



# YJ-VTC-5730-G01-D50

## High CRI LED

### PRODUCT:

5730 SURFACE MOUNT LED VTC  
ISO3664:2009 compliant partly

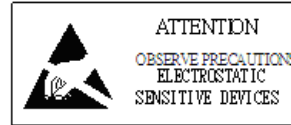
### FEATURES:

5.7 mm × 3.0 mm × 0.8 mm surface-mount LED  
120° emission angle  
95 min Ra



### DESCRIPTION

Yuji LED's VTC 5730 SMD provides true full spectrum coverage and ultra high CRI using violet die technology. Providing 98 CRI (typical), this mid-power LED can be used in a variety of applications demanding high color quality and performance.



ELECTRICAL-OPTICAL CHARACTERISTICS (T <sub>c</sub> = 25 °C)							
PARAMETER	SYMBOL	VALUE			UNIT	TOLERANCE	CONDITION
		MIN.	TYP.	MAX.			
Forward Voltage	V <sub>f</sub>	3.1	--	3.7	V	±0.05	I <sub>f</sub> =120mA
Luminous flux	Φ <sub>D50</sub>	27	--	32	lm	--	I <sub>f</sub> =120mA
Color temperature	CCT <sub>D50</sub>	4700	5000	5300	K	--	I <sub>f</sub> =120mA
Color rendering index	R <sub>a</sub>	95	98	--	--	±1	I <sub>f</sub> =120mA
TCS R9 (CRI Red)	R <sub>9</sub>	--	90	--	--	--	I <sub>f</sub> =120mA
Chromaticity coordinates	(X,Y)	--	--	--	--	±0.005	--
Reverse Current	I <sub>r</sub>	--	--	10	μA	±0.1	V <sub>r</sub> =5V
Viewing angle	2θ <sub>1/2</sub>	--	120	--	Deg	±5	I <sub>f</sub> =120mA
Thermal resistance	R <sub>θJS</sub> *	--	23	--	°C/W	--	I <sub>f</sub> =120mA

\*This data is for reference only.

VOLTAGE BIN CODES						
Bin	V31	V32	V33	V34	V35	V36
V <sub>F</sub>	3.1-3.2	3.2-3.3	3.3-3.4	3.4-3.5	3.5-3.6	3.6-3.7



<b>ABSOLUTE MAXIMUM RATING (T<sub>c</sub> = 25 °C)</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>LIMIT</b>	<b>UNIT</b>
Power Consumption	P <sub>D</sub>	510	mW
DC Forward Current (pulsed)*	I <sub>Fp</sub>	300**	mA
DC Forward Current	I <sub>F</sub>	150	mA
Reverse Voltage	V <sub>R</sub>	5	V
Junction Temperature	T <sub>j</sub>	150	°C
Solder Point Temperature***	T <sub>s</sub>	105	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-30 ~ +100	°C
Soldering Temperature	T <sub>sol</sub>	260 ± 5	°C
Reflow Cycles Allowed	--	2	--

\* Pulse width ≤ 0.1ms, Duty ≤ 1/10.

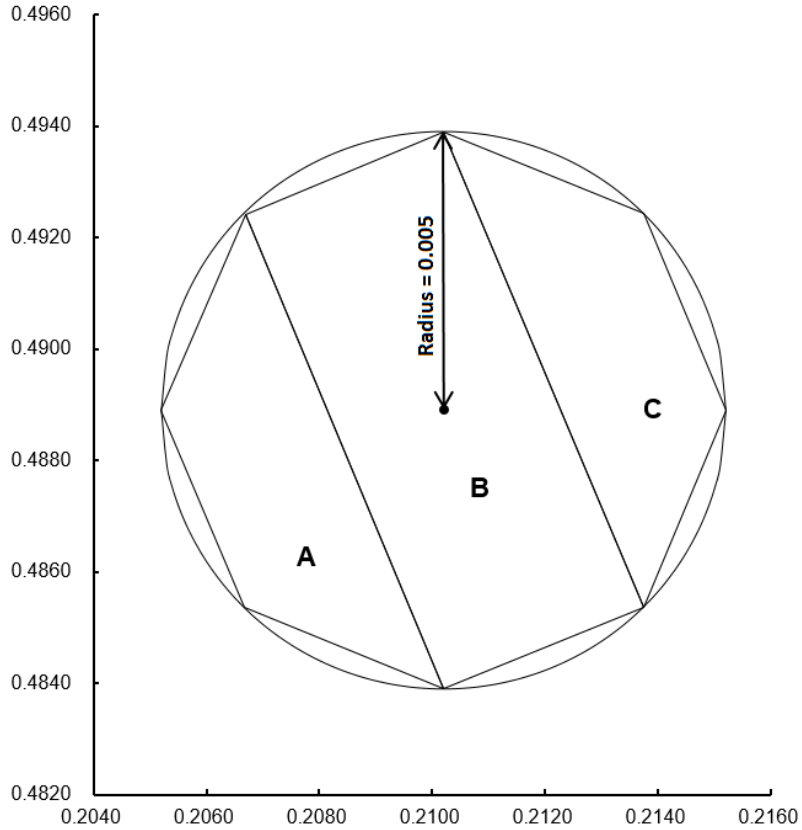
\*\* Theoretical data.

\*\*\* See page 4 for solder point definition.

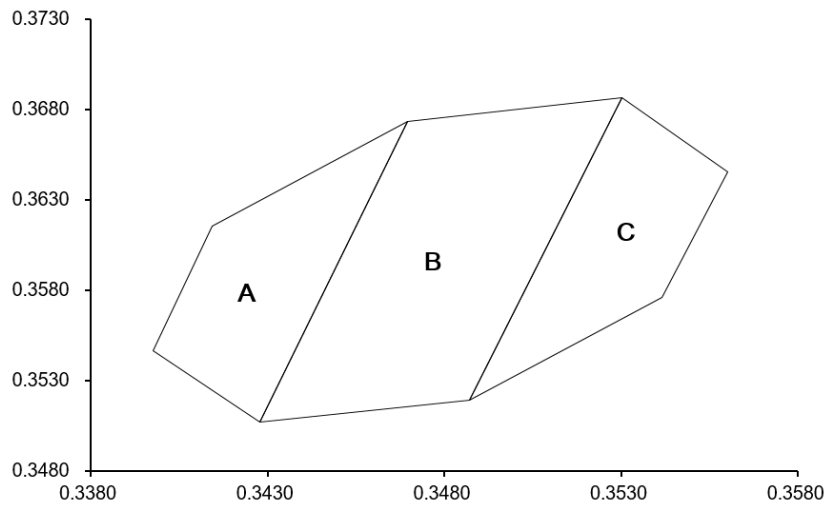
<b>CHROMATICITY BINS &amp; COORDINATES</b>								
<b>CIE 1976 COORDINATES</b>								
Center point	U' <sub>10</sub>				V' <sub>10</sub>			
	0.2102				0.4889			
Tolerance radius	0.005							
Bin code	U'0	V'0	U'1	V'1	U'2	V'2	U'3	V'3
A	0.2067	0.4924	0.2052	0.4889	0.2067	0.4854	0.2102	0.4839
B	0.2067	0.4924	0.2102	0.4839	0.2137	0.4854	0.2102	0.4939
C	0.2137	0.4854	0.2152	0.4889	0.2137	0.4924	0.2102	0.4939
<b>CIE 1931 COORDINATES</b>								
Center point	X <sub>10</sub>				Y <sub>10</sub>			
	0.3478				0.3596			
Tolerance radius	--							
Bin code	X0	Y0	X1	Y1	X2	Y2	X3	Y3
A	0.3470	0.3673	0.3414	0.3616	0.3398	0.3547	0.3428	0.3507
B	0.3470	0.3673	0.3428	0.3507	0.3487	0.3519	0.3530	0.3687
C	0.3487	0.3519	0.3542	0.3576	0.3560	0.3645	0.3530	0.3687

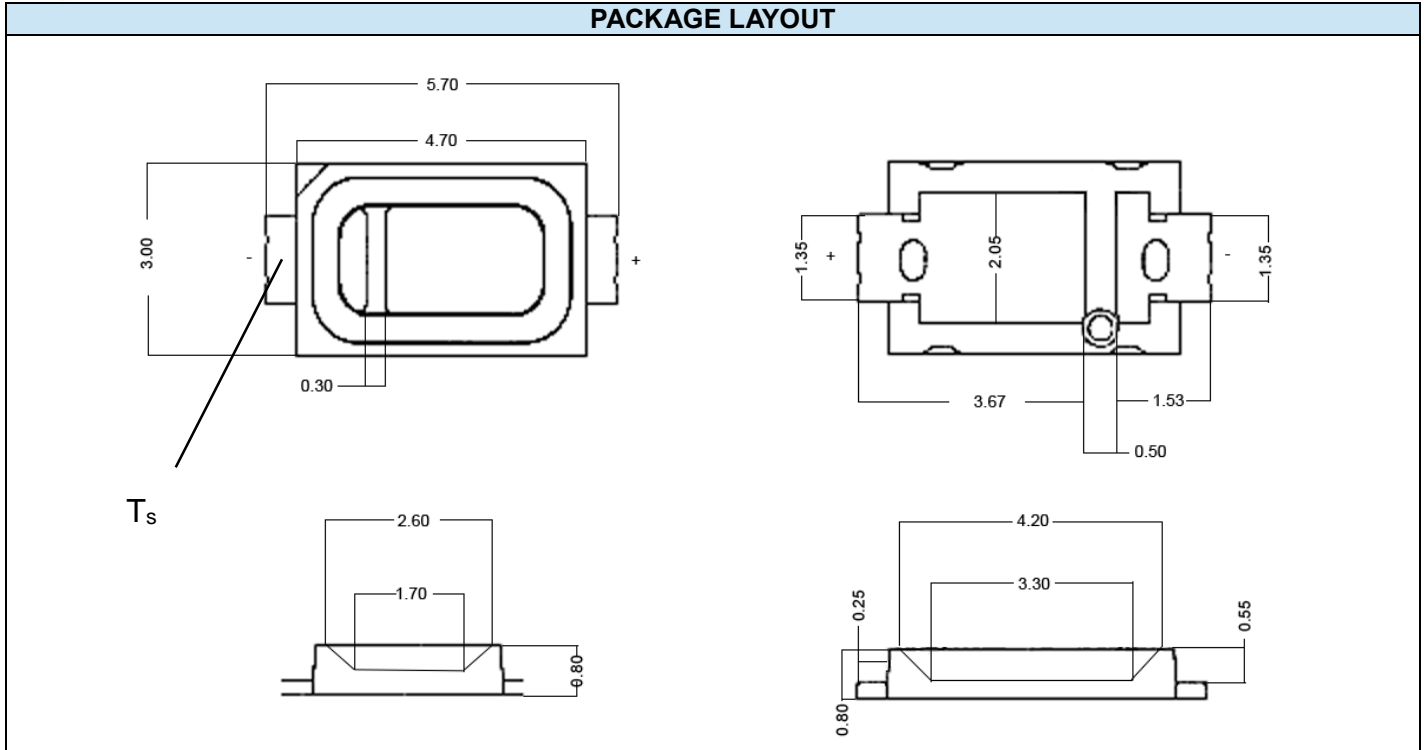
**CHROMATICITY BINS & COORDINATES**

**CIE 1976 COORDINATES**

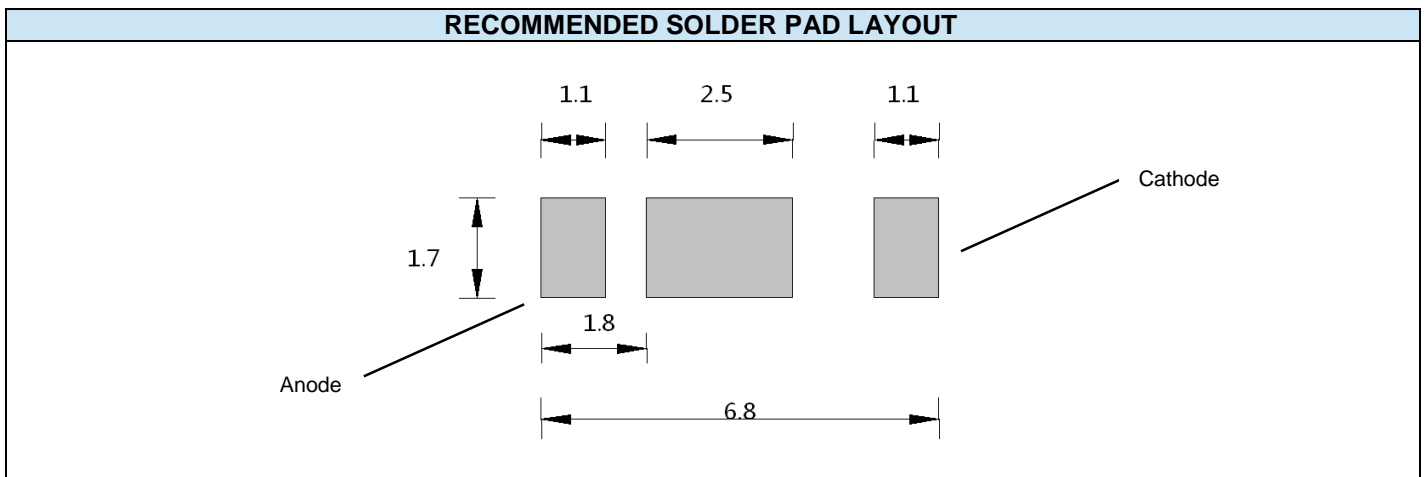


**CONVERT TO CIE 1931 COORDINATES**





<b>PACKAGE MATERIALS</b>	
ITEM	DESCRIPTION
DIE MATERIAL	InGaN
LEAD FRAME MATERIAL	PPA
ENCAPSULANT RESIN MATERIAL	SILICONE + PHOSPHOR
ELECTRODES MATERIAL	SILVER-PLATED COPPER

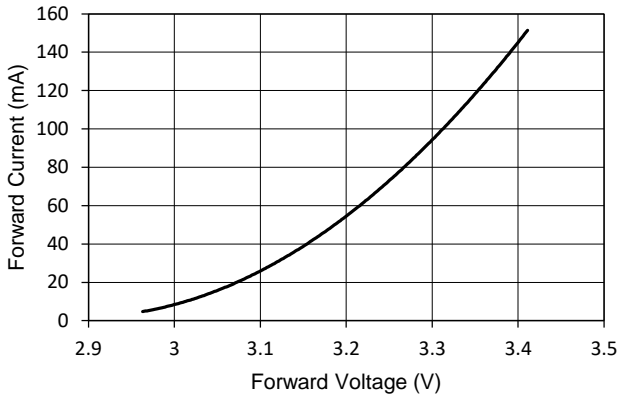




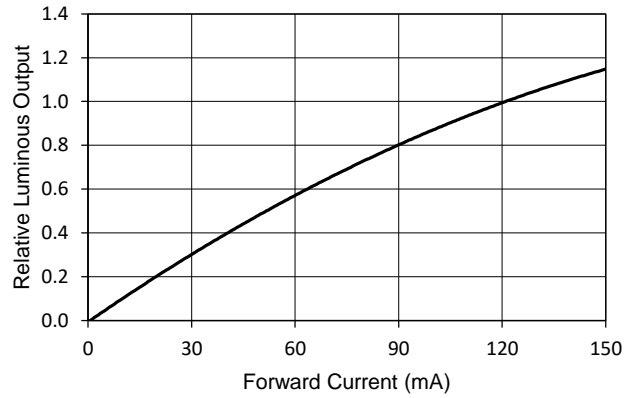
**CHARACTERISTIC CURVES**

ALL CHARACTERISTIC CURVES ARE FOR REFERENCE ONLY AND NOT GUARANTEED

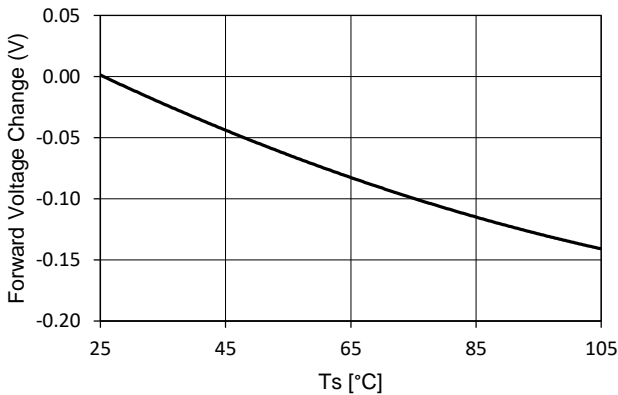
**FORWARD CURRENT VS FORWARD VOLTAGE ( $T_A=25^\circ\text{C}$ )**



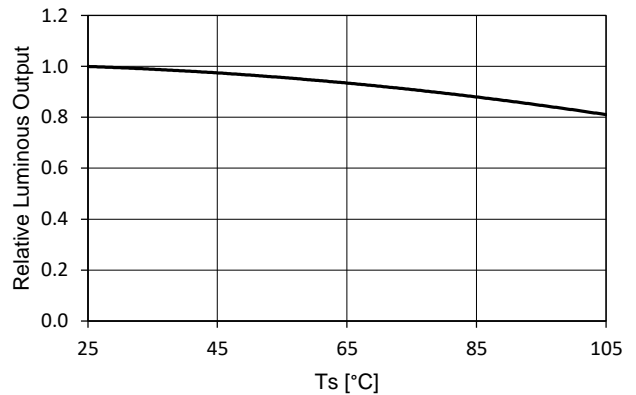
**FORWARD CURRENT VS RELATIVE LUMINOUS OUTPUT ( $T_A=25^\circ\text{C}$ )**



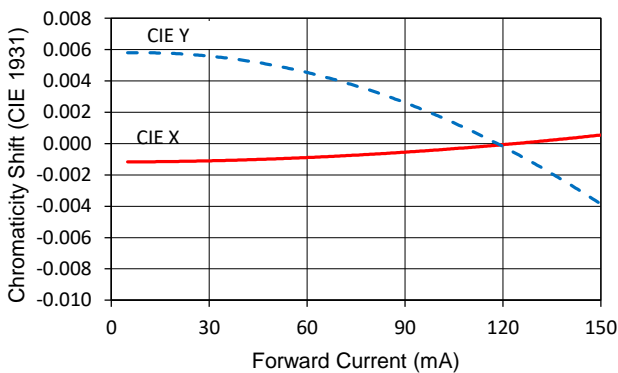
**SOLDER POINT TEMPERATURE VS FORWARD VOLTAGE ( $I_F = 120\text{ mA}$ )**



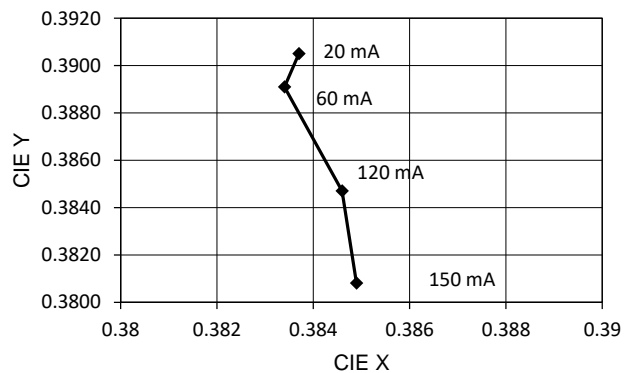
**SOLDER POINT TEMPERATURE VS RELATIVE LUMINOUS OUTPUT ( $I_F = 120\text{ mA}$ )**



**FORWARD CURRENT VS CHROMATICITY SHIFT (4000K,  $T_A=25^\circ\text{C}$ )**

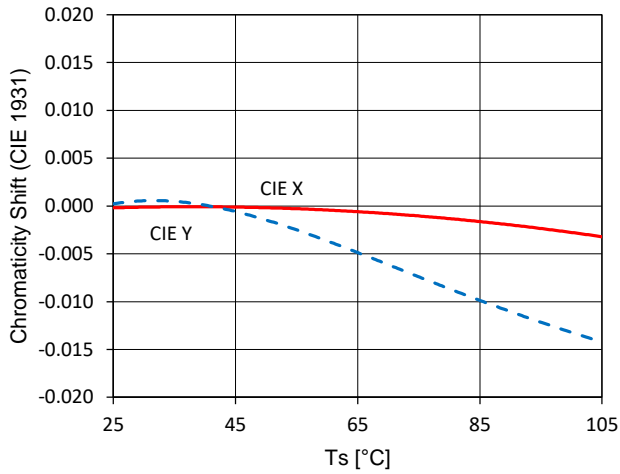


**FORWARD CURRENT VS CHROMATICITY SHIFT (4000K,  $T_A=25^\circ\text{C}$ )**

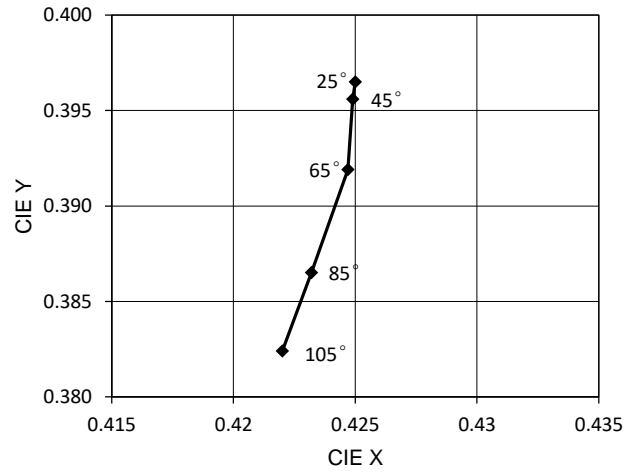


**CHARACTERISTIC CURVES (CONTINUED)**

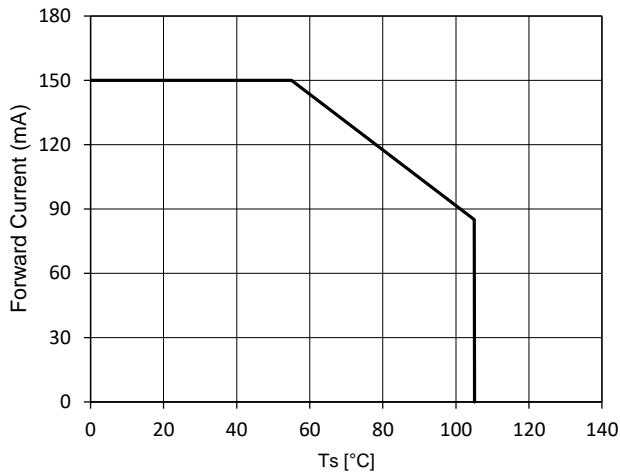
SOLDER POINT TEMPERATURE  
VS CHROMATICITY (3200K,  $I_F = 120$  mA)



SOLDER POINT TEMPERATURE  
VS CHROMATICITY (3200K,  $I_F = 120$  mA)

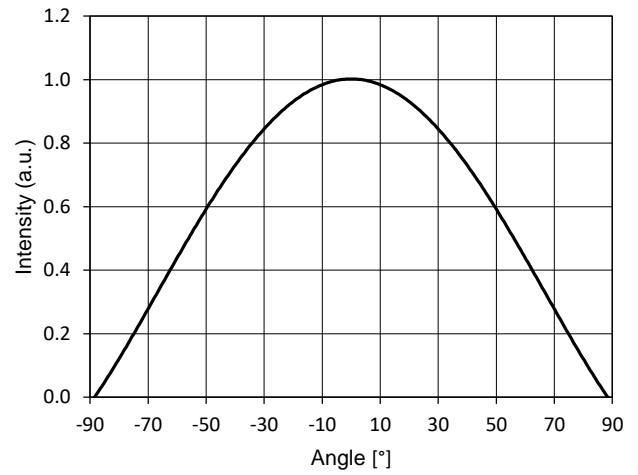


FORWARD CURRENT DERATING BASED ON SOLDER POINT



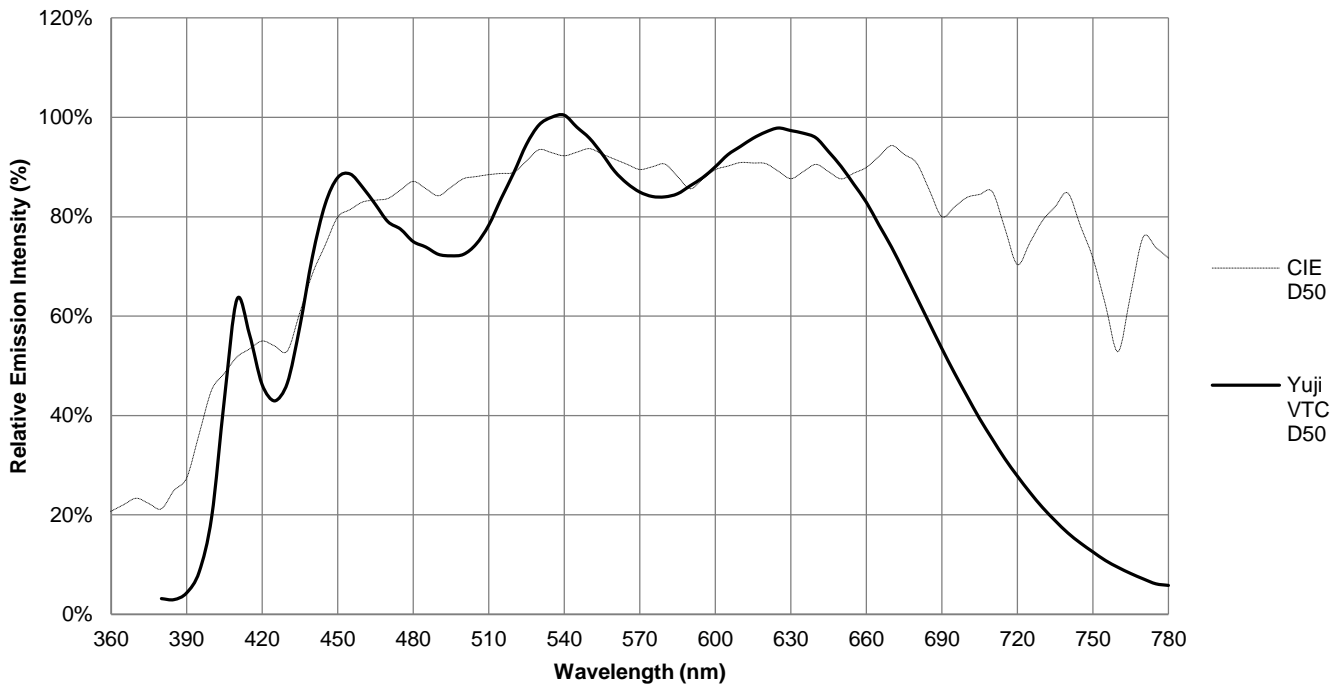
NOTE: DE-RATING CURVES ARE MEANT FOR RECOMMENDATION ONLY AND ARE NOT MEANT TO PROVIDE GUARANTEES OF PRODUCT STABILITY AND LONGEVITY

TYPICAL SPATIAL DISTRIBUTION  
( $T_A = 25^\circ\text{C}$ ,  $I_F = 120$  mA)



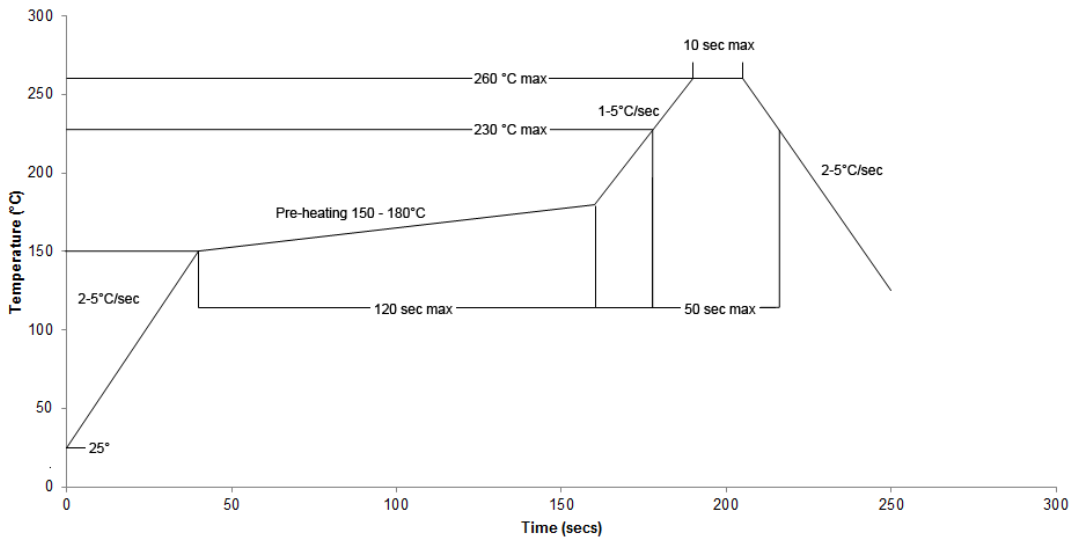


TYPICAL SPECTRAL DISTRIBUTION GRAPHS



REFLOW PROFILE

SOLDERING RAMP-UP TIME (Pb-FREE)



NOTE: Solder paste with the melting point at 230°C is recommended

### INSTRUCTIONS FOR SMT

#### 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 collet that has larger outer diameter than the lighting area of lens, in order to avoid damage the gold wire inside the LED. Different collets fit for different products, please refer to the following figures below.



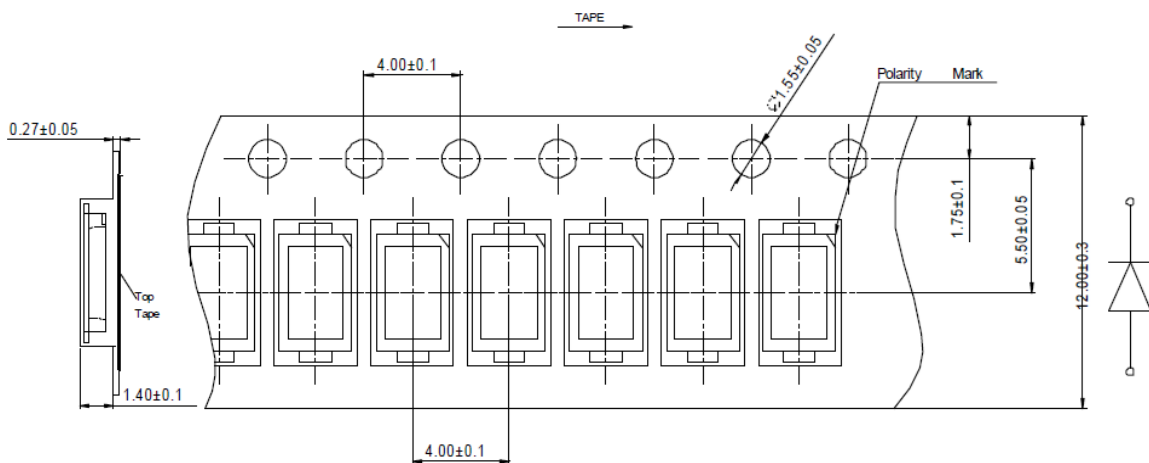
Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

#### 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.

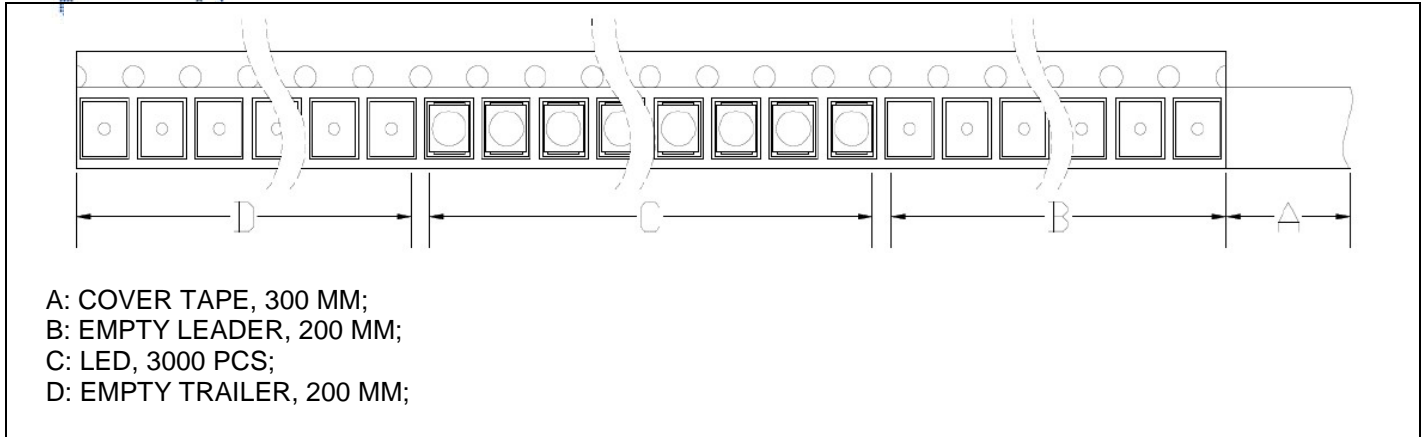
### TAPE SPECIFICATIONS

#### TAPE DIMENSIONS (UNIT: MM)



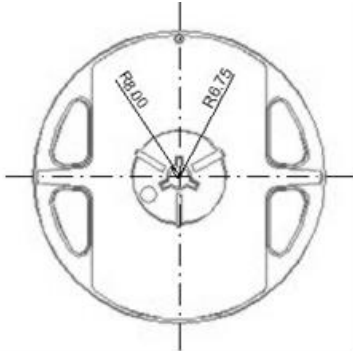
#### TAPE LAYOUT (NOT DRAWN TO SCALE)



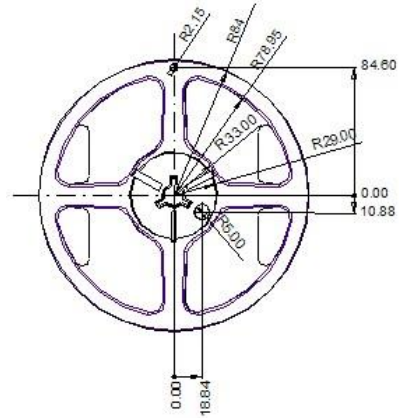


**REEL SPECIFICATIONS**

REEL DIMENSIONS TOP (UNIT: MM)



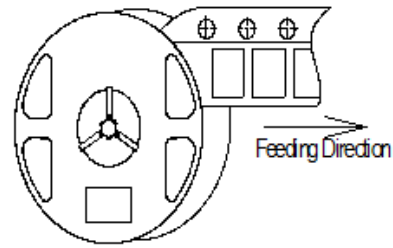
REEL DIMENSIONS BOTTOM (UNIT: MM)



REEL DIMENSIONS SIDE (UNIT: MM)



FEEDING DIRECTION



**LOT NUMBERING SCHEME**

Yuji LED uses two formats for lot numbering purposes:

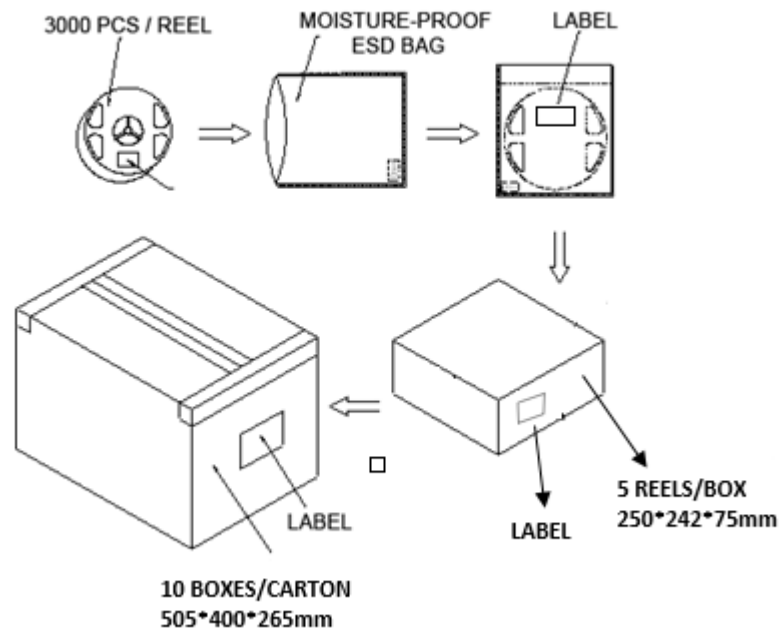
1) YYYY-MM-XXX-Z

YYYY: 4-digit manufacturing year  
MM: 2-digit manufacturing month  
XXX: 3-digit inventory number (000 – 999)  
Z: internal alphanumeric code

2) YYYYMMXXX

YYYY: 4-digit manufacturing year  
MM: 2-digit manufacturing month  
XXX: 3-digit inventory number (000 – 999)

### SHIPPING INFORMATION



#### NOTES:

1. Reeled products (max 3,000 pcs / reel) are packed in a moisture-proof bag along with a moisture desiccant pack.
2. Each inner box contains up to 5 moisture-proof bag of (total maximum number of SMDs is 15,000pcs). Box package size: 250 mm x 242 mm x 75 mm.
3. Each outer package contains 10 inner boxes. Box size: 505 mm x 400 mm x 265 mm.
4. 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).
5. This packaging merely intended as a reference for standard quantity orders only – please note that actual packaging can differ depending on the order circumstances.