



YJ-BC-3030-G01

High CRI LED

PRODUCT:

3030 SURFACE MOUNT LED

FEATURES:

3.0 mm × 3.0 mm × 0.52 mm surface-mount LED

120° emission angle

95 min CRI



DESCRIPTION

Yuji LED's BC Series high CRI 3030 SMD provides a no-compromise high CRI, high efficacy solution in an industry standard PPA package. Providing 95 CRI (min), this mid-power LED can be used in a variety of applications demanding high color quality and performance.



ELECTRICAL-OPTICAL CHARACTERISTICS (T _c = 25 °C)							
PARAMETER	SYMBOL	VALUE			UNIT	TOLERANCE	CONDITION
		MIN.	TYP.	MAX.			
Forward Voltage	V _f	3.0	--	3.4	V	±0.05	I _f =300mA
Luminous flux	Φ _{2700K}	73	--	79	lm	--	I _f =300mA
	Φ _{3200K}	81		87			
	Φ _{4000K}	88		94			
	Φ _{5000K}	94		100			
	Φ _{5600K}	94		100			
	Φ _{6500K}	96		102			
Color temperature	CCT _{2700K}	2550	2700	2850	K	--	I _f =300mA
	CCT _{3200K}	3050	3200	3350			
	CCT _{4000K}	3800	4000	4200			
	CCT _{5000K}	4700	5000	5300			
	CCT _{5600K}	5300	5600	5900			
	CCT _{6500K}	6000	6500	7000			
Color rendering index	R _a	95*	--	--	--	±1	I _f =300mA
TCS R9 (CRI Red)	R ₉	--	70	--	--	--	I _f =300mA
Chromaticity coordinates	(X,Y)	--	--	--	--	±0.005	--
Reverse Current	I _r	--	--	10	μA	±0.1	V _r =5V
Viewing angle	2θ1/2	--	120	--	Deg	±5	I _f =300mA

*Ra minimum 93 at 6500K.

ORDERING INFORMATION			
PART NUMBER	CCT	CHROMATICITY BINS	VOLTAGE RANGE
YJ-BC-3030-G01-27	2700K \pm 150K	F6-1, F9-1, F5-2, F8-2	0.1 V
YJ-BC-3030-G01-32	3200K \pm 150K	F4-2, F7-2, F5-1, F8-1	0.1 V
YJ-BC-3030-G01-40	4000K \pm 200K	D4-1, D4-2, D6-1, D6-2	0.1 V
YJ-BC-3030-G01-50	5000K \pm 300K	C3-2, C5-2, C4-1, C6-1	0.1 V
YJ-BC-3030-G01-56	5600K \pm 300K	B8-2, B10-2, C3-1, C5-1	0.1 V
YJ-BC-3030-G01-65	6500K \pm 500K	B7-1, B9-1, B7-2, B9-2	0.1 V
YJ-BC-3030-GXX-XX	CUSTOM		

VOLTAGE BIN CODES				
Bin	V30	V31	V32	V33
V _F	3.0-3.1	3.1-3.2	3.2-3.3	3.3-3.4

ABSOLUTE MAXIMUM RATING (T _c = 25 °C)			
PARAMETER	SYMBOL	LIMIT	UNIT
Power Consumption	P _D	1350	mW
DC Forward Current (pulsed)*	I _{Fp}	600**	mA
DC Forward Current	I _F	400	mA
Reverse Voltage	V _R	5	V
Junction Temperature	T _j	125	°C
Solder Point Temperature***	T _s	105	°C
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-30 ~ +85	°C
Soldering Temperature	T _{sol}	260 \pm 5	°C
Reflow Cycles Allowed	--	2	--

* Pulse width \leq 0.1ms, Duty \leq 1/10.

** Theoretical data.

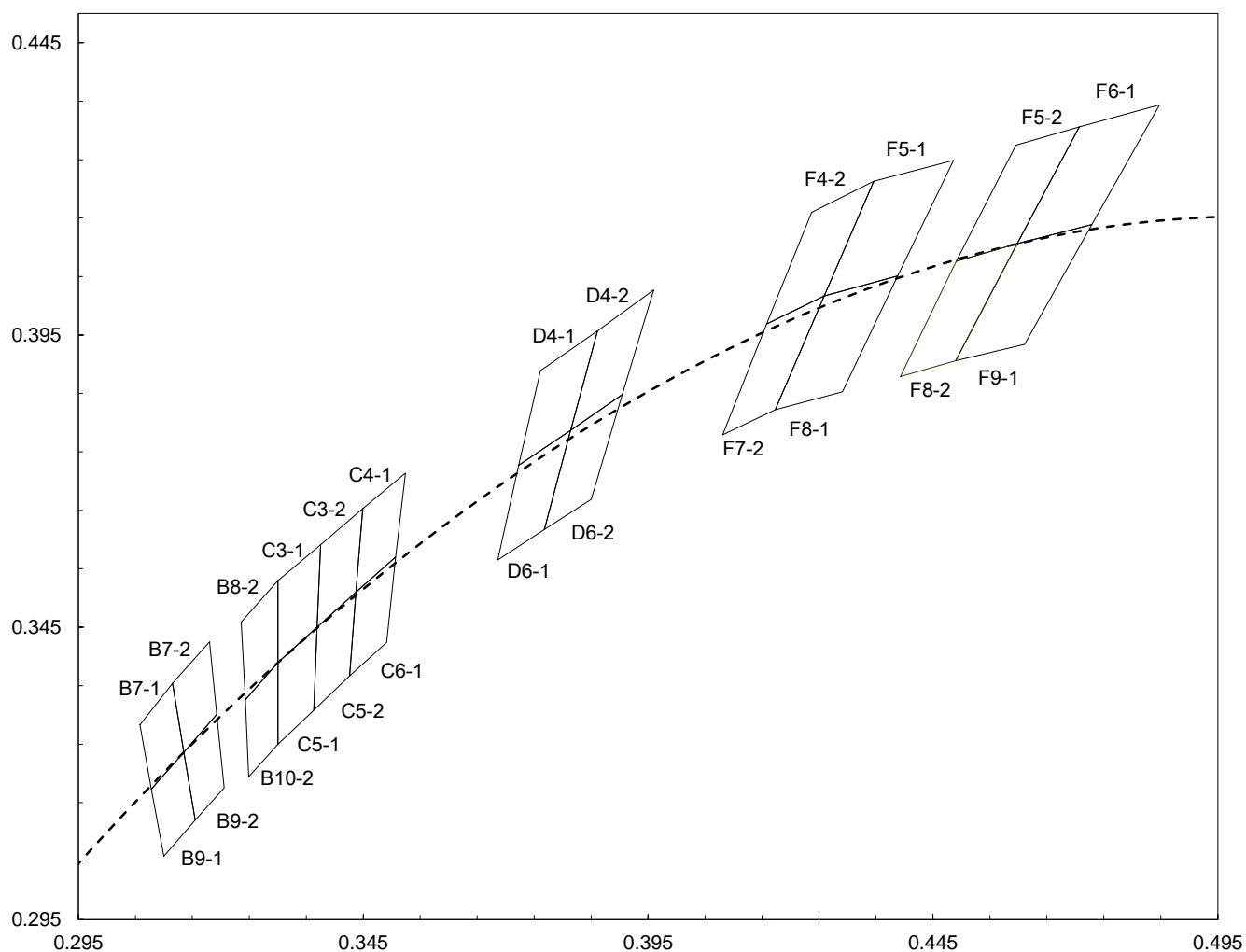
*** See page 4 for solder point definition.



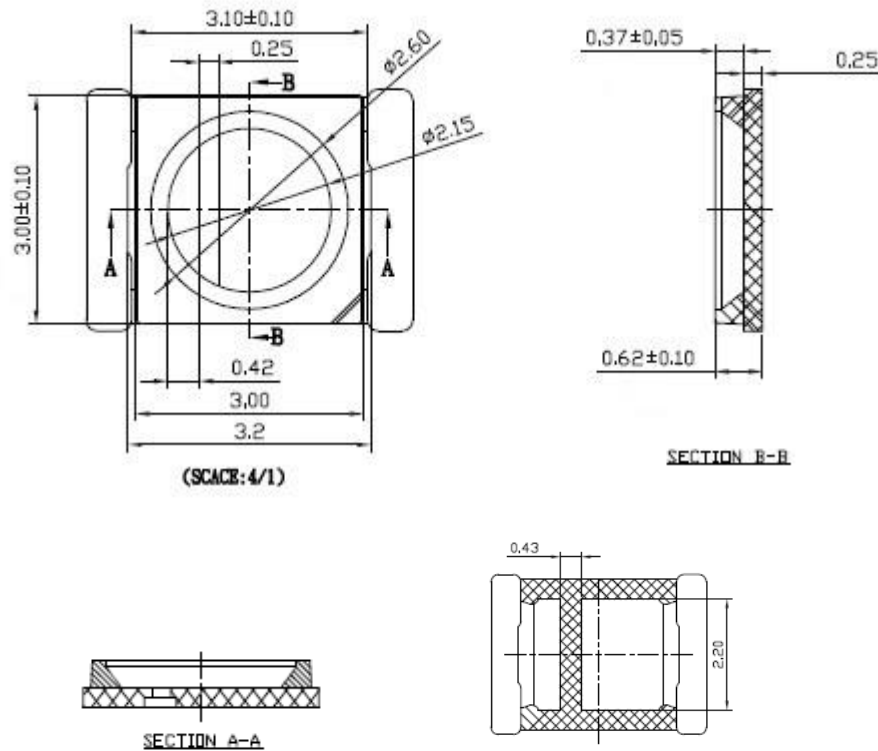
CHROMATICITY BINS & COORDINATES									
CCT	BIN	CIE 1931 COORDINATES							
		X0	Y0	X1	Y1	X2	Y2	X3	Y3
6500K	B7-2	0.3115	0.3354	0.3135	0.3236	0.3193	0.3301	0.3180	0.3425
	B9-2	0.3135	0.3236	0.3155	0.3120	0.3206	0.3175	0.3193	0.3301
	B7-1	0.3058	0.3283	0.3078	0.3173	0.3135	0.3236	0.3115	0.3354
	B9-1	0.3078	0.3173	0.3100	0.3058	0.3155	0.3120	0.3135	0.3236
5600K	B8-2	0.3236	0.3459	0.3243	0.3326	0.3300	0.3390	0.3300	0.3530
	B10-2	0.3243	0.3326	0.3249	0.3194	0.3300	0.3250	0.3300	0.3390
	C3-1	0.3300	0.3530	0.3300	0.3390	0.3369	0.3450	0.3375	0.3591
	C5-1	0.3300	0.3390	0.3300	0.3250	0.3363	0.3308	0.3369	0.3450
5000K	C3-2	0.3375	0.3591	0.3369	0.3450	0.3437	0.3510	0.3449	0.3653
	C5-2	0.3369	0.3450	0.3363	0.3308	0.3426	0.3367	0.3437	0.3510
	C4-1	0.3449	0.3653	0.3437	0.3510	0.3507	0.3570	0.3524	0.3714
	C6-1	0.3437	0.3510	0.3426	0.3367	0.3491	0.3424	0.3507	0.3570
4000K	D4-1	0.3761	0.3889	0.3723	0.3727	0.3814	0.3787	0.3861	0.3957
	D4-2	0.3861	0.3957	0.3814	0.3787	0.3905	0.3848	0.3960	0.4027
	D6-1	0.3723	0.3727	0.3686	0.3565	0.3768	0.3617	0.3814	0.3787
	D6-2	0.3814	0.3787	0.3768	0.3617	0.3850	0.3669	0.3905	0.3848
3200K	F4-2	0.4237	0.4160	0.4158	0.3969	0.4259	0.4017	0.4346	0.4213
	F7-2	0.4158	0.3969	0.4081	0.3779	0.4173	0.3822	0.4259	0.4017
	F5-1	0.4346	0.4213	0.4259	0.4017	0.4388	0.4051	0.4486	0.4249
	F8-1	0.4259	0.4017	0.4173	0.3822	0.4291	0.3853	0.4388	0.4051
2700K	F6-1	0.4707	0.4306	0.4598	0.4106	0.4729	0.4139	0.4848	0.4344
	F9-1	0.4598	0.4106	0.4490	0.3906	0.4611	0.3934	0.4729	0.4139
	F5-2	0.4596	0.4275	0.4491	0.4076	0.4598	0.4106	0.4707	0.4306
	F8-2	0.4491	0.4076	0.4393	0.3879	0.4490	0.3906	0.4598	0.4106

CHROMATICITY BINS & COORDINATES

CIE 1931 COORDINATES



PACKAGE LAYOUT

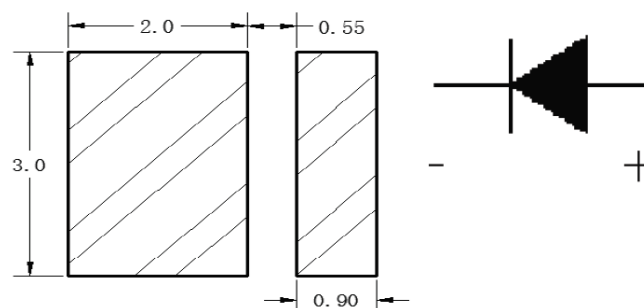


PACKAGE MATERIALS

ITEM	DESCRIPTION
DIE MATERIAL	InGaN
LEAD FRAME MATERIAL	PPA
ENCAPSULANT RESIN MATERIAL	SILICONE + PHOSPHOR
ELECTRODES MATERIAL	SILVER-PLATED COPPER

RECOMMENDED SOLDER PAD LAYOUT

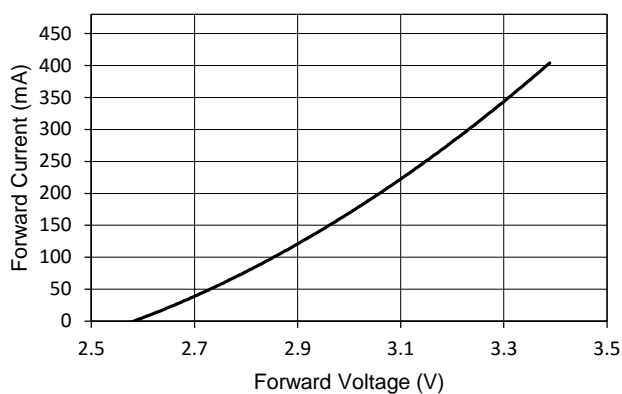
Tolerance is $\pm 0.1\text{mm}$ unless otherwise noted



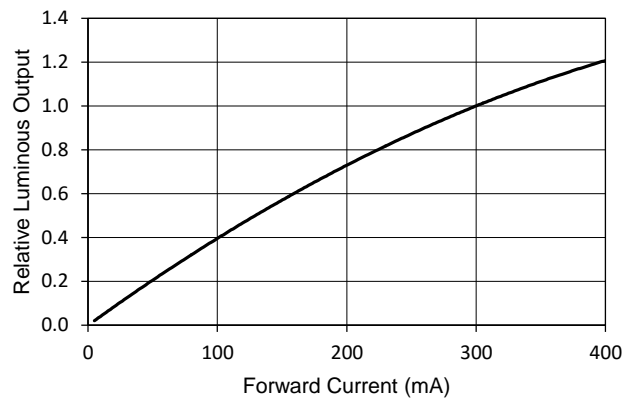
CHARACTERISTIC CURVES

ALL CHARACTERISTIC CURVES ARE FOR REFERENCE ONLY AND NOT GUARANTEED

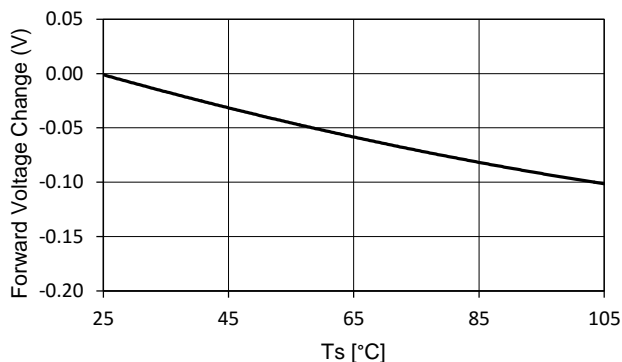
FORWARD CURRENT
VS FORWARD VOLTAGE ($T_A=25^\circ\text{C}$)



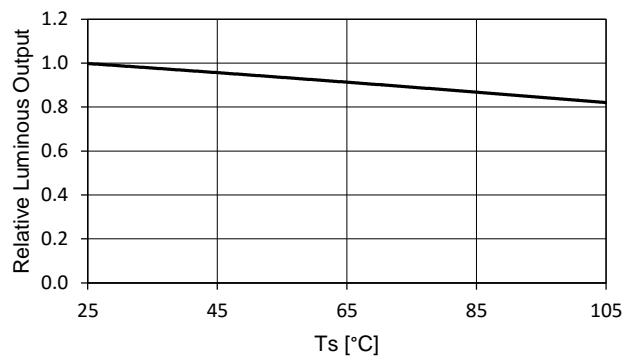
FORWARD CURRENT
VS RELATIVE LUMINOUS OUTPUT ($T_A=25^\circ\text{C}$)



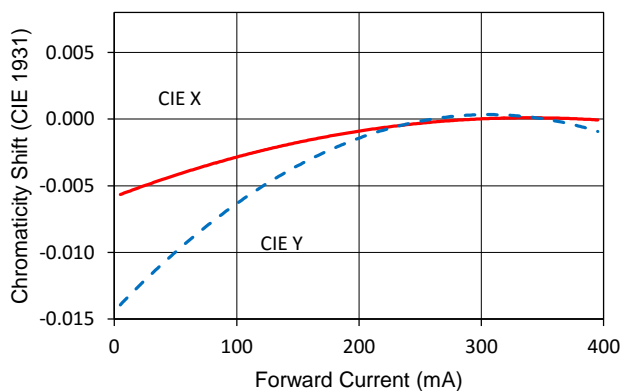
SOLDER POINT TEMPERATURE
VS FORWARD VOLTAGE ($I_F = 300\text{ mA}$)



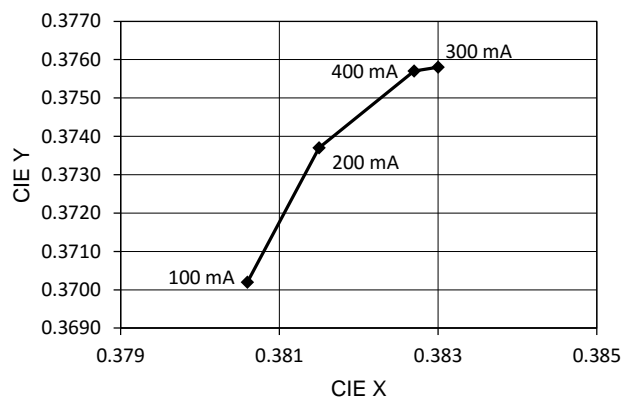
SOLDER POINT TEMPERATURE
VS RELATIVE LUMINOUS OUTPUT ($I_F = 300\text{ mA}$)



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

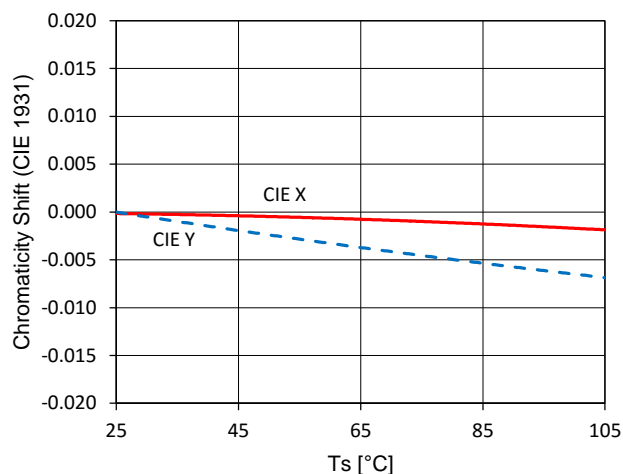


FORWARD CURRENT VS CHROMATICITY SHIFT
(4000K, $T_A=25^\circ\text{C}$)

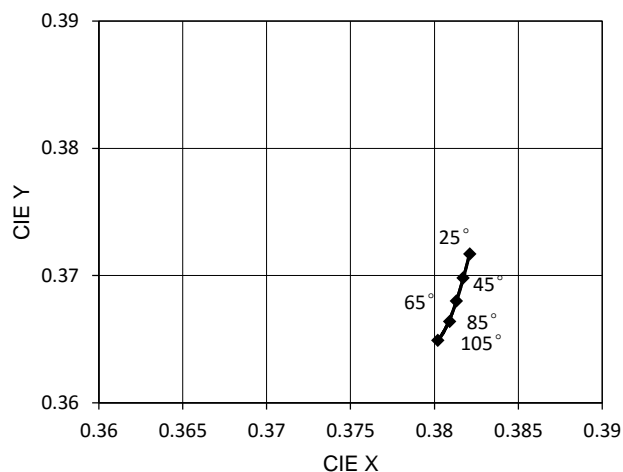


CHARACTERISTIC CURVES (CONTINUED)

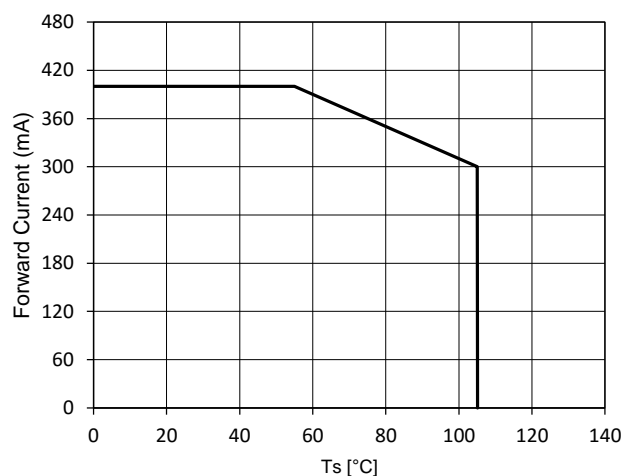
SOLDER POINT TEMPERATURE
VS CHROMATICITY (4000K, $I_F = 300$ mA)



SOLDER POINT TEMPERATURE
VS CHROMATICITY (4000K, $I_F = 300$ mA)

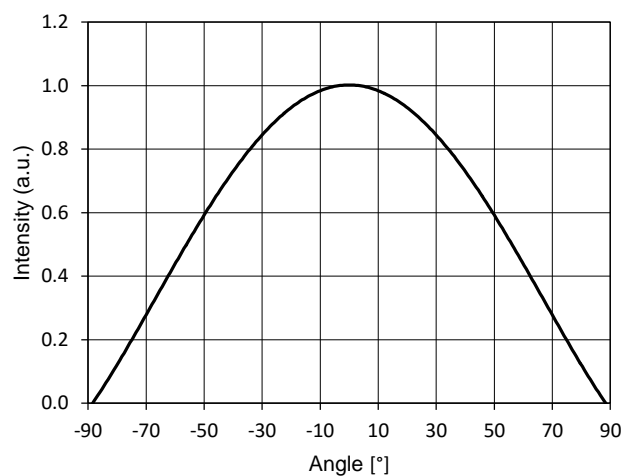


FORWARD CURRENT DERATING BASED ON SOLDER
POINT

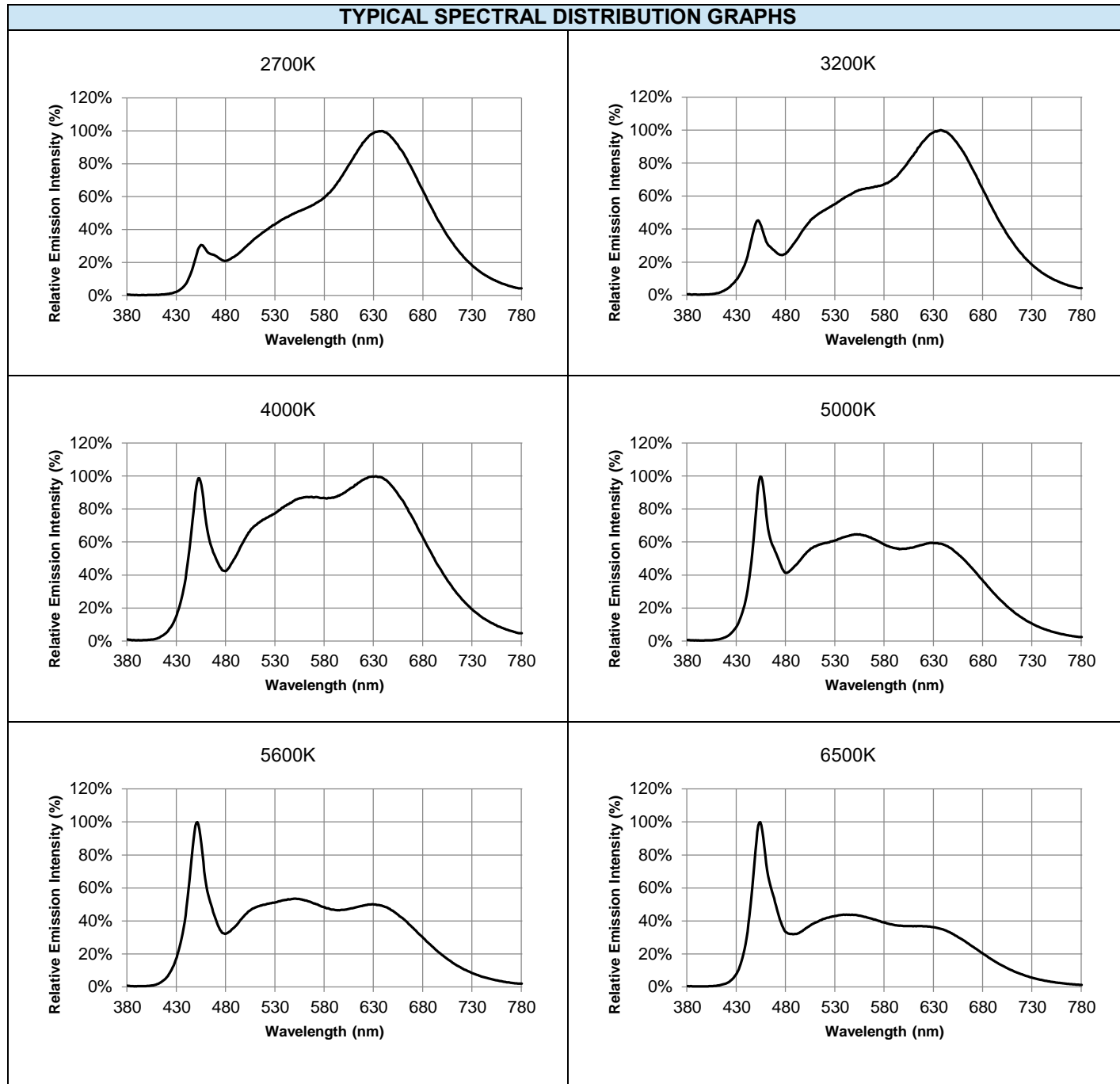


NOTE: DE-RATING CURVES ARE MEANT FOR RECOMMENDATION
ONLY AND ARE NOT MEANT TO PROVIDE GUARANTEES OF
PRODUCT STABILITY AND LONGEVITY

TYPICAL SPATIAL DISTRIBUTION
($T_A = 25^\circ\text{C}$, $I_F = 300$ mA)

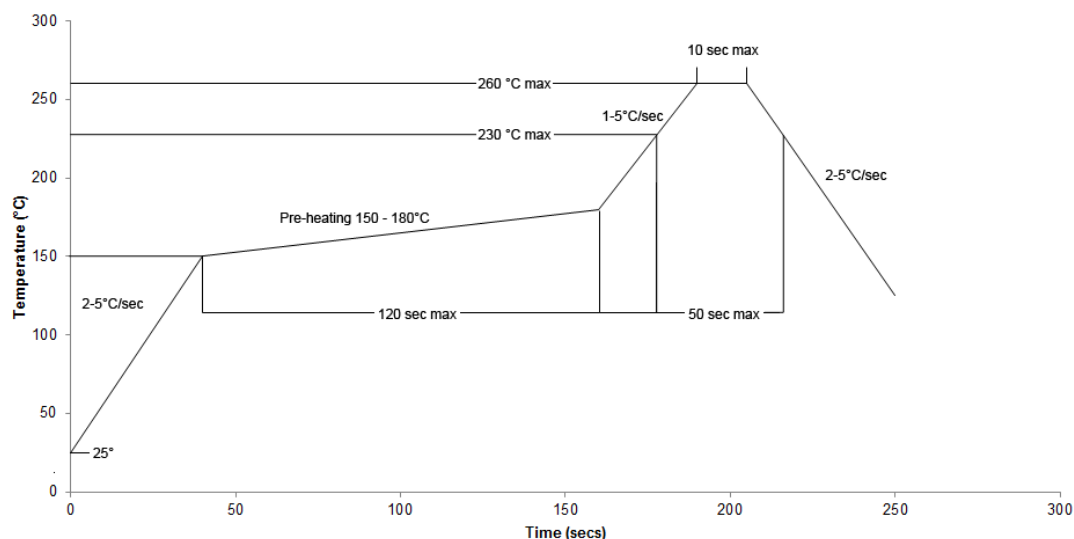


TYPICAL SPECTRAL DISTRIBUTION GRAPHS



REFLOW PROFILE

SOLDERING RAMP-UP TIME (Pb-FREE)



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

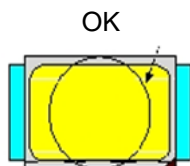
INSTRUCTIONS FOR SMT

Problems caused by improper selection of collet

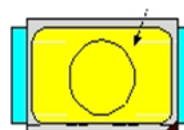
Choosing the right collet is important in ensuring product quality after SMT. LEDs are different from other electronic components, as they are not only concerned with electrical output but also optical output. This characteristic makes LEDs more fragile in the process of SMT. If the collet's lowering 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.



NOT OK – COLLET TOO SMALL



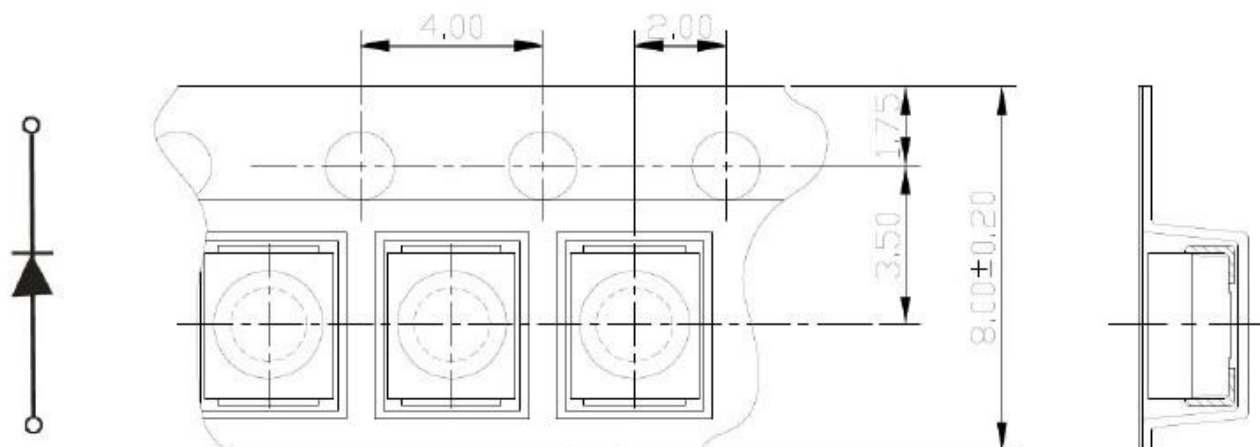
Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

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.

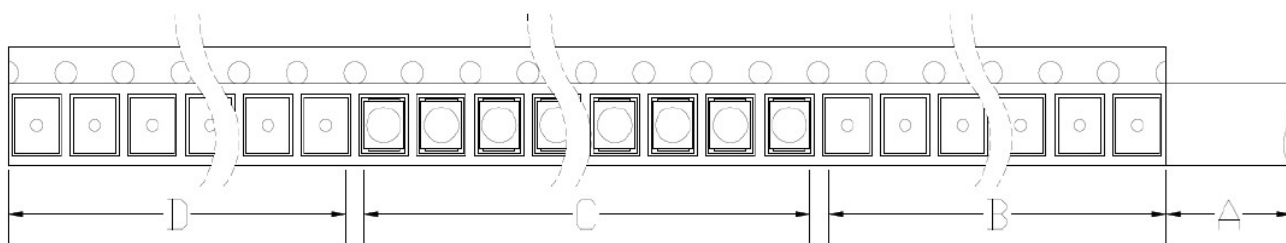
TAPE SPECIFICATIONS

TAPE DIMENSIONS (UNIT: MM)



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

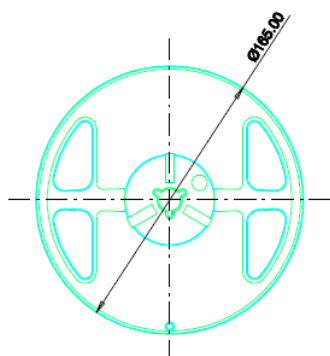
TAPE LAYOUT (NOT DRAWN TO SCALE)



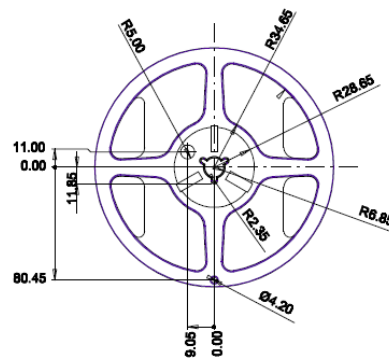
- A: COVER TAPE, 300 MM;
- B: EMPTY LEADER, 200 MM;
- C: LED, 3000 PCS;
- D: EMPTY TRAILER, 200 MM;

REEL SPECIFICATIONS

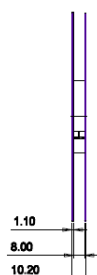
REEL DIMENSIONS TOP (UNIT: MM)



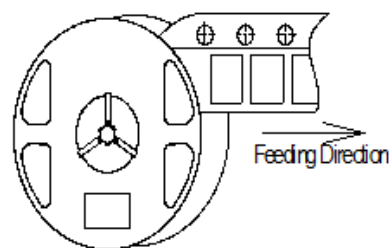
REEL DIMENSIONS BOTTOM (UNIT: MM)



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

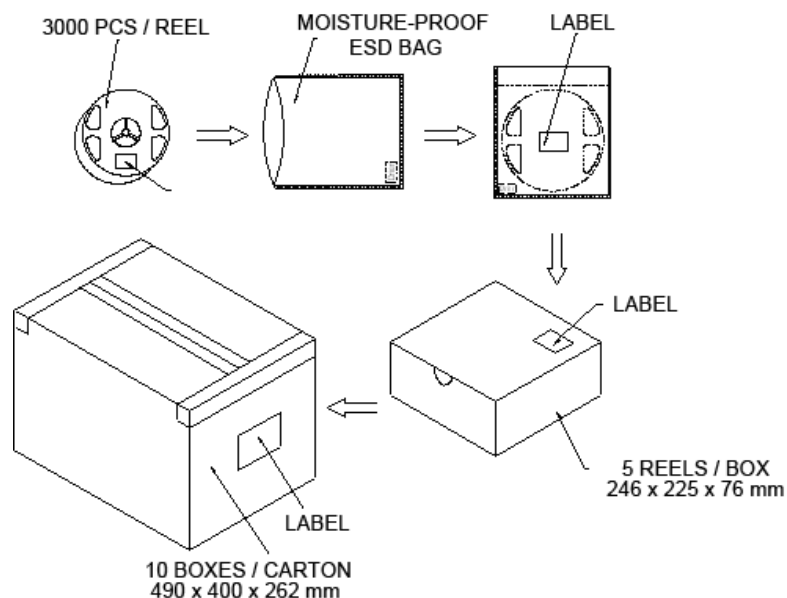
2) YYYYMMXXX

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: 246 mm x 225 mm x 76 mm.
3. Each outer package contains 10 inner boxes. Box size: 490 mm x 400 mm x 262 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.