YJ-BC-2835L-G01

High CRI LED

PRODUCT:

2835 SURFACE MOUNT LED

FEATURES:
2.8 mm × 3.5 mm × 0.7 mm surface-mount LED
120° emission angle
95 min Ra

DESCRIPTION
Yuji LED's high CRI 2835 SMD provides a high CRI, high efficacy solution in a compact form factor. Providing 95 CRI (min), this mid-power LED can be used in a variety of applications demanding high color quality and even light distribution.

ATTENTION
OBSERVE PRECAUTIONS
ELECTROSTATIC
SENSITIVE DEVICES

RoHS

IES
LM-80 TESTED

ELECTRICAL-OPTICAL CHARACTERISTICS (T_c = 25 °C)							
PARAMETER	SYMBOL	VALUE			UNIT	TOLERANCE	CONDITION
		MIN.	TYP.	MAX.			
Forward Voltage	V_f	2.8	--	3.2	V	±0.05	I_f=60mA
Luminous flux	Φ_{2700K}	15	--	18	lm	--	I_f=60mA
	Φ_{3200K}	17		20			
	Φ_{4000K}	18		21			
	Φ_{5000K}	19		22			
	Φ_{5600K}	19		22			
	Φ_{6500K}	19		22			
Color temperature	CCT_{2700K}	2550	2700	2850	K	--	I_f=60mA
	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	Ra*	95	--	--	--	±1	I_f=60mA
TCS R9 (CRI Red)	R9	--	70	--	--	--	I_f=60mA
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=60mA
Thermal resistance	$R_{\theta JS}$**	--	20	--	°C/W	--	I_f=60mA

*Ra minimum 93 at 6500K.
**This data is for reference only.

ORDERING INFORMATION			
PART NUMBER	CCT	CHROMATICTY BINS	VOLTAGE RANGE

YJ-BC-2835L-G01-27	2700K ± 150K	F6-1, F9-1, F5-2, F8-2	0.1 V
YJ-BC-2835L-G01-32	3200K ± 150K	F4-2, F7-2, F5-1, F8-1	0.1 V
YJ-BC-2835L-G01-40	4000K ± 200K	D4-1, D4-2, D6-1, D6-2	0.1 V
YJ-BC-2835L-G01-50	5000K ± 300K	C3-2,C5-2,C4-1,C6-1	0.1 V
YJ-BC-2835L-G01-56	5600K ± 300K	B8-2, B10-2, C3-1, C5-1	0.1 V
YJ-BC-2835L-G01-65	6500K ± 500K	B7-1, B9-1, B7-2, B9-2	0.1 V
YJ-BC-2835L-G01-XX	CUSTOM		

ABSOLUTE MAXIMUM RATING (T_C = 25 °C)

PARAMETER	SYMBOL	LIMIT	UNIT
Power Consumption	P_D	300	mW
DC Forward Current (pulsed)*	I_{Fp}	180**	mA
DC Forward Current	I_F	90	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 ± 5	°C
Reflow Cycles Allowed	--	2	--

* Pulse width ≤ 0.1ms, Duty ≤ 1/10.
** Theoretical data.
*** See page 4 for solder point definition.

VOLTAGE BIN CODES

Bin	V28	V29	V30	V31
V_F	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2

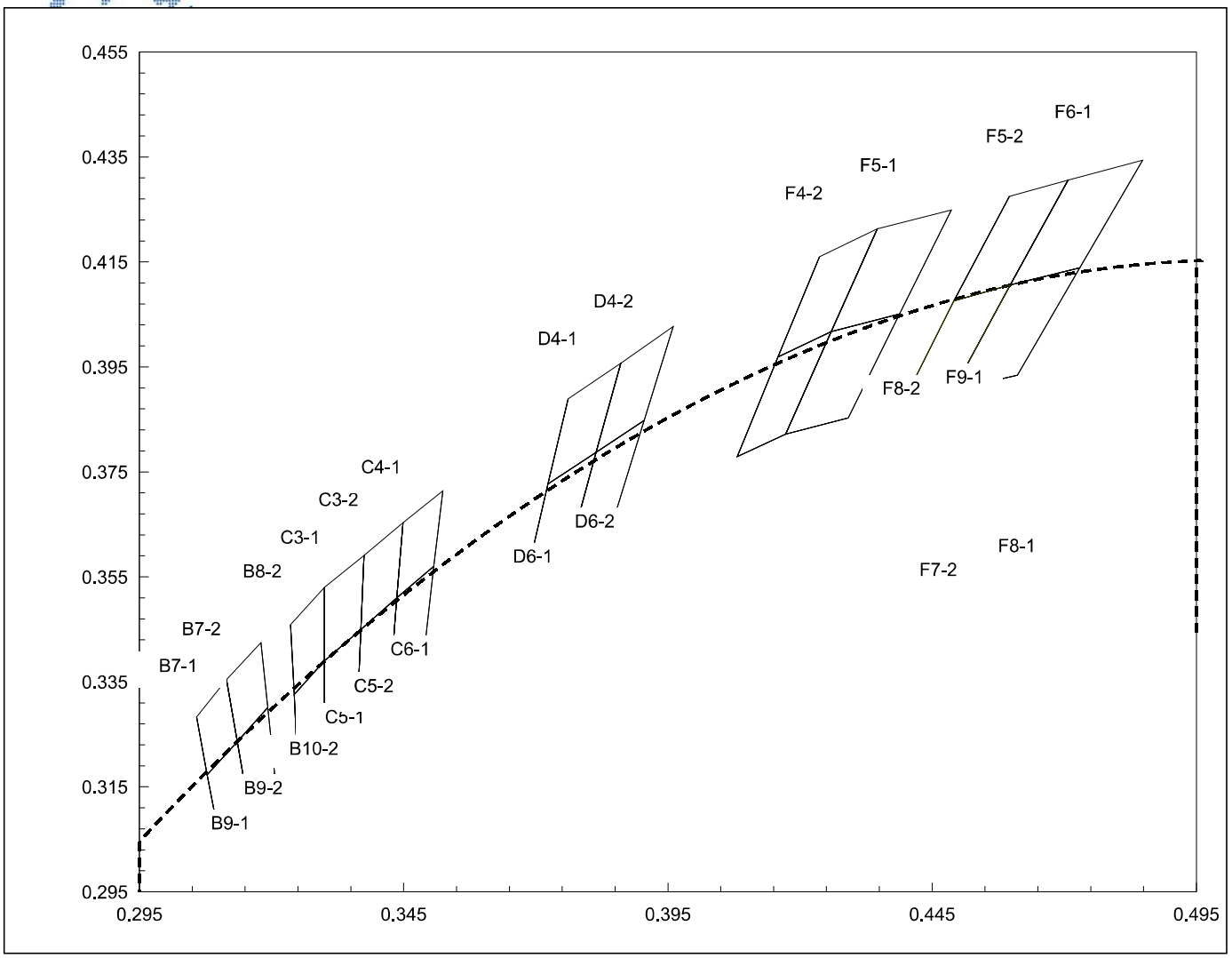
CHROMATICITY BINS & COORDINATES

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

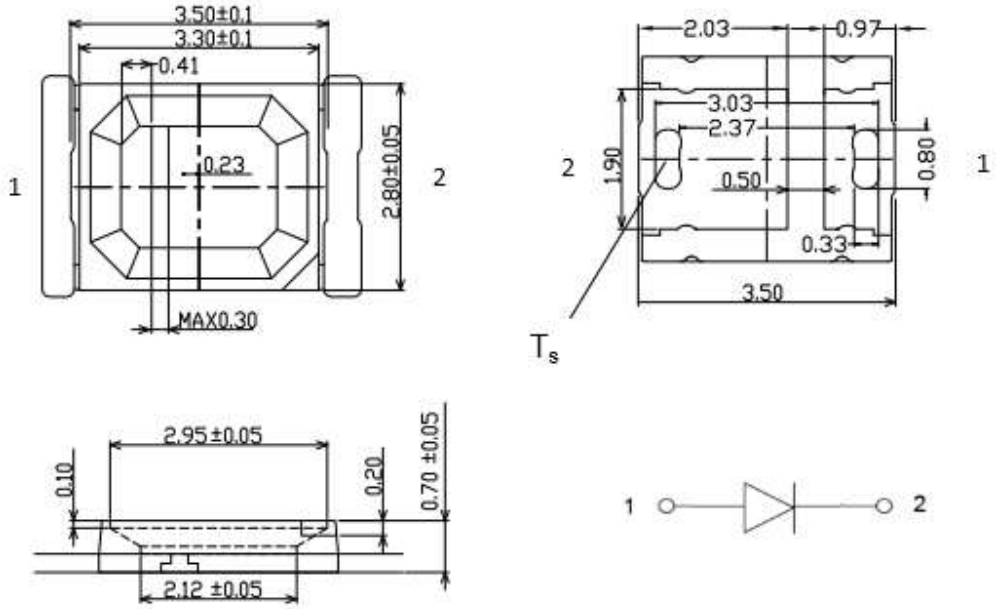
	B7-1	0.3058	0.3283	0.3078	0.3173	0.3135	0.3236	0.3115	0.3354
	B9-1	0.3078	0.3173	0.3100	0.3058	0.3155	0.3120	0.3135	0.3236
5600K	B8-2	0.3236	0.3459	0.3243	0.3326	0.3300	0.3390	0.3300	0.3530
	B10-2	0.3243	0.3326	0.3249	0.3194	0.3300	0.3250	0.3300	0.3390
	C3-1	0.3300	0.3530	0.3300	0.3390	0.3369	0.3450	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

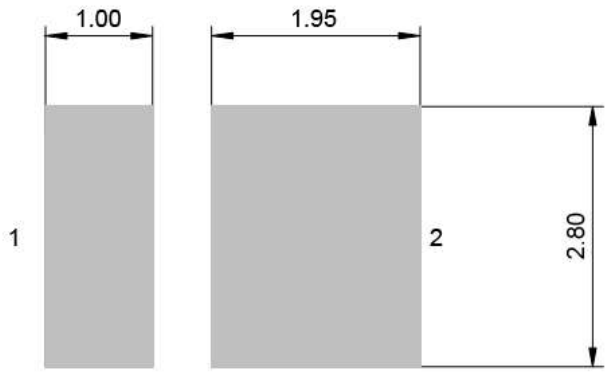

0.455
0.435
0.415
0.395
0.375
0.355
0.335
0.315
0.295
0.295
0.345
0.395
0.445
0.495
F6-1
F5-2
F5-1
F4-2
D4-2
D4-1
F8-2
F9-1
C4-1
C3-2
C3-1
B8-2
D6-2
D6-1
F8-1
F7-2
B7-2
B7-1
C6-1
C5-2
C5-1
B10-2
B9-2
B9-1

PACKAGE LAYOUT



PACKAGE MATERIALS	
ITEM	**DESCRIPTION**
DIE MATERIAL	InGaN
LEAD FRAME MATERIAL	PPA
ENCAPSULANT RESIN MATERIAL	SILICONE
ELECTRODES MATERIAL	SILVER-PLATED COPPER

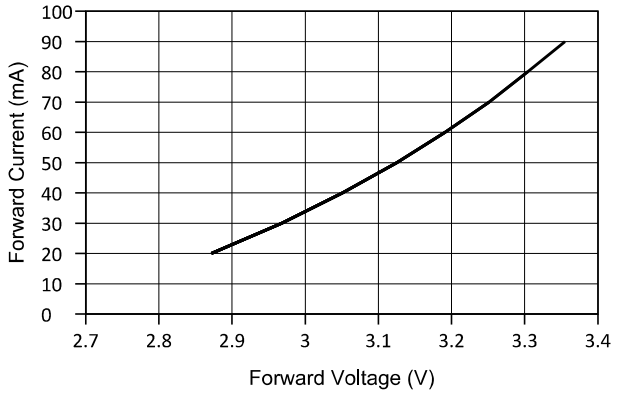
RECOMMENDED SOLDER PAD LAYOUT



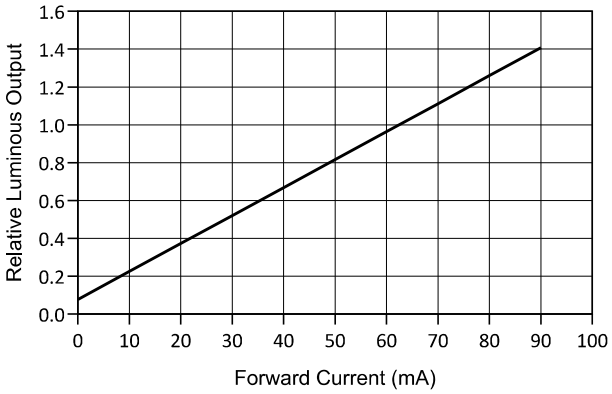
CHARACTERISTIC CURVES

ALL CHARACTERISTIC CURVES ARE FOR REFERENCE ONLY AND NOT GUARANTEED

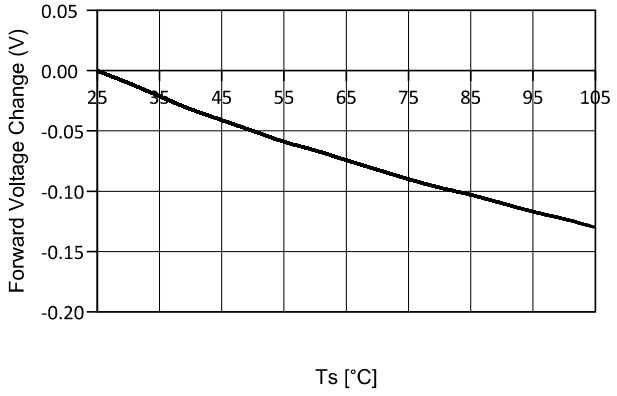
FORWARD CURRENT
VS FORWARD VOLTAGE (T_A=25°C)



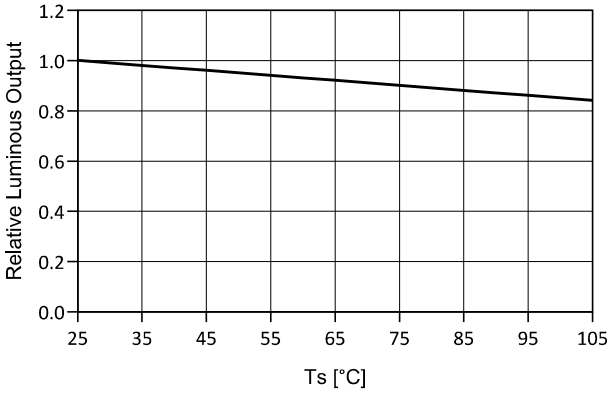
FORWARD CURRENT
VS RELATIVE LUMINOUS OUTPUT (T_A=25°C)



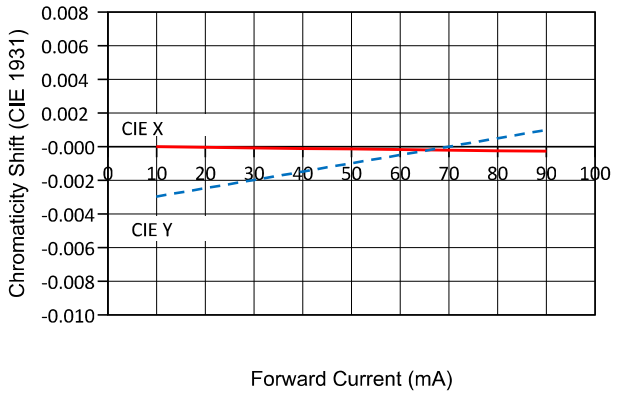
SOLDER POINT TEMPERATURE
VS FORWARD VOLTAGE (I_F = 60 mA)



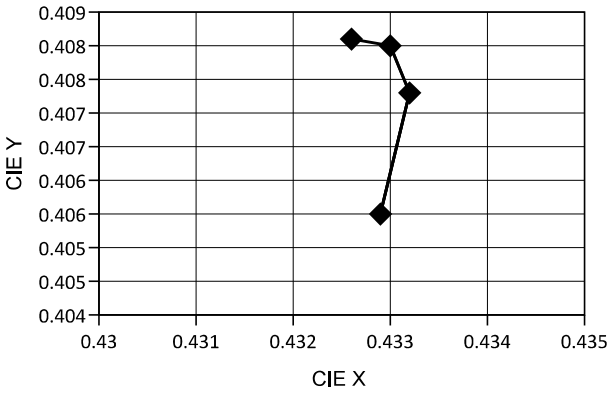
SOLDER POINT TEMPERATURE
VS RELATIVE LUMINOUS OUTPUT (I_F = 60 mA)



FORWARD CURRENT VS CHROMATICITY SHIFT
(3200K,T_A=25°C)

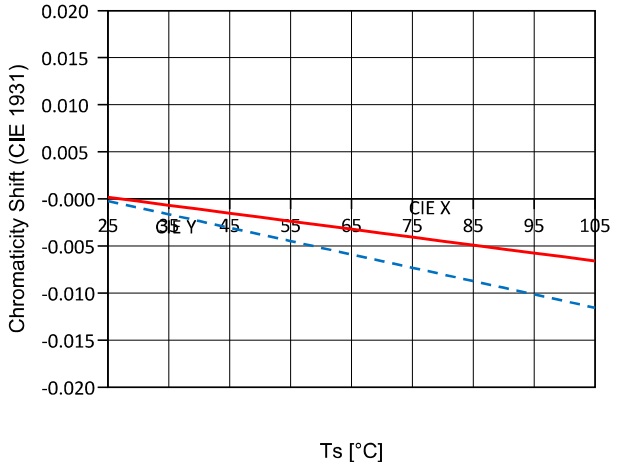


FORWARD CURRENT VS CHROMATICITY SHIFT
(3200K,T_A=25°C)

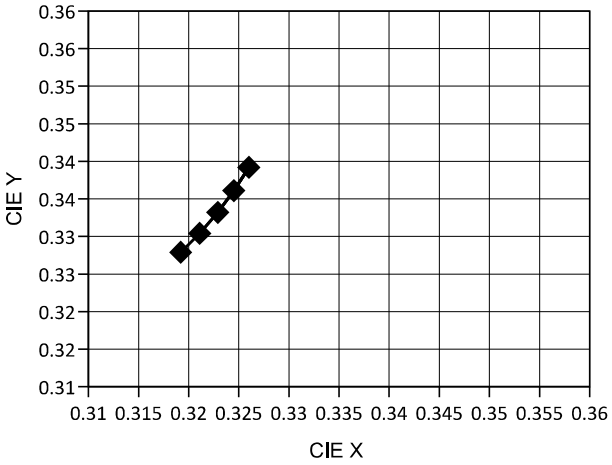


CHARACTERISTIC CURVES (CONTINUED)

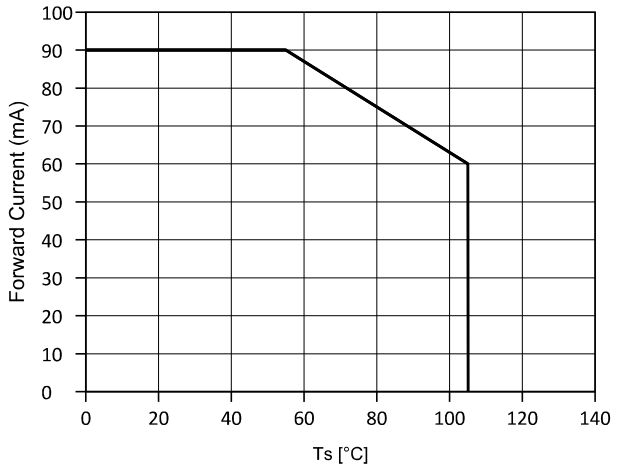
SOLDER POINT TEMPERATURE
VS CHROMATICITY (5600K, I_F = 60 mA)



SOLDER POINT TEMPERATURE
VS CHROMATICITY (5600K, I_F = 60 mA)

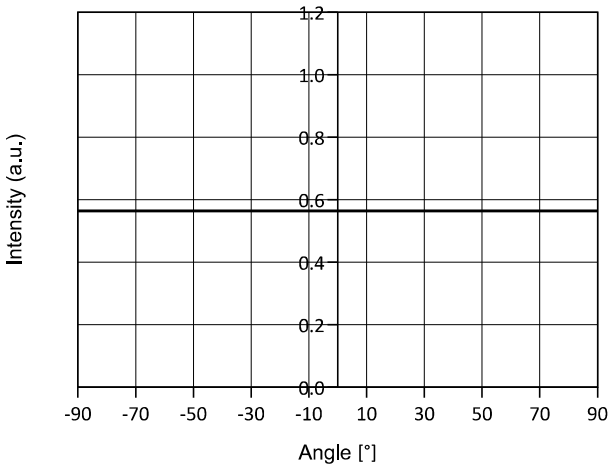


FORWARD CURRENT DERATING BASED ON SOLDER POINT



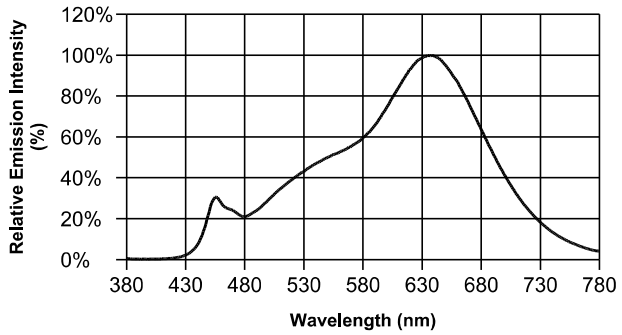
NOTE: DE-RATING CURVES ARE MEANT FOR RECOMMENDATION ONLY AND ARE NOT MEANT TO PROVIDE GUARANTEES OF PRODUCT STABILITY AND LONGEVITY

TYPICAL SPATIAL DISTRIBUTION
(TA=25°C, I_F = 60 mA)

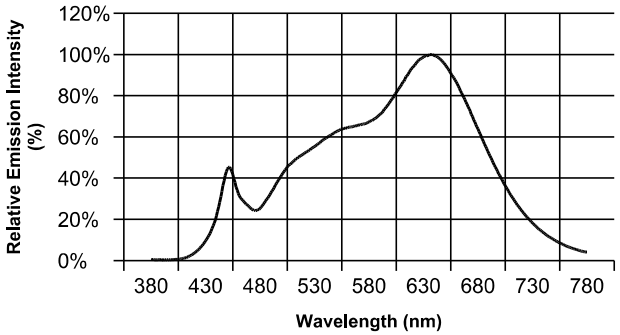


TYPICAL SPECTRAL DISTRIBUTION GRAPHS

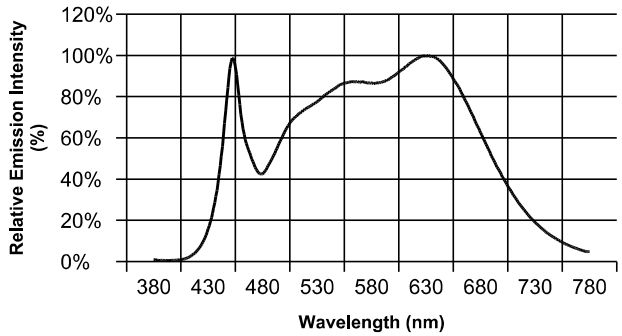
2700K



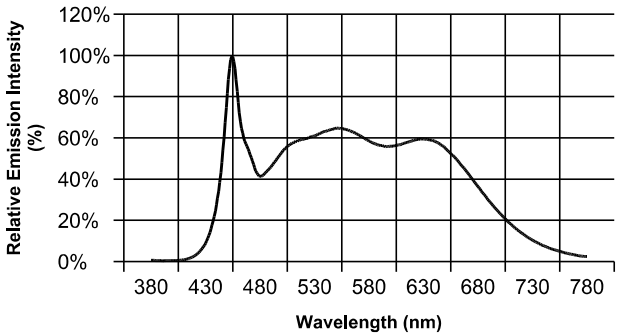
3200K



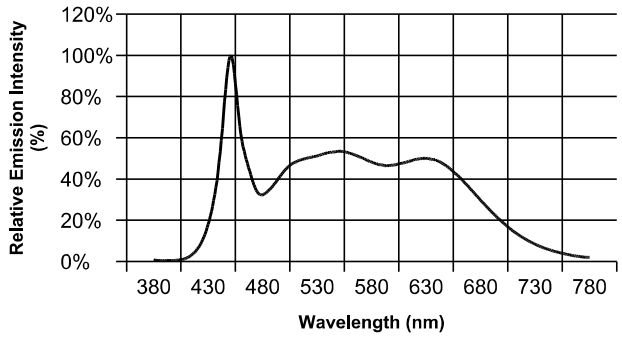
4000K



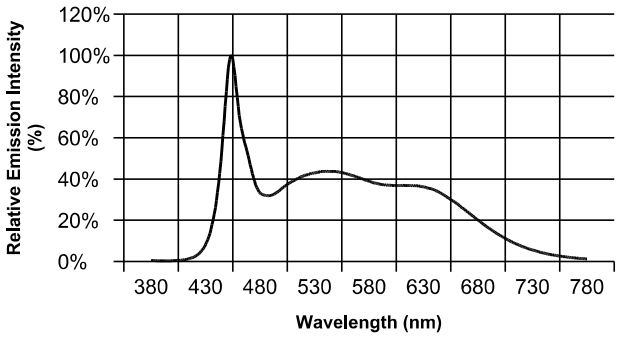
5000K



5600K

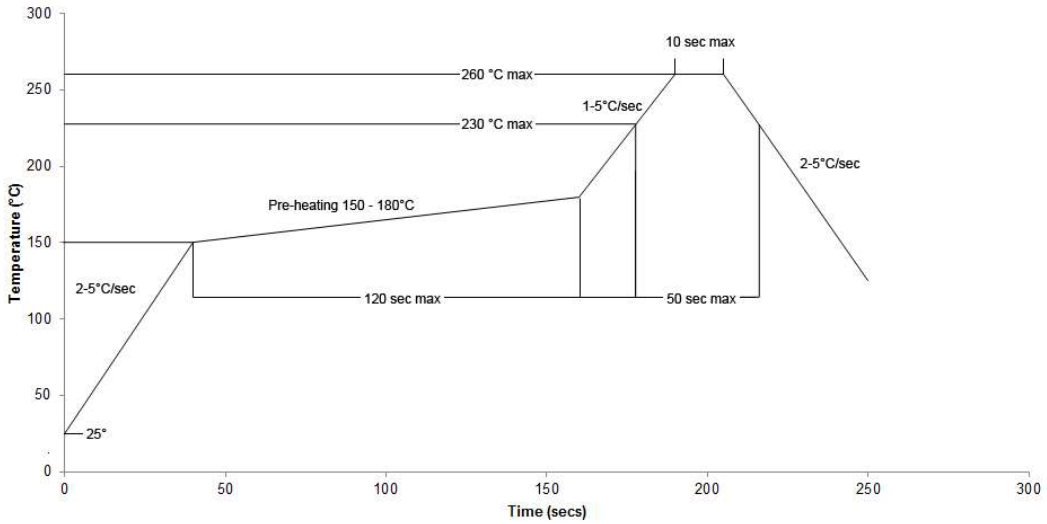


6500K



REFLOW PROFILE

SOLDERING RAMP-UP TIME (Pb-FREE)



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

INSTRUCTIONS FOR SMT

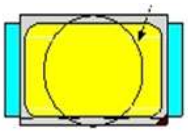
Problems caused by improper selection of collet

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.

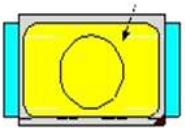
Collet selection

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.

OK



NOT OK – COLLET TOO SMALL



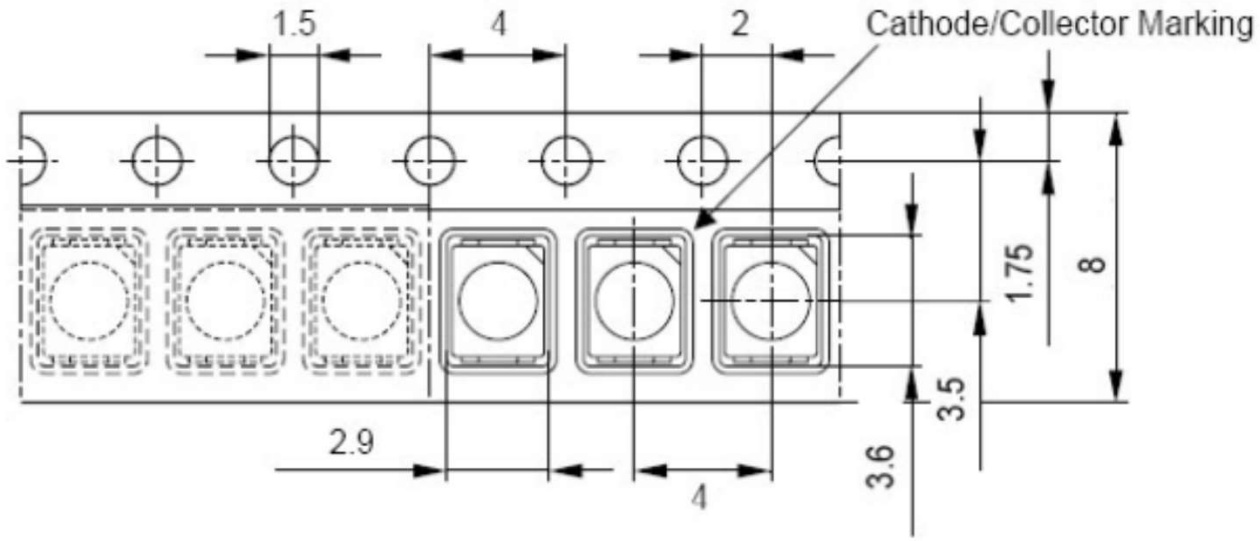
Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

Other notes of caution:

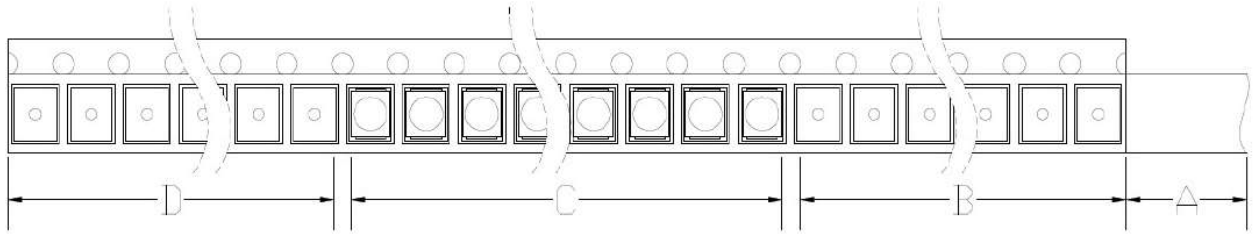
- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should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

TAPE SPECIFICATIONS

TAPE DIMENSIONS (UNIT: MM)



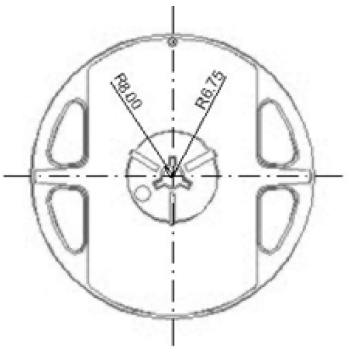
TAPE LAYOUT (NOT DRAWN TO SCALE)



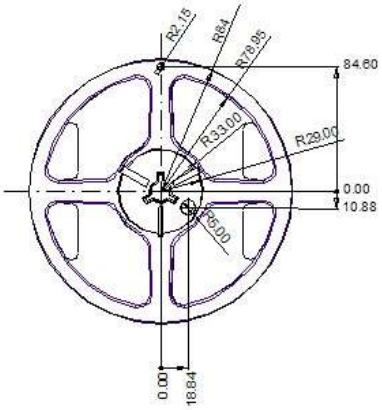
A: COVER TAPE, 300 MM;
B: EMPTY LEADER, 200 MM;
C: LED, 3000 PCS;
D: EMPTY TRAILER, 200 MM;

REEL SPECIFICATIONS

REEL DIMENSIONS TOP (UNIT: MM)

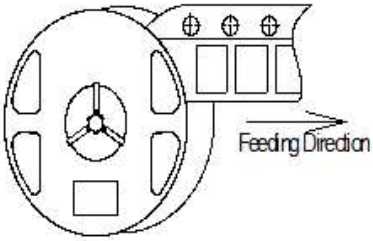


REEL DIMENSIONS BOTTOM (UNIT: MM)



REEL DIMENSIONS SIDE (UNIT: MM)

FEEDING DIRECTION



LOT NUMBERING SCHEME

Yuji LED uses two formats for lot numbering purposes:

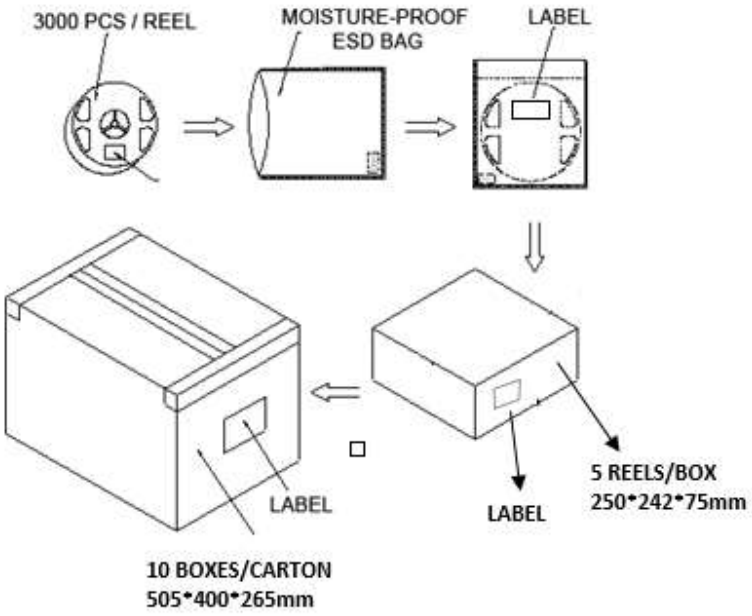
1) YYYY-MM-XXX-Z

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: 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.