VX-5730
High CRI LED

PRODUCT:

5730 SURFACE MOUNT LED VX

FEATURES:
5.7 mm × 3.0 mm × 0.8 mm surface-mount LED
120° emission angle
95 min CRI

DESCRIPTION
Yuji LED's high CRI 5730 white LED SMD provides a full-spectrum high CRI solution. Providing 97 CRI (typical) at 70 lm/W, this mid-power LED is well suited for applications requiring the highest levels of lighting quality.

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	3.1	--	3.6	V	±0.05	I_f=120mA
Luminous flux	Φ_{2700K}	23	--	27	lm	--	I_f=120mA
	Φ_{3200K}	26		30			
	Φ_{4000K}	26		31			
	Φ_{5600K}	28		32			
Color temperature	CCT_{2700K}	2550	2700	2850	K	--	I_f=120mA
	CCT_{3200K}	3050	3200	3350			
	CCT_{4000K}	3800	4000	4200			
	CCT_{5600K}	5300	5600	5900			
Color rendering index	Ra	95	97	--	--	--	I_f=120mA
TCS R9 (CRI Red)	R9	--	90	--	--	--	I_f=120mA
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=120mA

ORDERING INFORMATION			
PART NUMBER	CCT	CHROMATICTY BINS	VOLTAGE RANGE
VX-5730L-27	2700K ± 150K	VF47,VF58,VF710,VF811	0.1 V
VX-5730L-32	3200K ± 150K	VF4-2, VF7-2, VF5-1, VF8-1	0.1 V
VX-5730L-40	4000K ± 200K	VD4-1, VD4-2, VD6-1, VD6-2	0.1 V
VX-5730L-56	5600K ± 300K	VB8-2, VB10-2, VC3-1, VC5-1	0.1 V
VX-5730L-XX	CUSTOM		

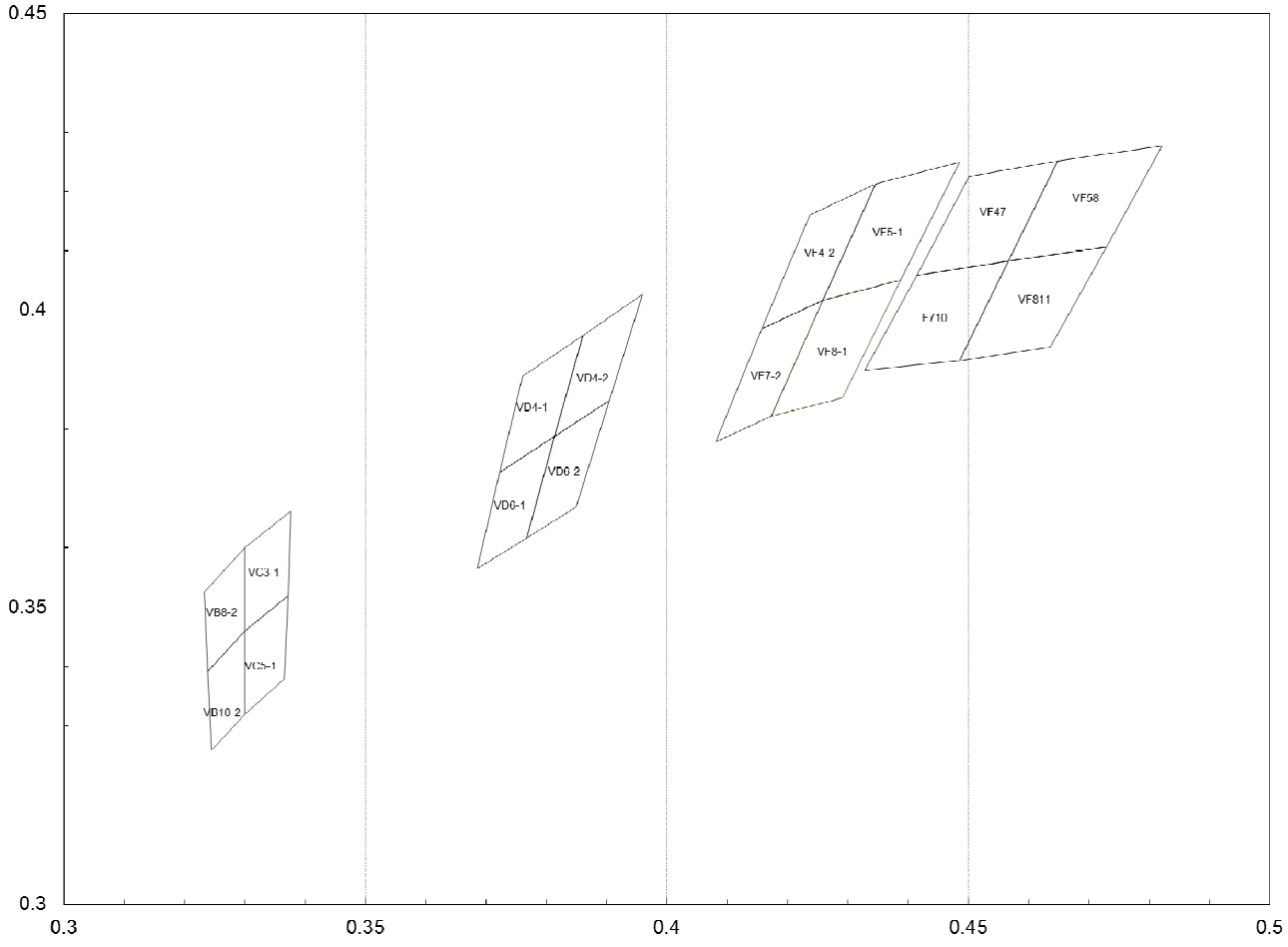
ABSOLUTE MAXIMUM RATING (T_C = 25 °C)			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Power Consumption	P_D	510	mW
DC Forward Current	I_F	150	mA
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	125	°C
Solder Point Temperature*	T_s	105	°C
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
Soldering Temperature	T_{sol}	260 ± 5	°C
Reflow Cycles Allowed	-	2	-

*See page 4 for solder point definition

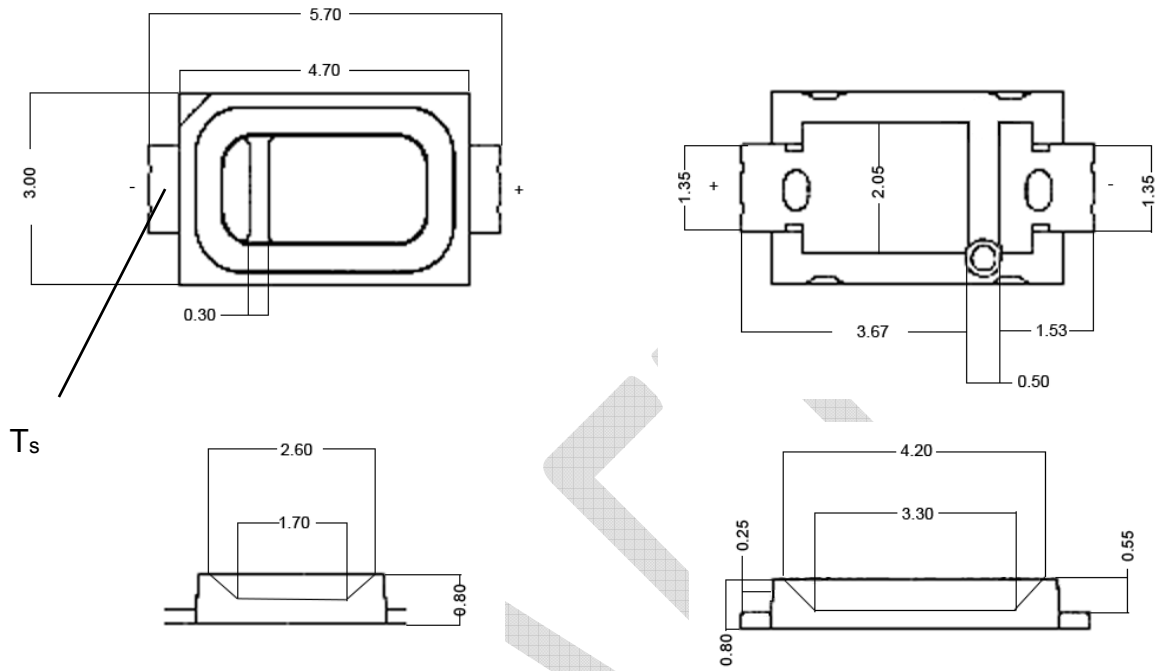
PRODUCT CODES			
XG0.5-13-X_3SL9-R(X_4)-CA-L			
	X_4	CHROMATICITY BIN	SEE BELOW
	X_3	COLOR TEMPERATURE	WW: CCT < 3500K NW: 3500K < CCT < 5300K CW: CCT > 5300K

VOLTAGE BIN CODES				
Bin	**V32**	**V33**	**V34**	**V35**
V_F	3.2-3.3	3.3-3.4	3.4-3.5	3.5-3.6

CHROMATICITY BINS & COORDINATES									
CCT	BIN	CIE 1931 COORDINATES							
		X0	Y0	X1	Y1	X2	Y2	X3	Y3
5600K	VB8-2	0.3233	0.3525	0.3300	0.3600	0.3300	0.346	0.3239	0.3392
	VB10-2	0.3239	0.3392	0.3246	0.3260	0.3300	0.332	0.3300	0.3460
	VC3-1	0.3300	0.3460	0.3300	0.3600	0.3377	0.3662	0.3372	0.352
	VC5-1	0.3300	0.3320	0.3300	0.3460	0.3372	0.3520	0.3366	0.3379
4000K	VD4-1	0.3742	0.3808	0.3780	0.3970	0.3884	0.4050	0.3837	0.3870
	VD4-2	0.3837	0.3870	0.3884	0.4050	0.3988	0.4116	0.3932	0.3937
	VD6-1	0.3705	0.3646	0.3742	0.3808	0.3837	0.387	0.3791	0.3705
	VD6-2	0.3791	0.3705	0.3837	0.3870	0.3932	0.3937	0.3878	0.3759
3200K	VF4-2	0.4237	0.416	0.4158	0.3969	0.4259	0.4017	0.4346	0.4213
	VF7-2	0.4158	0.3969	0.4081	0.3779	0.4173	0.3822	0.4259	0.4017
	VF5-1	0.4346	0.4213	0.4259	0.4017	0.4388	0.4051	0.4486	0.4249
	VF8-1	0.4259	0.4017	0.4173	0.3822	0.4291	0.3853	0.4388	0.4051
2700K	VF47	0.4502	0.4226	0.4649	0.4252	0.4567	0.4083	0.4415	0.4059
	VF58	0.4649	0.4252	0.4822	0.4277	0.4729	0.4107	0.4567	0.4083
	VF710	0.4415	0.4059	0.4567	0.4083	0.4486	0.3915	0.4328	0.3899
	VF811	0.4567	0.4083	0.4729	0.4107	0.4636	0.3938	0.4486	0.3915

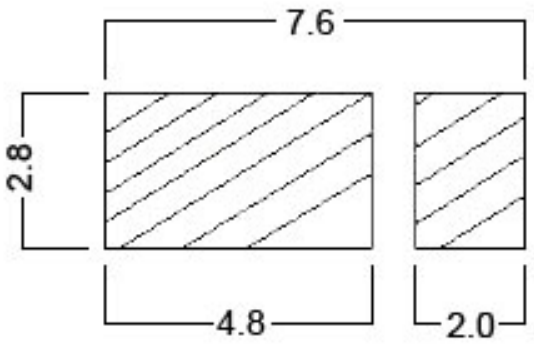


PACKAGE LAYOUT



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

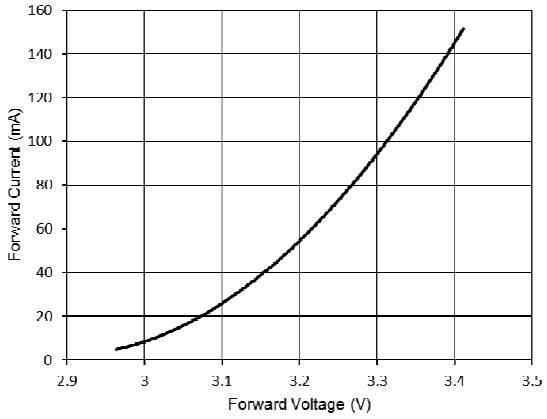
RECOMMENDED SOLDER PAD LAYOUT



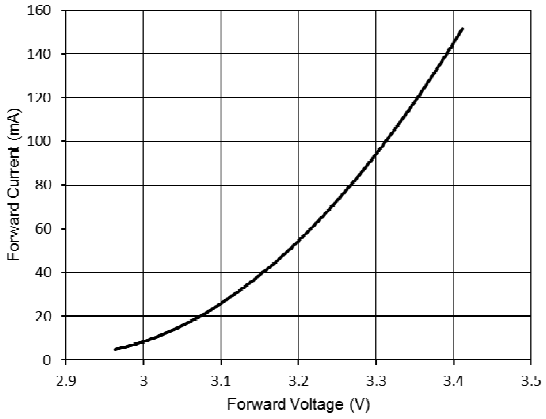
CHARACTERISTIC CURVES

ALL CHARACTERISTIC CURVES ARE FOR REFERENCE ONLY AND NOT GUARANTEED

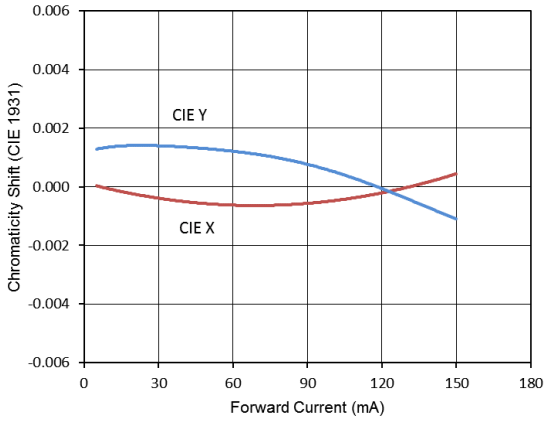
FORWARD CURRENT
VS FORWARD VOLTAGE (T_A=25°C)



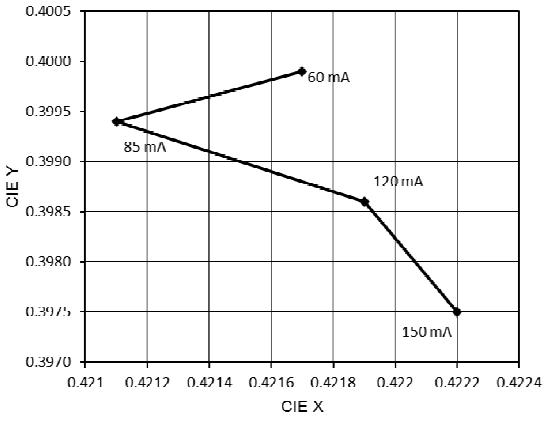
FORWARD CURRENT
VS RELATIVE LUMINOUS OUTPUT (T_A=25°C)



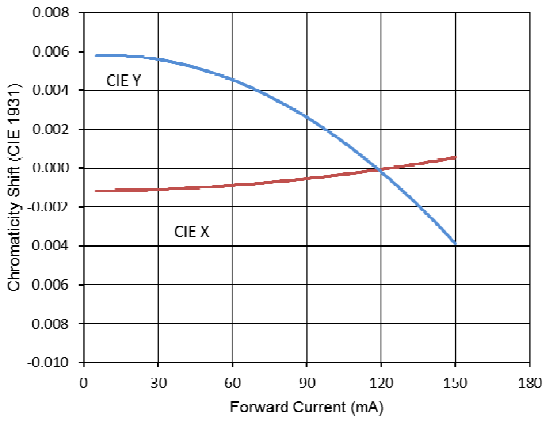
FORWARD CURRENT VS CHROMATICITY SHIFT
(3200K,T_A=25°C)



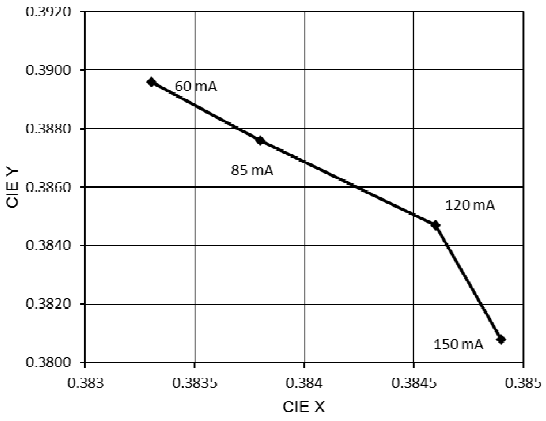
FORWARD CURRENT VS CHROMATICITY SHIFT
(3200K,T_A=25°C)



FORWARD CURRENT VS CHROMATICITY SHIFT
(4000K,T_A=25°C)

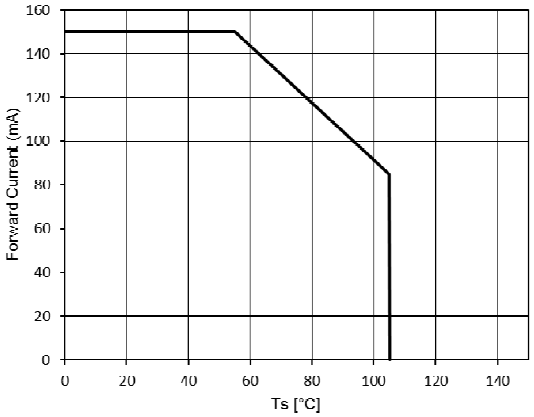


FORWARD CURRENT VS CHROMATICITY SHIFT
(4000K,T_A=25°C)



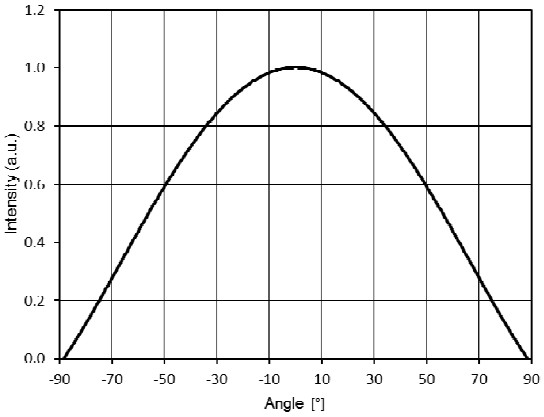
CHARACTERISTIC CURVES (CONTINUED)

FORWARD CURRENT DERATING BASED ON SOLDER POINT



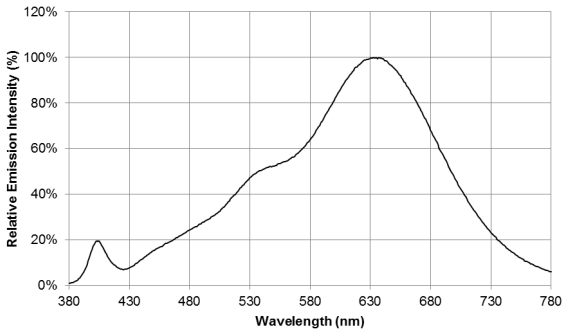
NOTE: DE-RATING CURVES ARE MEANT FOR RECOMMENDATION ONLY AND ARE NOT MEANT TO PROVIDE GUARANTEES OF PRODUCT STABILITY AND LONGEVITY

TYPICAL SPATIAL DISTRIBUTION
(TA=25°C, I_F = 150 mA)

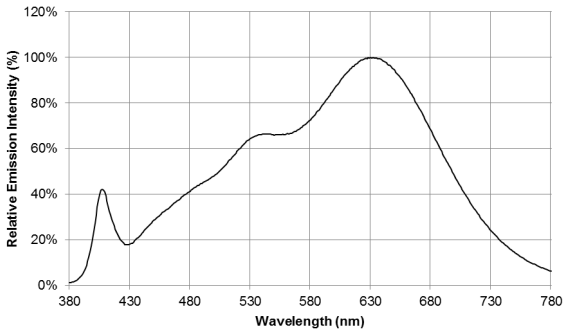


TYPICAL SPECTRAL DISTRIBUTION GRAPHS

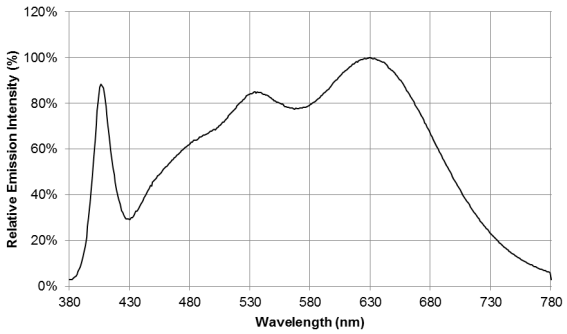
2700K



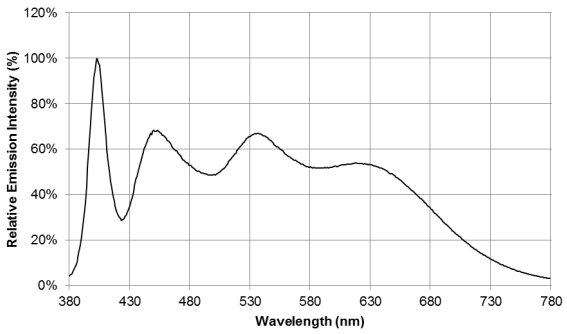
3200K



4000K

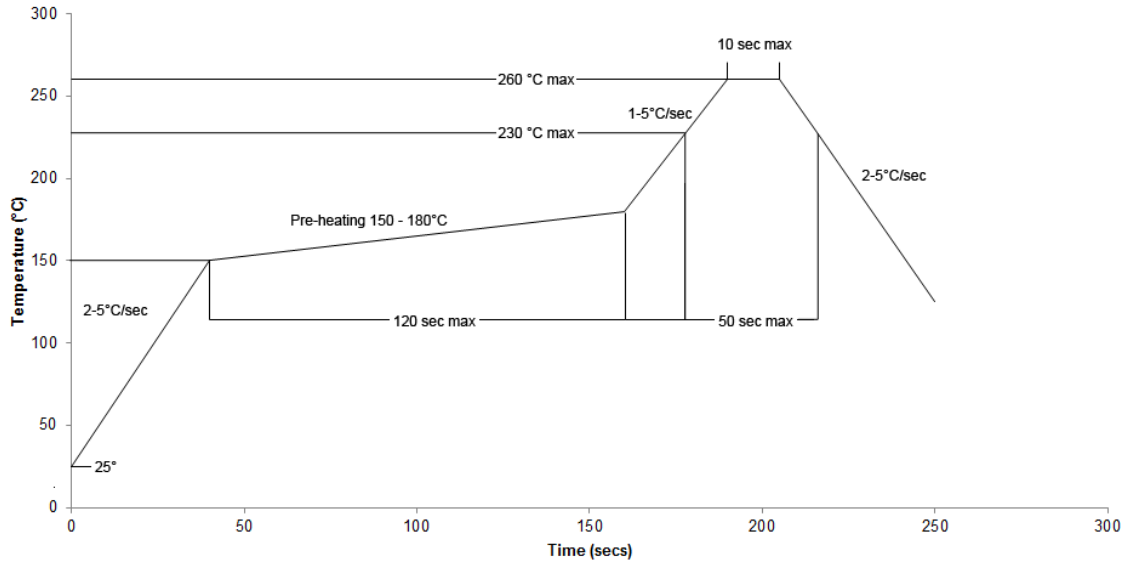


5600K



REFLOW PROFILE

SOLDERING RAMP-UP TIME (Pb-FREE)



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

INSTRUCTIONS FOR SMT

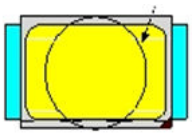
Problems caused by improper selection of collet

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.

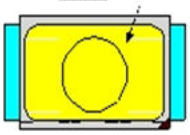
Collet selection

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



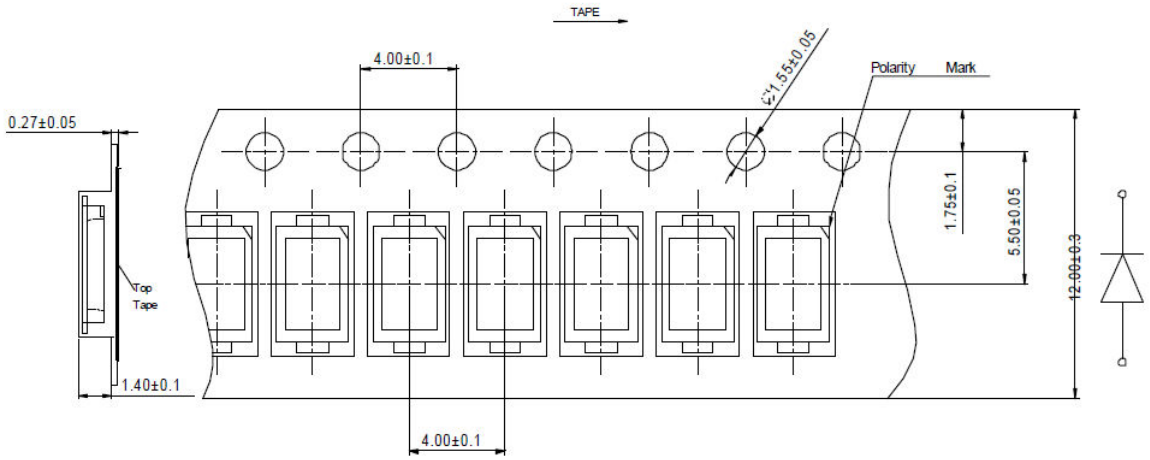
Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

Other notes of caution:

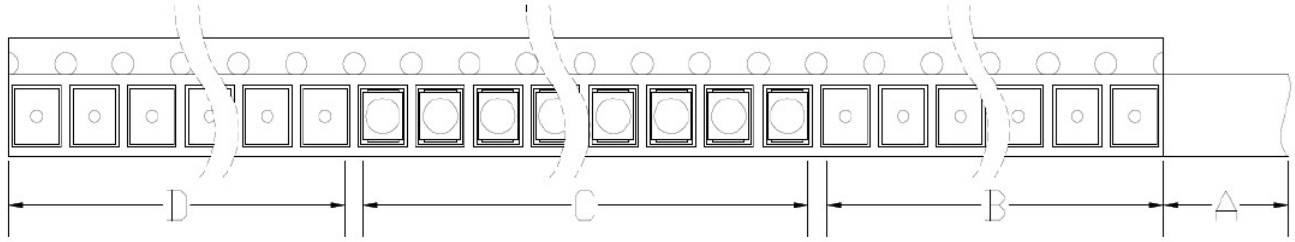
- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should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

TAPE SPECIFICATIONS

TAPE DIMENSIONS (UNIT: MM)



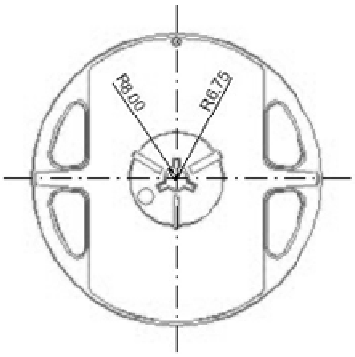
TAPE LAYOUT (NOT DRAWN TO SCALE)



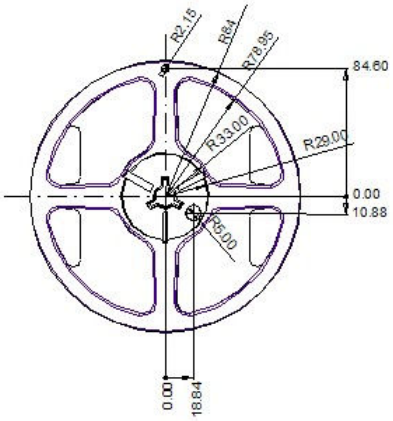
A: COVER TAPE, 300 MM;
B: EMPTY LEADER, 200 MM;
C: LED, 3000 PCS;
D: EMPTY TRAILER, 200 MM;

REEL SPECIFICATIONS

REEL DIMENSIONS TOP (UNIT: MM)

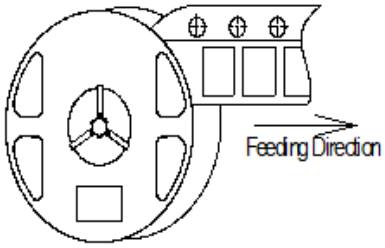


REEL DIMENSIONS BOTTOM (UNIT: MM)



REEL DIMENSIONS SIDE (UNIT: MM)

FEEDING DIRECTION



LOT NUMBERING SCHEME

Yuji LED uses two formats for lot numbering purposes:

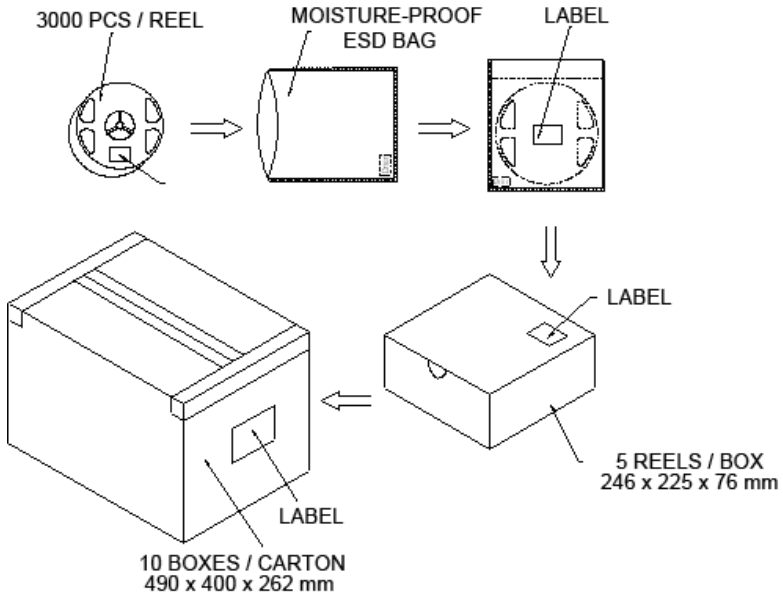
1) YYYY-MM-XXX-Z

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: 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.