

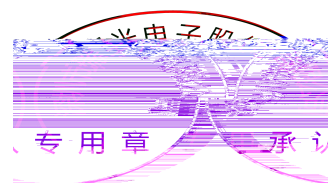
# SPECIFICATION



Mass Product

## Contents

1. Description	3
1.1 General Description	3
1.2 Features	3
1.3 Application	3
1.4 Package Dimension	4
1.5 Product Parameters	5
1.6 Typical Optical Characteristics Curves	7
2. Packaging	11
2.1 Packaging Specification	11
2.1.1 Carrier Tape Dimension	11
2.1.2 Reel Dimension	11
2.1.3 Label Form Specification	12
2.2 Moisture Resistant Packing	12
2.3 Cardboard Box	13
2.4 Reliability Test Items And Conditions	13
2.5 Criteria For Judging Damage	14
3. SMT Reflow Soldering Instructions SMT	15
3.1 SMT Reflow Soldering Instructions SMT	15
4. Handling Precautions	17
4.1 Handling Precautions	17



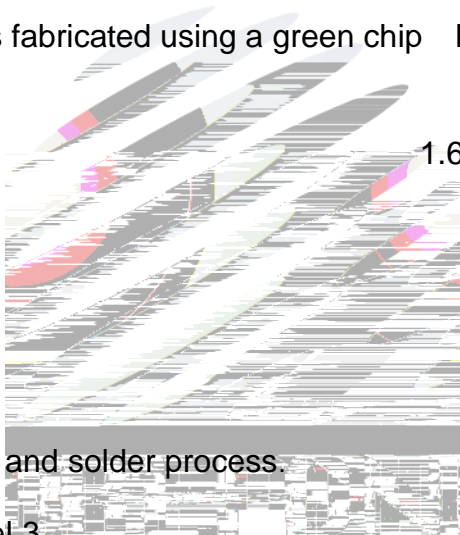
## 1. Description

### 1.1 General Description

The Colour LED which was fabricated using a green chip Package Dimension :  
1.6mmX0.8mmX0.7mm.

LED

1.6mmX0.8mmX0.7mm



### 1.2 Features

**y**

Extreme wide viewing angle.

Suitable for all SMT assembly and solder process.

Moisture sensitivity level: Level 3.

RoHS compliant.

### 1.3 Application

## 1.4 Package Dimension

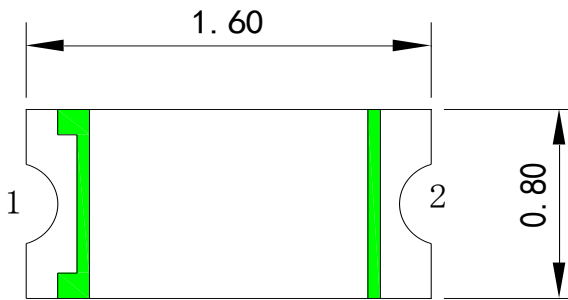


Fig.1-1 Top view

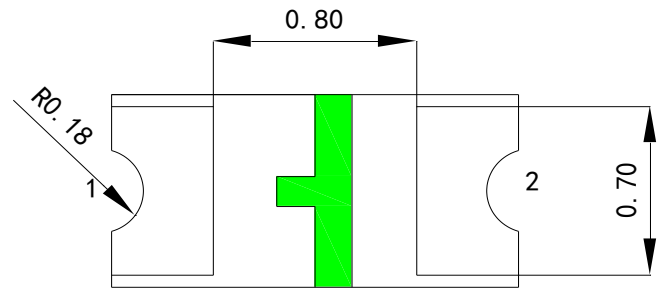


Fig.1-2 Side view

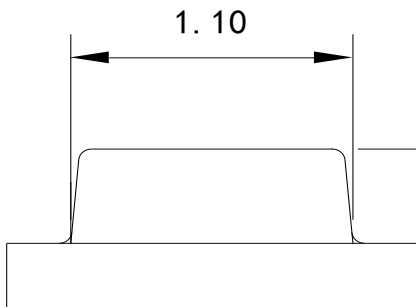


Fig.1-3 Bottom view

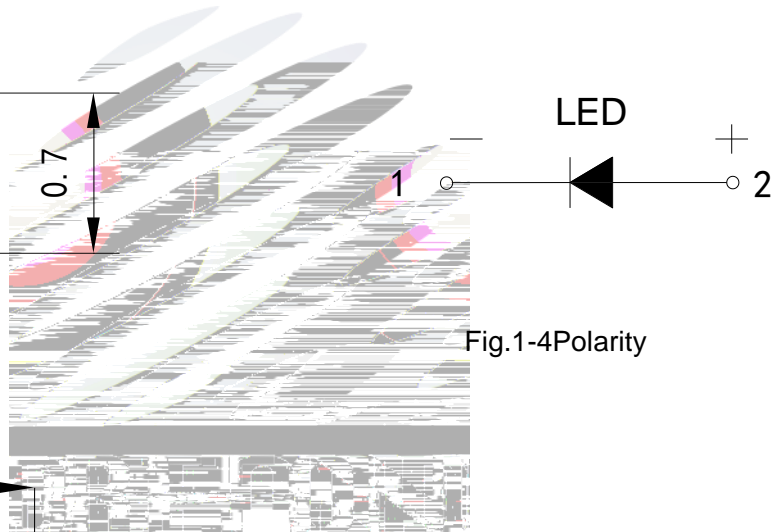


Fig.1-4 Polarity

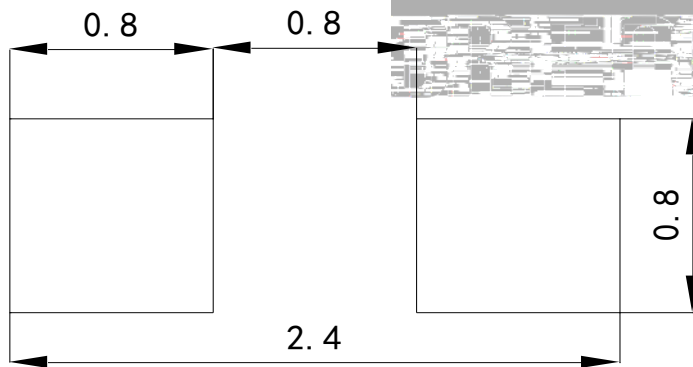
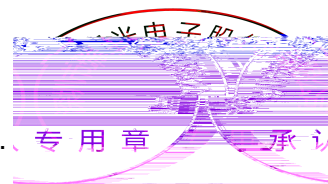


Fig.1-5 Soldering patterns

### Notes

All dimensions units are millimeters.

2. All dimensions tolerances are 0.1mm unless otherwise noted.



## 1.5 Product Parameters

Table 1-1 Electrical / Optical Characteristics at Ts=25°C

Item	Test Condition	Symbol	Value			Unit	
			Min. ( )	Typ.	Max.		
Spectral Half Bandwidth	$I_F=2\text{mA}$	$\Delta$	--	30	--	nm	
Forward Voltage	$I_F=2\text{mA}$	$V_F$	D2	2.3	--	2.4	V
			E1	2.4	--	2.5	V
			E2	2.5	--	2.6	V
			F1	2.6	--	2.7	V
			F2	2.7	--	2.8	V
			G1	2.8	--	2.9	V
			G2	2.9	--	3.0	V
Dominant Wavelength	$I_F=2\text{mA}$	$\lambda_D$	F10	525	--	527.5	nm
			F20	527.5	--	530	nm
			G10	530	--	532.5	nm
			G20	532.5	--	535	nm
Luminous Intensity	$I_F=2\text{mA}$	$I_V$	FD0	90	--	100	mcd
			GA0	100	--	110	mcd
			GB0	110	--	120	mcd
			1FJ	120	--	130	mcd
			1FQ	130	--	140	mcd
			1FR	140	--	150	mcd
			1FS	150	--	160	mcd
Viewing Angle	$I_F=2\text{mA}$		--	140	--	deg	
Reverse Current	$V_R=5\text{V}$	$I_R$	--	--	10	A	
Thermal Resistance.	$I_F=2\text{mA}$	$R_{THJ-S}$	--	--	450	/W	

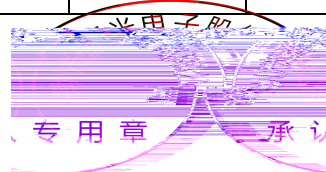
 Notes :  $V_R=5\text{V}$  For test conditions.  $V_R=5\text{V}$ 


Table 1-2 Absolute Maximum Ratings at Ts=25°C

Parameter	Symbol	Rating	Units
Power Dissipation	$P_d$	60	mW
Forward Current	$I_F$	20	mA
Peak Forward Current Of Pulse	$I_{FP}$	60	

## Notes

- 1/10 Duty cycle, 0.1ms pulse width.
- The above forward voltage measurement allowance tolerance is  $\pm 0.1V$ .
- The above dominant wavelength measurement allowance tolerance is  $\pm 2nm$ .
- The above luminous intensity measurement allowance tolerance  $\pm 10\%$ .
- Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.
- All measurements were made under the standardized environment of Refond.
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate

## 1.6 Typical Optical Characteristics Curves

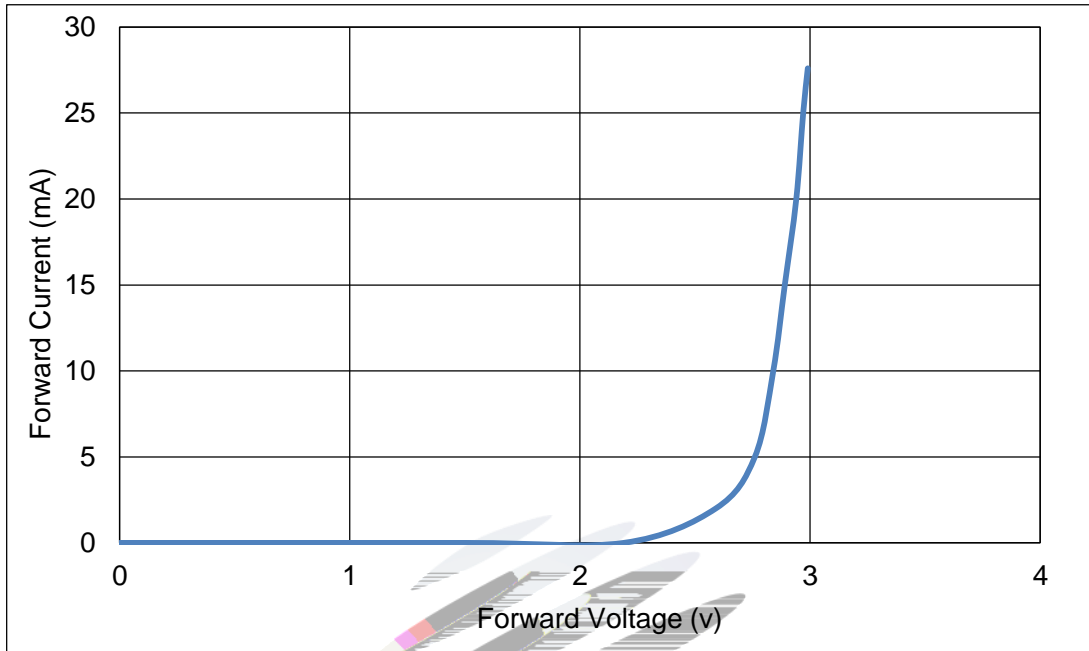


Fig 1-6 Forward Voltage Vs. Forward Current

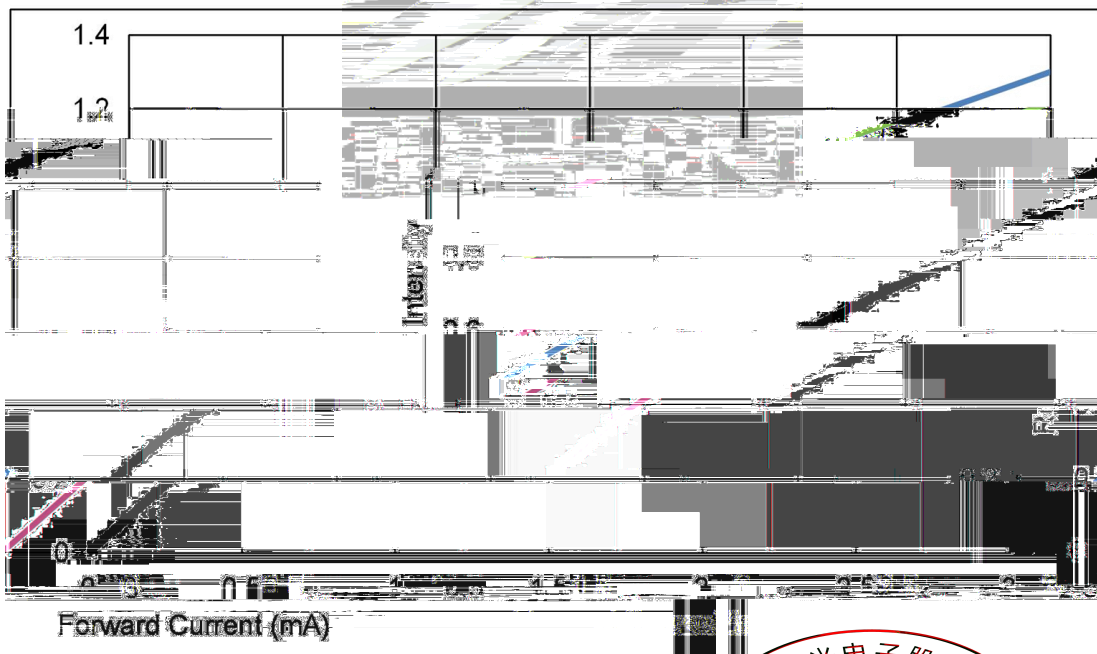
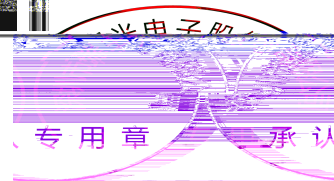


Fig 1-7 Forward Current Vs. Relative Intensity



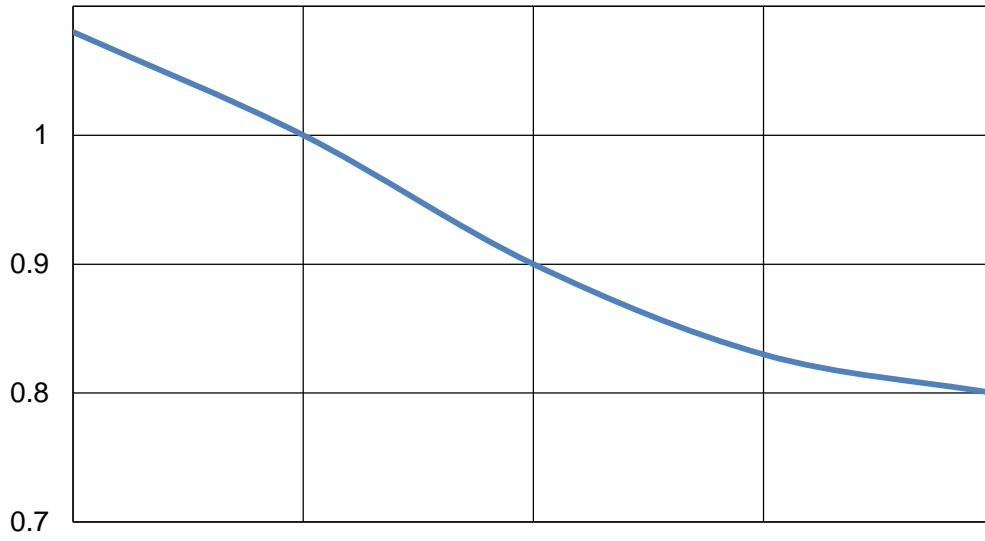


Fig 1-8 Pin Temperature Vs Relative Intensity

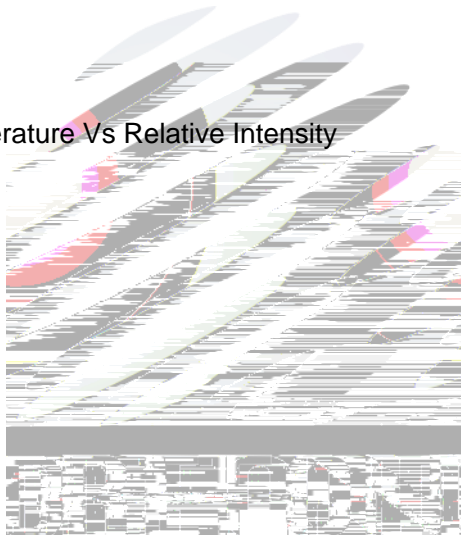


Fig 1-9 Pin Temperature Vs Forward Current



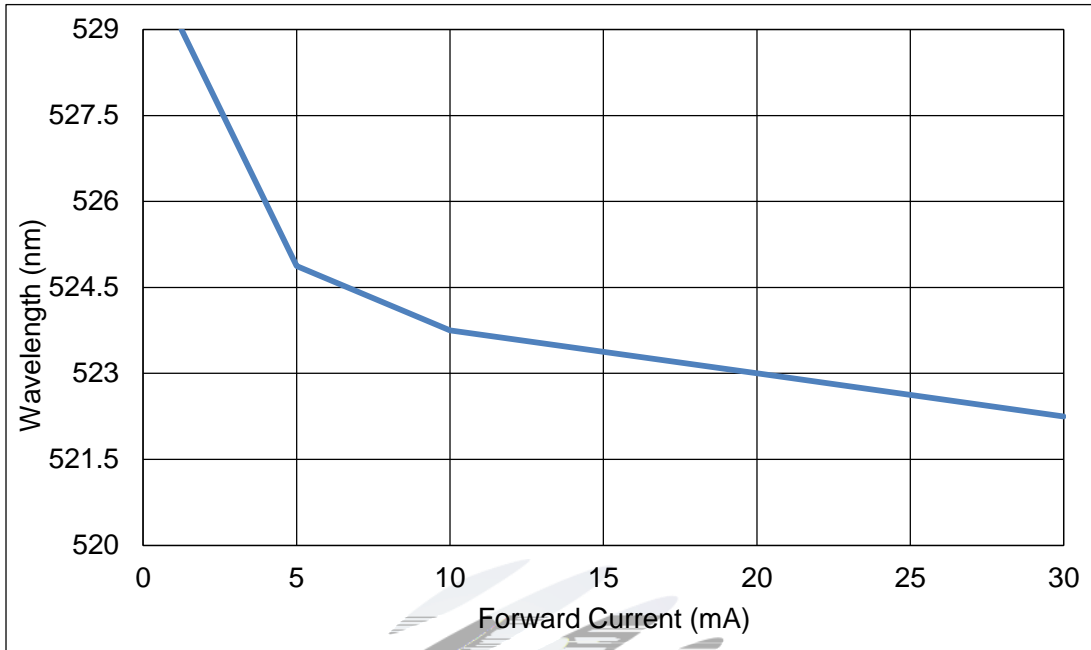


Fig1-10 Forward Current Vs. Dominate Wavelength (Ta=25°C)

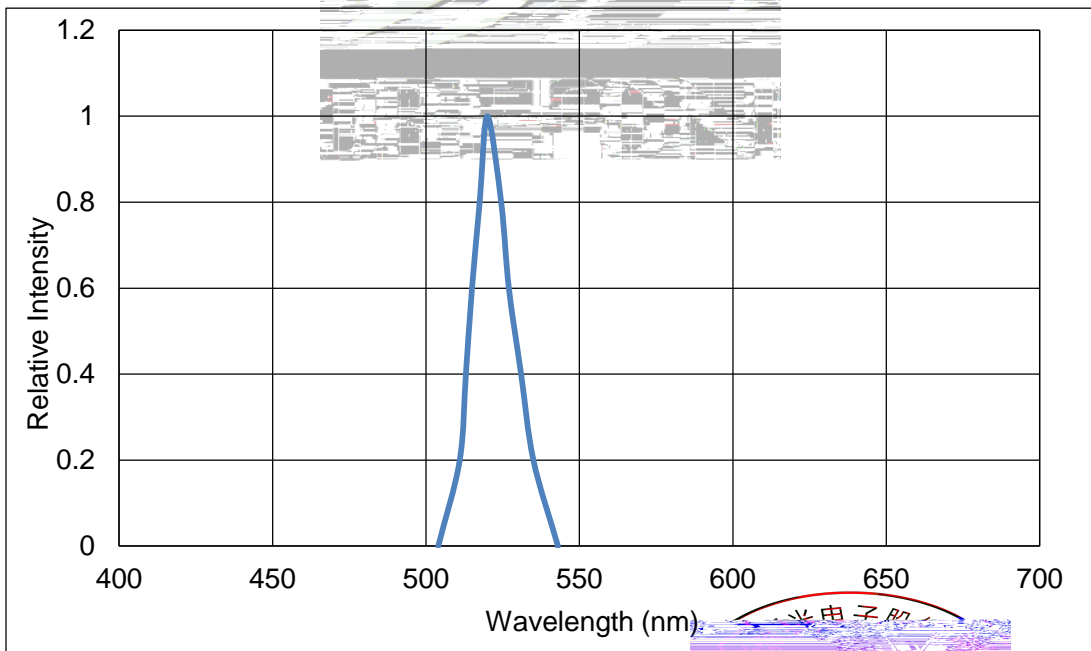


Fig 1-11 Relative Intensity Vs. Wavelength (Ta=25°C)

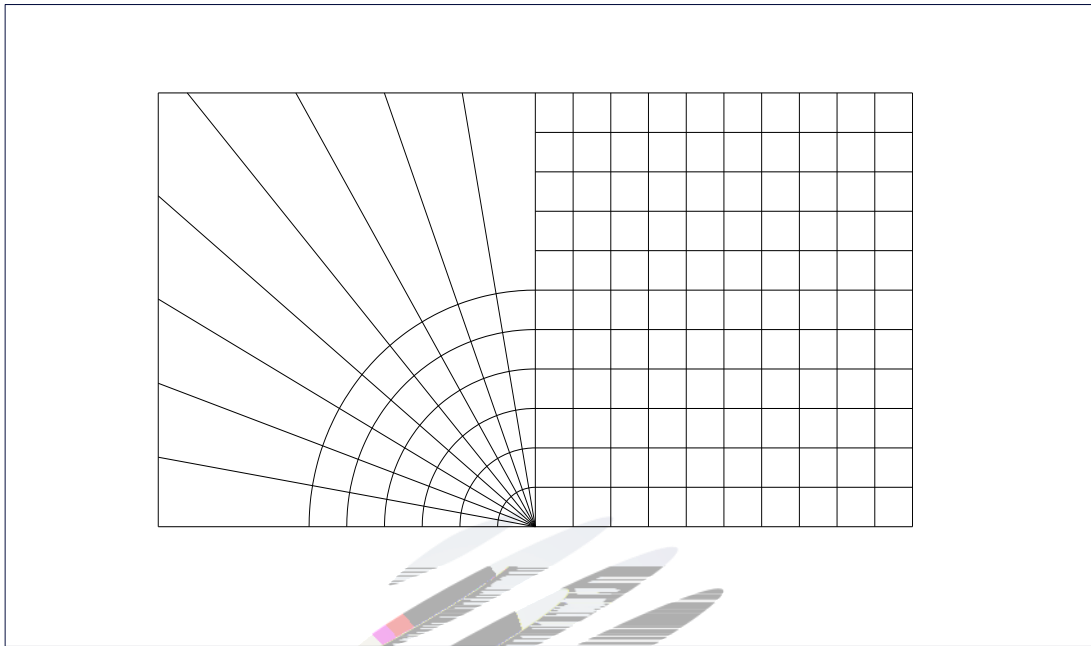
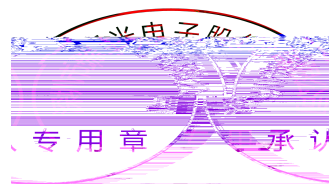
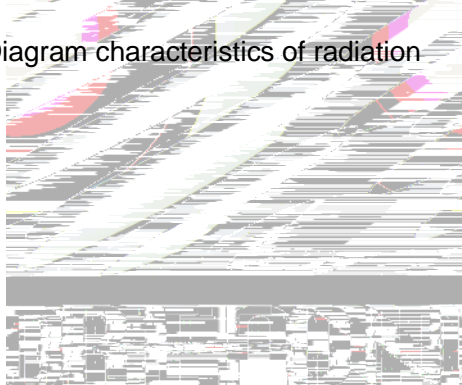


Fig 1-12 Diagram characteristics of radiation



## 2. Packaging

### 2.1 Packaging Specification

Package:4000pcs/reel.                      4000pcs

#### 2.1.1 Carrier Tape Dimension

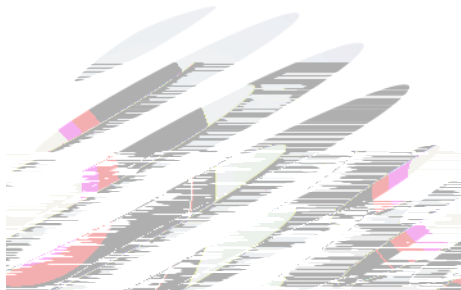


Fig.2-1 Carrier Tape Dimension

#### 2.1.2 Reel Dimension



Table 2-1 Dimension

Fig.2-2 Reel Dimension

Notes

The tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit : mm

### 2.1.3 Label Form Specification

Table 2-2 Parameter

PART NO.	Part Number
SPEC NO.	Spec Number
LOT NO.	Lot Number
BIN CODE	Bin Code
	Luminous flux
XY	Chromaticity Bin
V <sub>F</sub>	Forward Voltage
WLD	Wavelength
QTY	Packing Quantity
DATE	Made Date

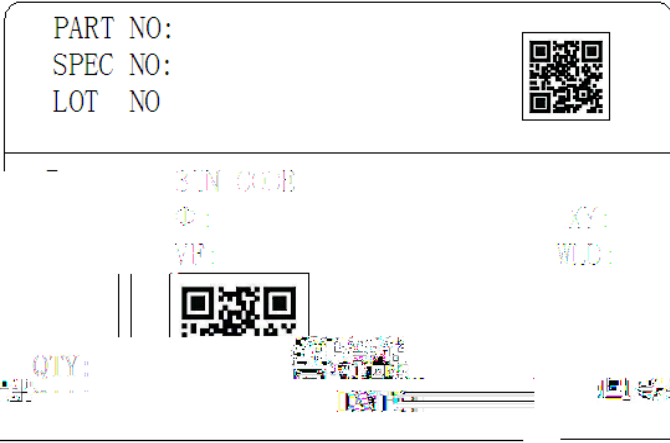


Fig. 2-3 Label Form Specification

### 2.2 Moisture Resistant Packing

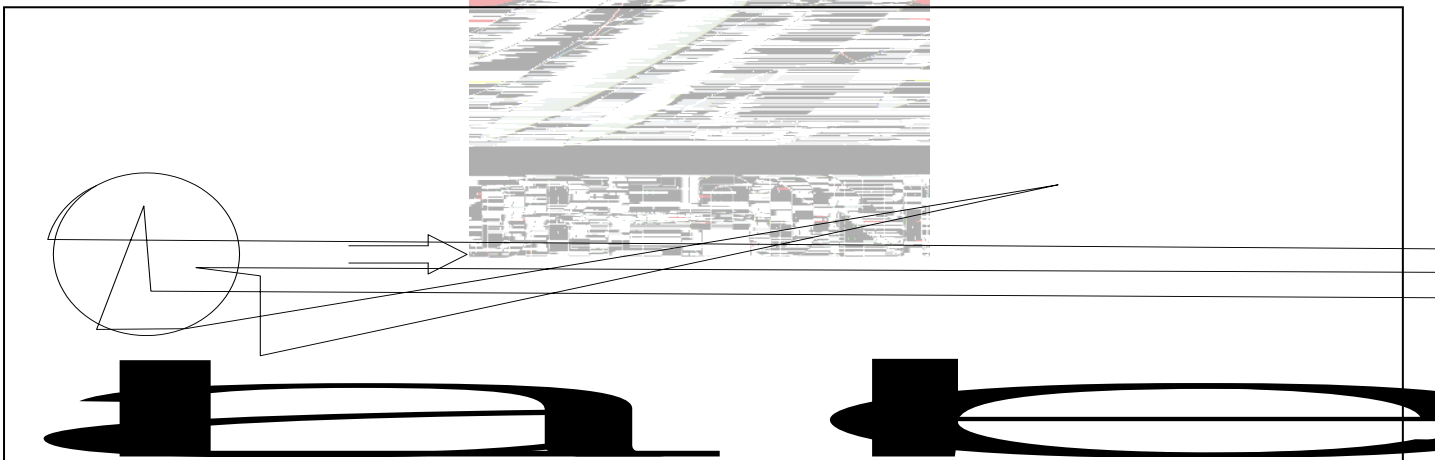
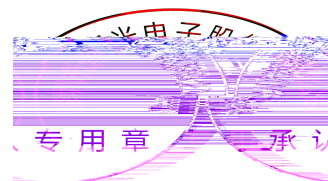
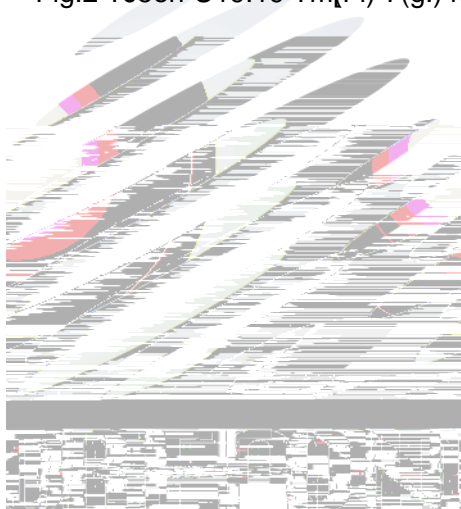


Fig.2-4 Moisture Resistant Packing



## 2.3 Cardboard Box

Fig.2 TJ5en-U19.19 Tm[Fi)-7(g.)4(2)]TJ51 G[W)-28(e)9(b)-3(: )]TJETQ Tf1 0 0 1



## 2.5 Criteria For Judging Damage

Table 2-4 Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min. 最小	Max.
Forward Voltage	$V_F$	$I_F=2mA$	-	U.S.L*)x1.1
Reverse Current	$I_R$	$V_R= 5V$	-	U.S.L*)x2.0
Luminous Flux		$I_F=2mA$	L.S.L*)x0.7	-



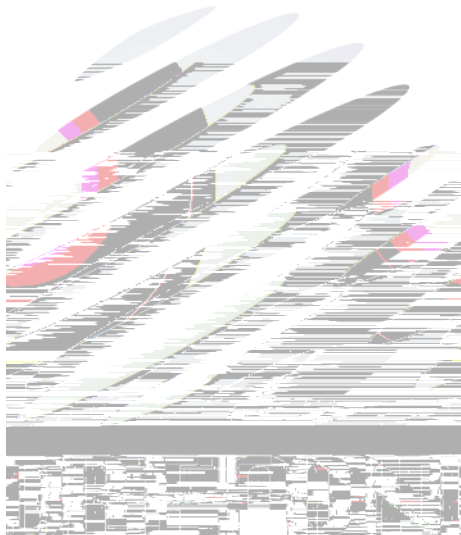


## Notes

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings , LED will be damaged.

(2)Whensoldering , do not put stress on the LEDs during heating.

### 3.1.1 Soldering Iron





## 4. Handling Precautions

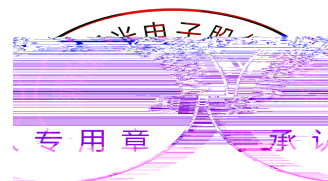
### 4.1 Handling Precautions

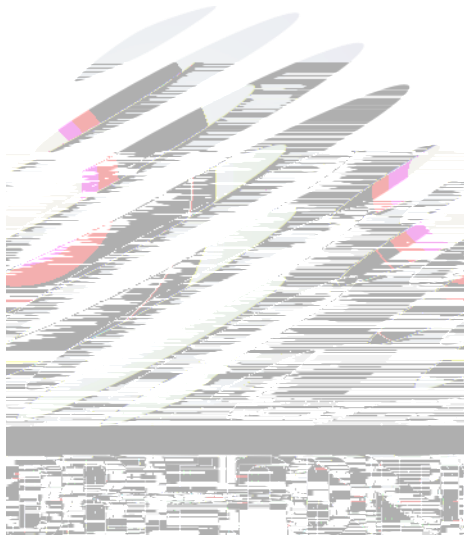
(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement. LED

(2) In order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM, the single content of Chlorine element is required to be less than 900PPM, the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. Refond advises against the use of any chemicals or materials that have been found or are suspected to have an adverse effect on device performance or reliability.

To verify compatibility, Refond recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to be used. Attaching LEDs, do not use adhesives that outgas organic vapor.



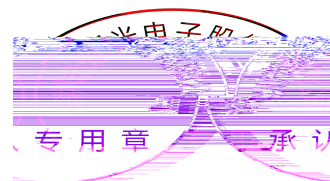


LED.

Table 4-1 Storage

Conditions		Temperature	Humidity	Time
Storage	Before Opening Aluminum Bag	30	75%	Within 1 Year From Date
	After Opening Aluminum Bag	30	60%	24hours 24
Baking		60 5	-	24hours 24





Declare

This specification is written both in English and in Chinese and the latter is formal.