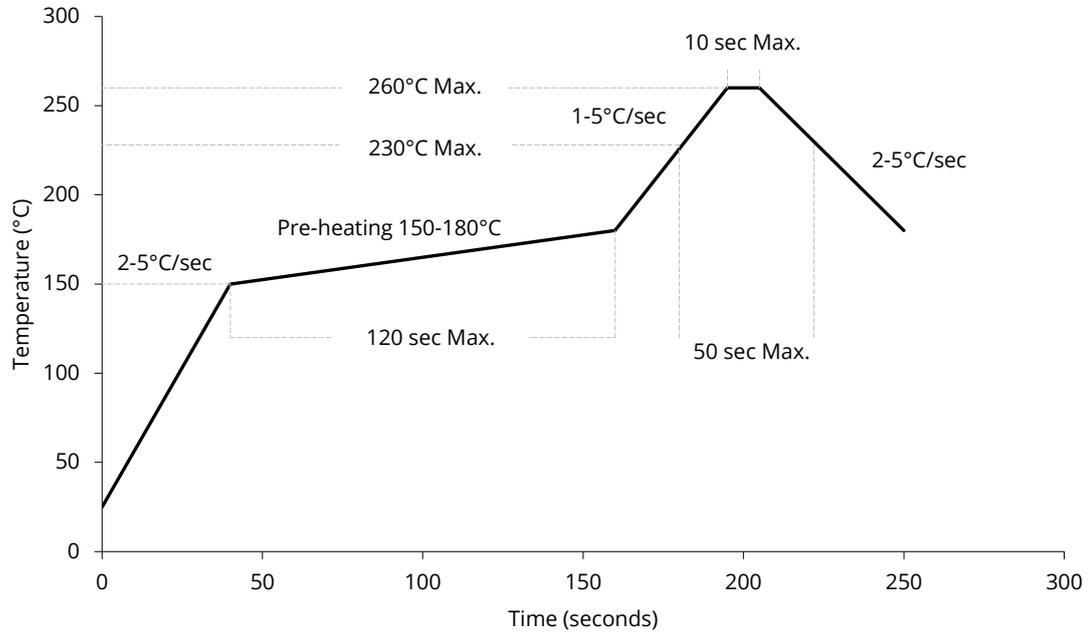
Spatial distribution ($T_A = 25^\circ\text{C}$, $I_F = 400\text{ mA}$)

All characteristic curves are for reference only and not guaranteed.



Reflow profile

Soldering ramp-up time (Pb-FREE).



Note: Soldering paste with the melting point at 230°C is recommended.

SMT instruction

Problems caused by improper selection of collet

Choosing the right collet is important in ensuring product quality after SMT. LEDs are different from other electronic components, as they are not only concerned with electrical output but also optical output. This characteristic makes LEDs more fragile in the process of SMT. If the collet's lowering height is not well set, it will bring damage to the gold wire at the time of collet's pick-and-place process which can cause the LED to not illuminate, flicker or contribute to other quality problems, some of which may not be immediately detectable.

Collet selection

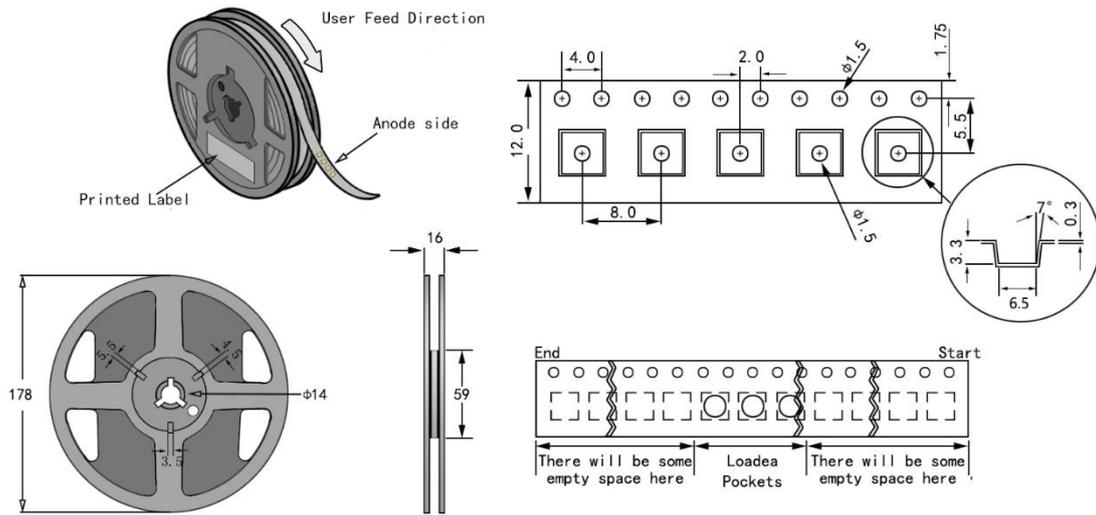
During SMT, please choose the appropriate collet in order to avoid damage the gold wire inside the LED or insufficient suction. Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

Other notes of caution

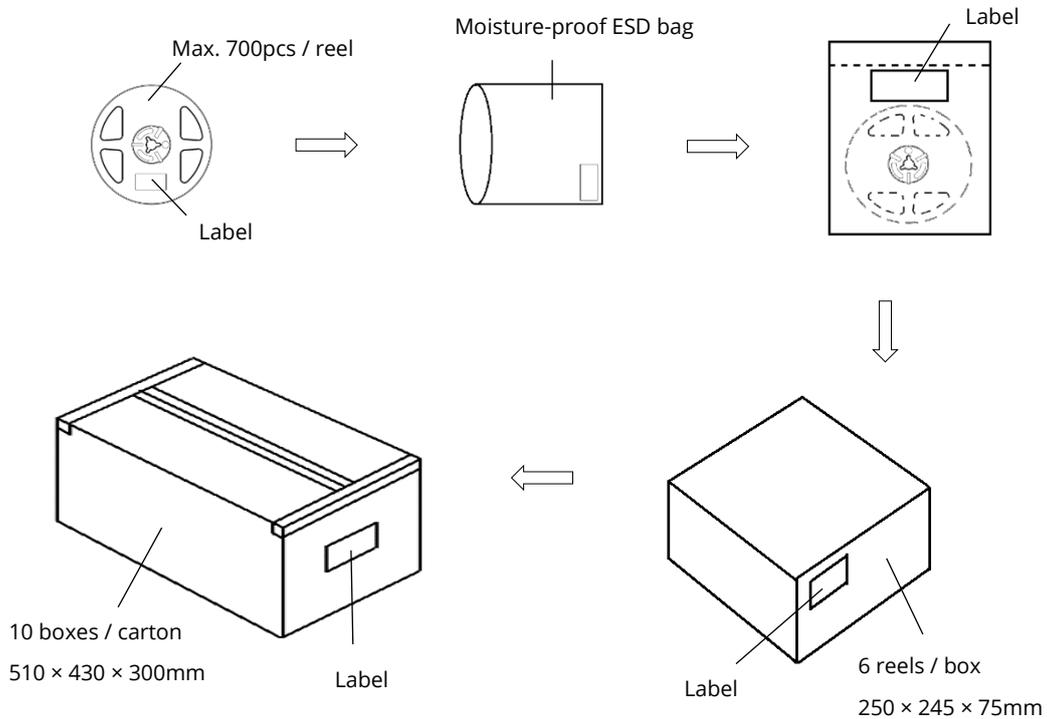
- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD package.
- This usage and handling instructions are for reference only.

Tape and reel specifications

Dimensions (unit: mm)



Box packaging



- Reeled products (max 700pcs / reel) are packed in a moisture-proof bag along with a moisture desiccant pack.
- Each inner box contains up to 6 moisture-proof bag (total maximum number of SMDs is 4200pcs). 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



The Yuji story

Yuji started with LED phosphor materials in 2006, and today we are known for nitride red LED phosphor with superior brightness and stability in the world. With the rapid growth in LED industry during the past years, we have serviced over 260 business customers in over 33 different countries or regions, and established subsidiaries or distributors in 6 locations including China, US, UK and Japan, now we are reaching the global markets with the full coverage efficiently.

Our capabilities and achievements

In Yujileds®, we are a group of people passionate in creating the maximum value for customers. Dedicated to developing LED phosphor, LED light source and final products, we have accumulated unique experience in different projects. Nowadays, over 30 experts are gathered in a variety of areas including but not limited to semiconductor, chemistry, optics, photoelectricity, circuitry, materials and color science.

In commercial markets, we have been dedicating to providing comprehensive solutions for specific applications by deeply understanding these markets. Our goal is not only to offer an LED product simply but is to grow with customers and share the success of a business.

Main website: www.yujiintl.com

Find the comprehensive introduction of Yuji company and our insights into a variety of advanced technologies and applications.

Contact: info@yujigroup.com

Subordinative website: www.yujileds.com

Find more about our products, technical posts, featured support and service, blogs, news and whatever interesting and practical information.

Contact: contact@yujileds.com

Online shop: store.yujiintl.com

Find your favorite Yujileds® products with outstanding quality, fast shipment and superb sale service.

Contact: webstore@yujigroup.com