



SPECIFICATION



REFOND P/N

RF-WNRA30DS-ED(1)

Mass Production





Contents

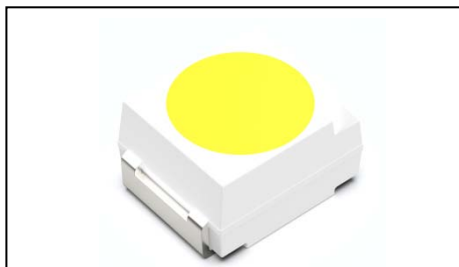
1. Description	3
1.1 General Description	3
1.2 Features	3
1.3 Application	3
1.4 Package Dimension	4
1.6 Bin Range Of Forward Voltage and Luminous Intensity (IF=20mA)	BIN
(IF=20mA)	6
1.7 Typical Optical Characteristics Curves	8
2. Packaging	12
2.1 Packaging Specification	12
2.1.1 Carrier Tape Dimension	12
2.1.2 Reel Dimension	12
2.1.3 Label Form Specification	13
2.2 Moisture Resistant Packing	13
2.3 Cardboard Box	13
2.4 Reliability Test Items And Conditions	14
2.5 Criteria For Judging Damage	15
3. SMT Reflow Soldering Instructions SMT	16
3.1 SMT Reflow Soldering Instructions SMT	16
4. Handling Precautions	18
4.1 Handling Precautions	18





1. Description

1.1



The White LED, which was fabricated by using a blue chip and the phosphor.
Product Package:3.50mmX2.80mmX1.84mm.

3.50mmX2.80mmX1.84mm

1.2 Features

PLCC2 Package.

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process.

Available on tape and reel.

Moisture sensitivity level: Level 2.

Compliance with RoHS and REACH. RoHS REACH

Qualifications: The product qualification test plan is based on the guidelines of AEC-Q101
Stress Test Qualification for Automotive Grade Discrete Semiconductors

1.3 Application

Automotive Interior Lighting.
Switches.





1.4 Package Dimension

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Notes

All dimensions units are millimeters.

All dimensions tolerances are $\pm 0.2\text{mm}$ unless otherwise noted.

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1.5 Product Parameters

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

Item	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F=20mA$	2.8	2.85	3.4	V
Reverse Current	I_R	$V_R=5V$	---	---	10	uA
Luminous Intensity	IV	$I_F=20mA$ 2.---23				

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

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Notes

- 1/10 Duty cycle, 10ms pulse width.
- The above forward voltage measurement allowance tolerance is $\pm 0.1V$. $\pm 0.1V$.
- The above color coordinates measurement allowance tolerance is ± 0.005 . \pm
- The above luminous intensity measurement allowance tolerance $\pm 10\%$. $\pm 10\%$.
- 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
- ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handing is needed. 90%

V

1.6 Bin Range Of Forward Voltage and Luminous Intensity (IF=20mA)

BIN (IF=20mA)

Table 1-3

V _F V	G1	G2	H1	H2	I1	I2
	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2	3.2-3.3	3.3-3.4
IV(mcd)	N5	N6	O3	O4		
	2300-2550	2550-2800	2800-3150	3150-3500		





1.7 Typical Optical Characteristics Curves

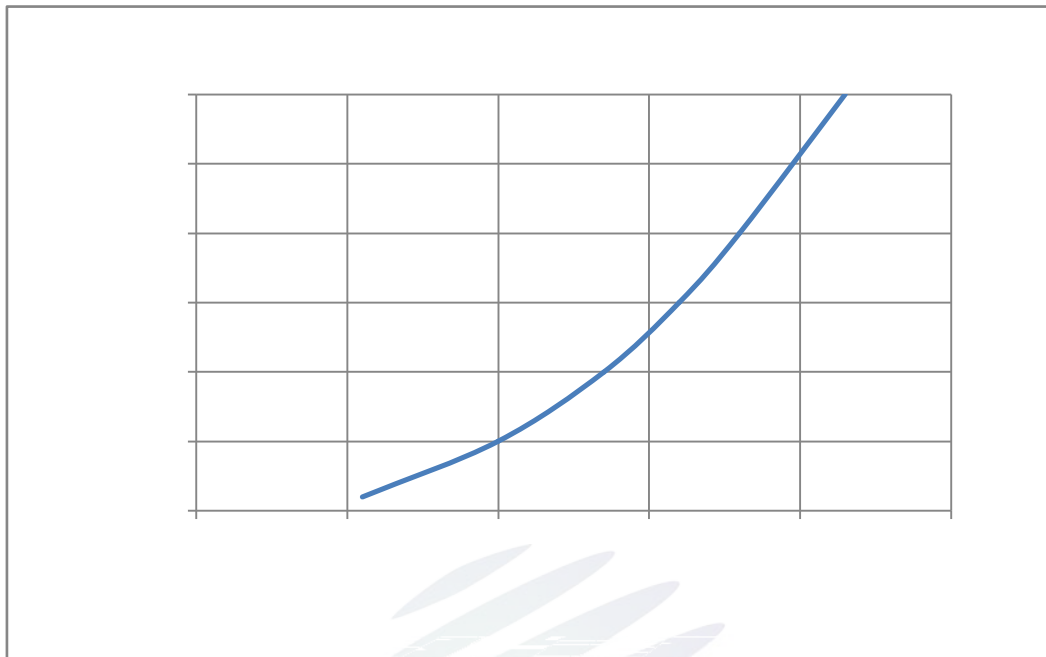


Fig. 1-7 Forward Voltage Vs Forward Current

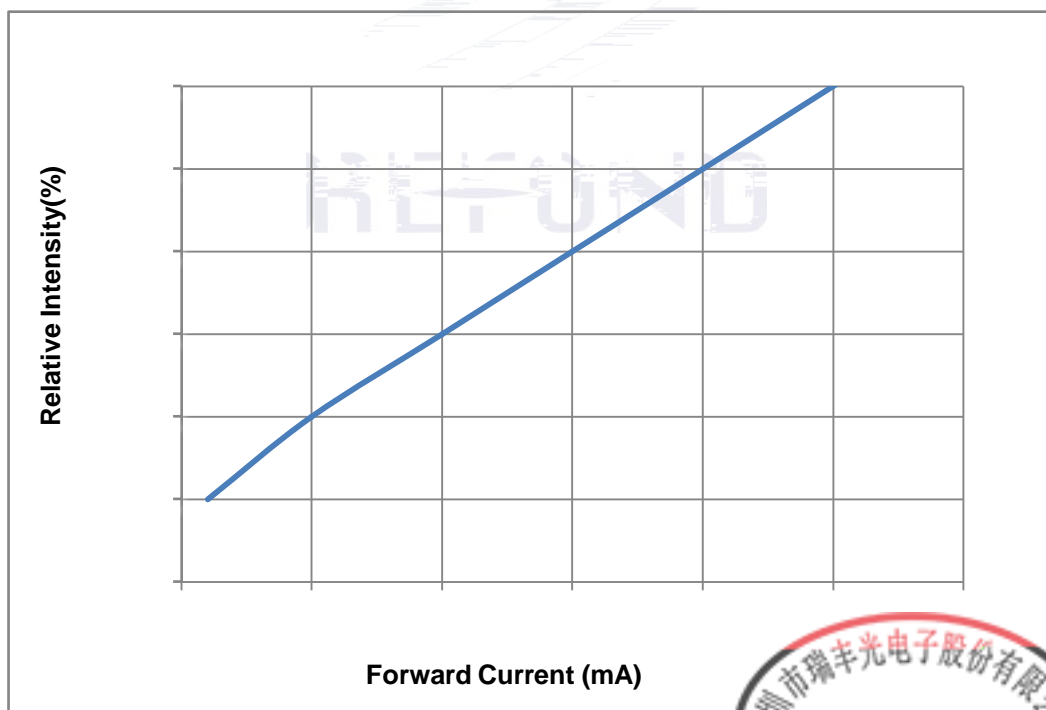


Fig. 1-8 Forward Current Vs Relative Intensity



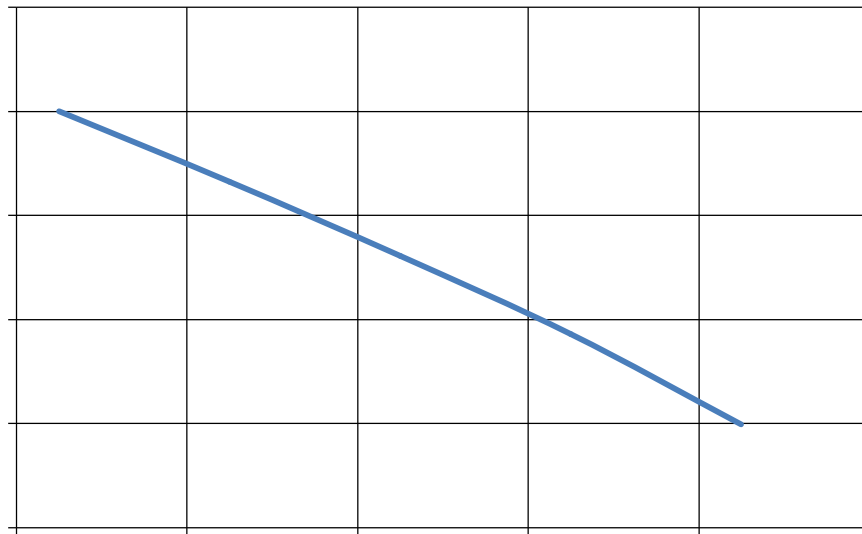


Fig. 1-9 Solder Temperature Vs Relative Intensity

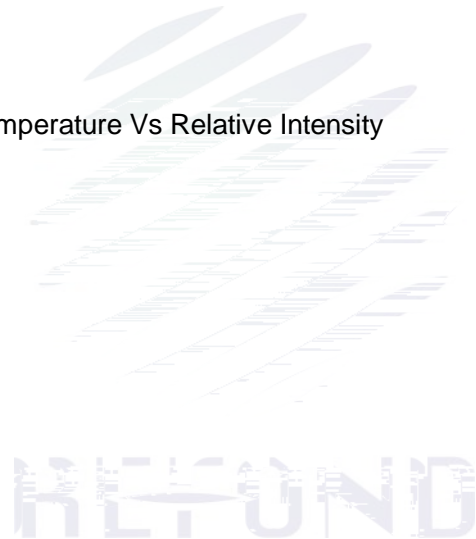
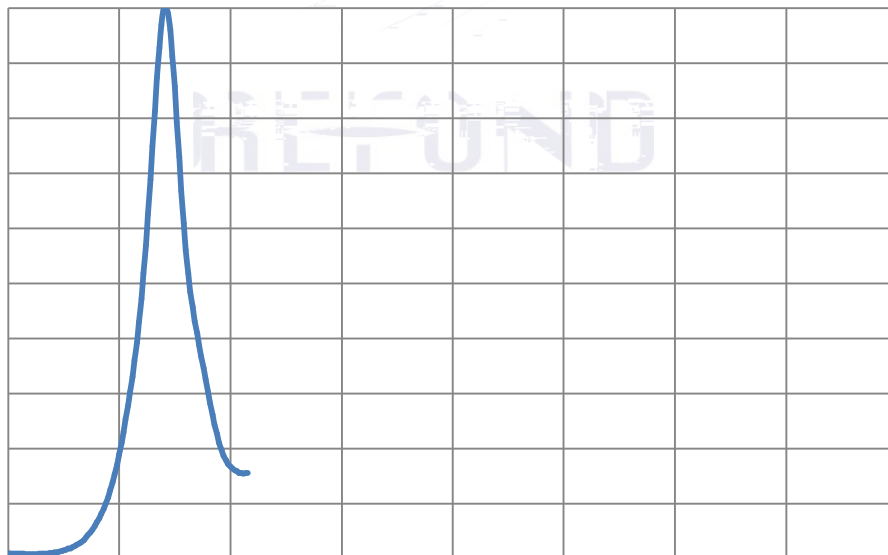
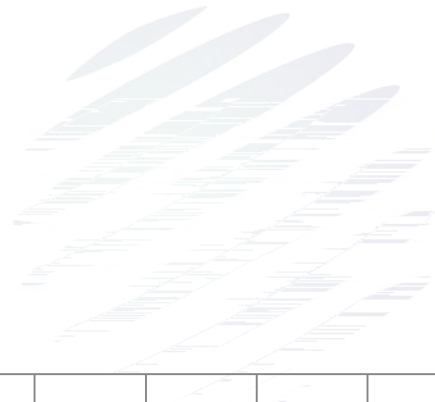


Fig. 1-10 Solder Temperature Vs Forward Current





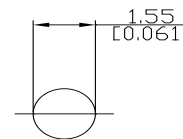
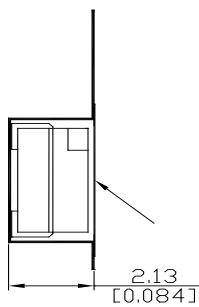


2. Packaging

2.1 Packaging Specification

Package: 2000pcs/reel. 2000pcs

2.1.1 Carrier Tape Dimension



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2.1.3 Label Form Specification

Specification

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

Fig. 2-3 Label Form Specification

2.2 Moisture Resistant Packing

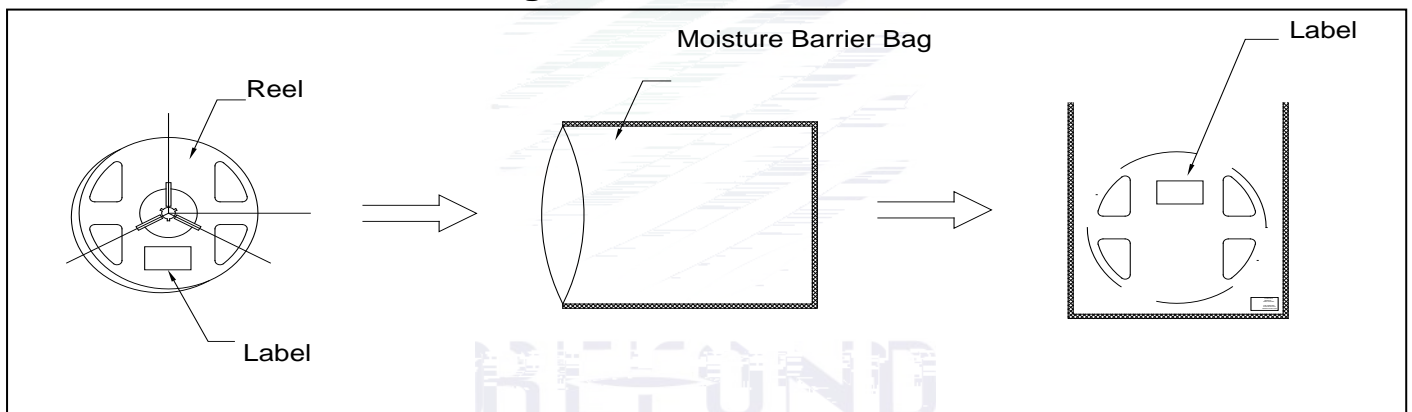


Fig.2-4 Moisture Resistant Packing

2.3 Cardboard Box



Fig.2- Cardboard Box



2.4 Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	Temp:260 max T=10 sec	2times	20pcs.	0/1
MSL2 2	JESD22-A113	85 / 60%RH	168 hrs.	20pcs.	0/1
Thermal Shock	JEITAED-4701 300307	-40 15min 10s 125 15min	1000 cycle	20pcs.	0/1
Life Test	JESD22-A108	Ta=100 If=20mA	1000hrs.	20pcs.	0/1
High Temperature High Humidity Life Test	JESD22-A101	85 / 85%RH If=20mA	1000hrs.	20pcs.	0/1





3. SMT Reflow Soldering Instructions SMT

3.1 SMT Reflow Soldering Instructions SMT

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Reflow parameters

Average temperature rise speed	T_{smax} T_P	3 °C/ Max 3 °C/ s
Preheating: minimum temperature	(T_{smin})	150 °C
Preheating: Max temperature	(T_{smax})	200 °C
Preheating: Time	T_{smin} T_{smax}	60 - 120 60s-120s
Time limited to maintain high temperature: the temperature	(T_L)	217 °C
Time limited to maintain high temperature: The Time	(t_L)	60 Max 60s
Peak /Classification of temperature:	/ (T_P)	260 °C

Time limit classification of peak temperature time t_p 10 Max 10s



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)When soldering , do not put stress on the LEDs during heating.

3.1.1 Soldering Iron

3.1.2 Repairing



3.1.3 Cautions





4. Handling Precautions

4.1 Handling Precautions

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can

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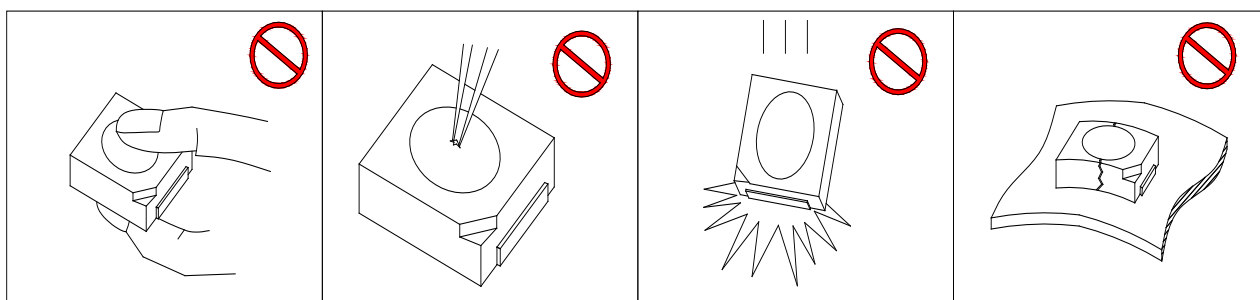


Fig 4-1 Handling Precautions

voltage only when it is ON or OFF.If the reverse voltage is applied to LED, migration

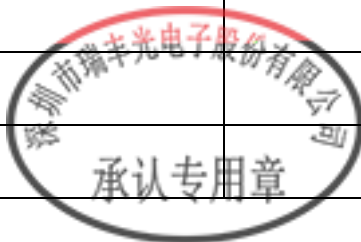
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Version History/

Date	Revisor	Version	Verifier	Remarks
2017/7/13		E0		New issue
2021/3/13		E1		
2022/07/07		E2		
				



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Declare

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