

# PRODUCT SPECIFICATION

*Part Number*  
**PL00182-WCRR2121**

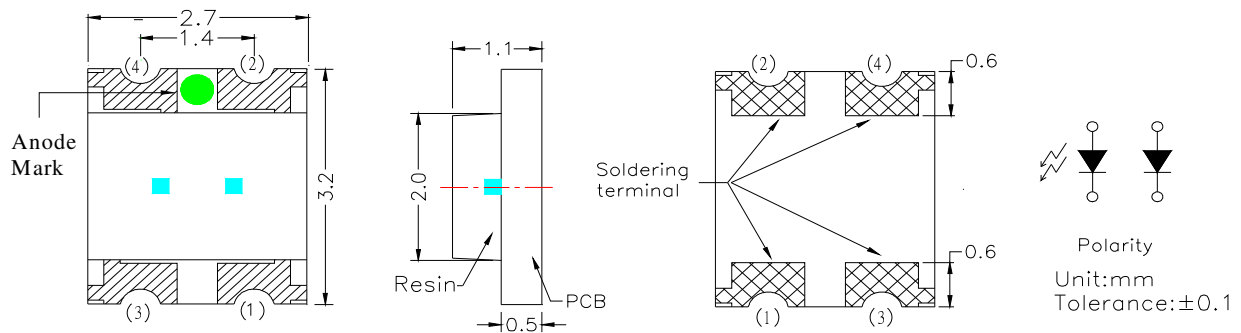
## Details

- Surface Mount LED
- 3.2mm x 2.7mm x 1.1mm
- Emitting color: Super Red
- AlGaAs chip material
- 3,000 Piece Reels

## Features

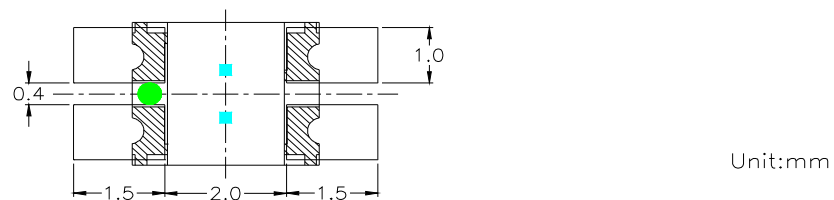
- RoHS Compliant
- Compatible with automatic placement equipment
- Compatible with reflow solder process

## Mechanical Dimensions



1. Soldering terminal may shift in x, y direction.

## Recommended Soldering Pad Dimensions



## Notes:

1. Dimensions in millimeters unless otherwise noted
2. Specifications subject to change without notice





**Device Selection Guide**

Model Number	Chip		Lens Type
	Material	Emitting Color	
PL00182-WCRR2121	AlGaAs	Super Red	Water Clear
	AlGaAs	Super Red	

**Absolute Maximum Ratings at Ta=25°C**

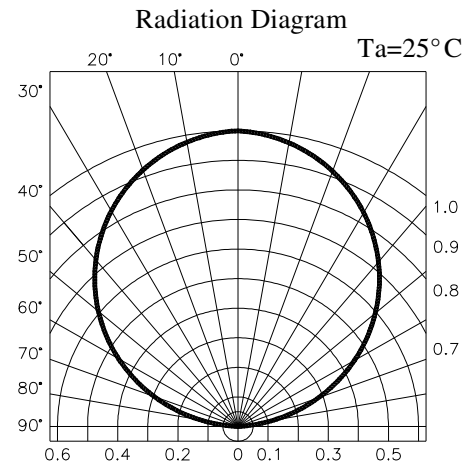
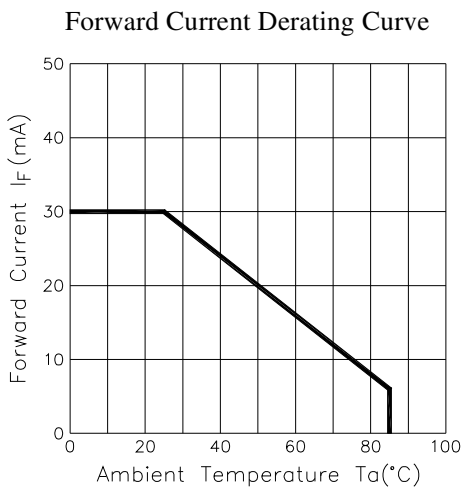
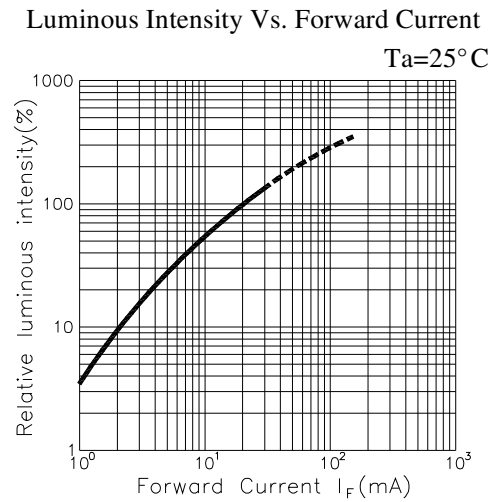
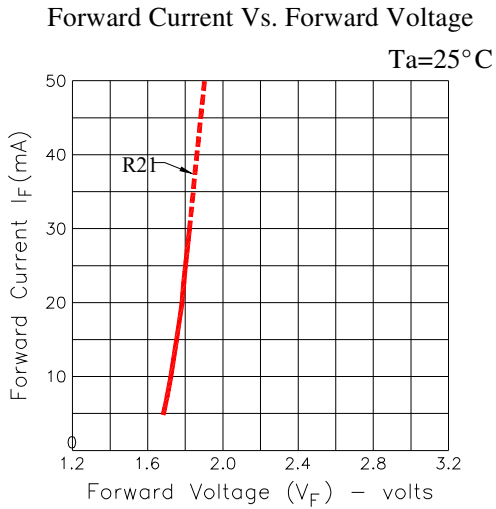
Parameter	Symbol	Maximum	Unit
Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	IFP	100	mA
Derating Liner from 25°C	--	0.4	mA/°C
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+85	°C

**Electrical and Optical Characteristics at Ta=25°C**

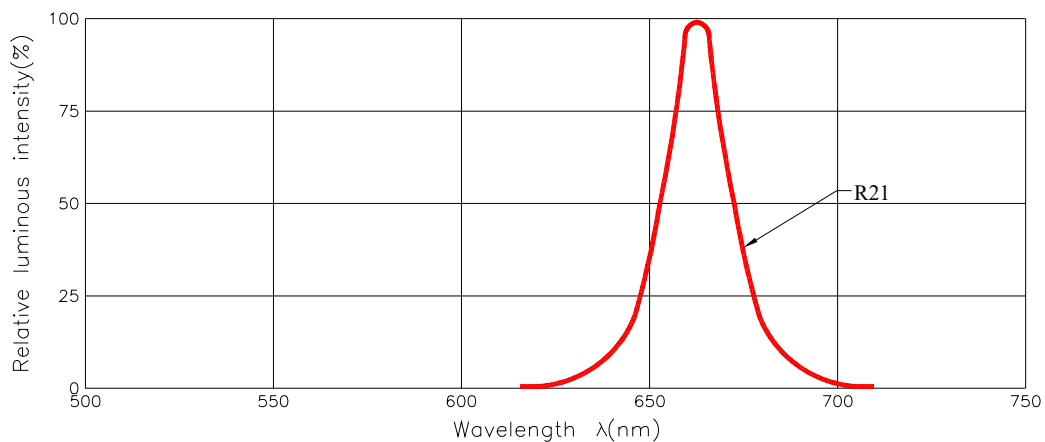
Chip			Lens Appearance	Absolute Maximum Ratings			Electro-optical Data (At 20mA)				Viewing Angle 2θ1/2 (deg)
Emitted Color	λP (nm)	λD (nm)		Δλ (nm)	PD (mW)	IFmax (mA)	VF (V)		IV (mcd)		
			Typ.				Max.	Min.	Typ.		
Super Red (Die 1)	660	643	Water Clear	20	69	30	1.9	2.3	7.0	18	120°
Super Red (Die 1)	660	643		20	69	30	1.9	2.3	7.0	18	

Notes: Tolerance Luminous intensity ±15% and Wavelength (λD) ±2nm

### Typical Electro-Optical Characteristic Curves



### Spectrum Distribution





***Luminous Intensity Bins***

<b>Bin Code</b>	<b>Test Condition: @20mA</b>	
<b>R21</b>	<b>Min. Iv (mcd)</b>	<b>Max. Iv (mcd)</b>
E	7.2	11.5
F	11.5	18
G	18	28.5

<b>Bin Code</b>	<b>Test Condition: @20mA</b>	
<b>R21</b>	<b>Min. Iv (mcd)</b>	<b>Max. Iv (mcd)</b>
E	7.2	11.5
F	11.5	18
G	18	28.5

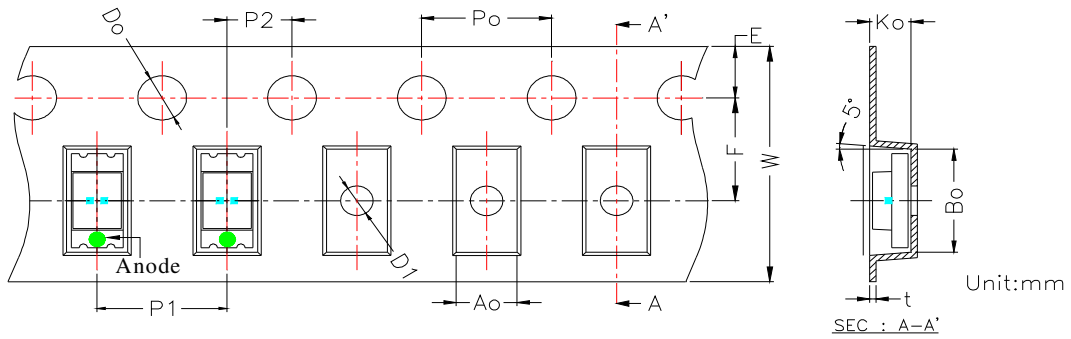
***Dominant Wavelength Bins***

<b>Bin Code</b>	<b>Test Condition: @20mA</b>	
<b>R21</b>	<b><math>\lambda</math>Dmin (nm)</b>	<b><math>\lambda</math>Dmax (nm)</b>
1	632	660

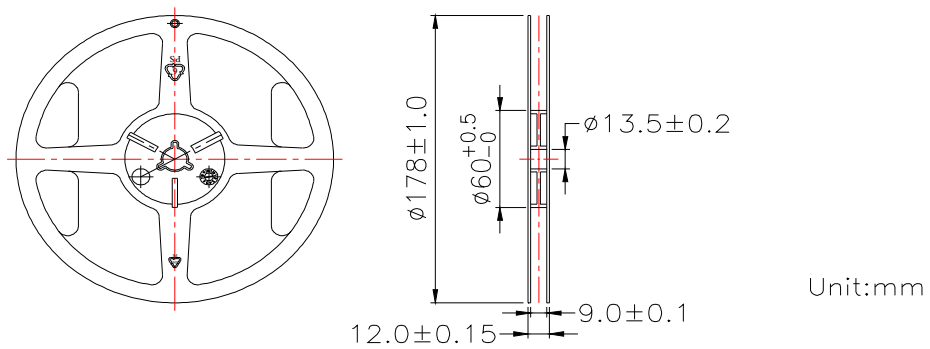
<b>Bin Code</b>	<b>Test Condition: @20mA</b>	
<b>R21</b>	<b><math>\lambda</math>Dmin (nm)</b>	<b><math>\lambda</math>Dmax (nm)</b>
1	632	660

### Tape Specifications

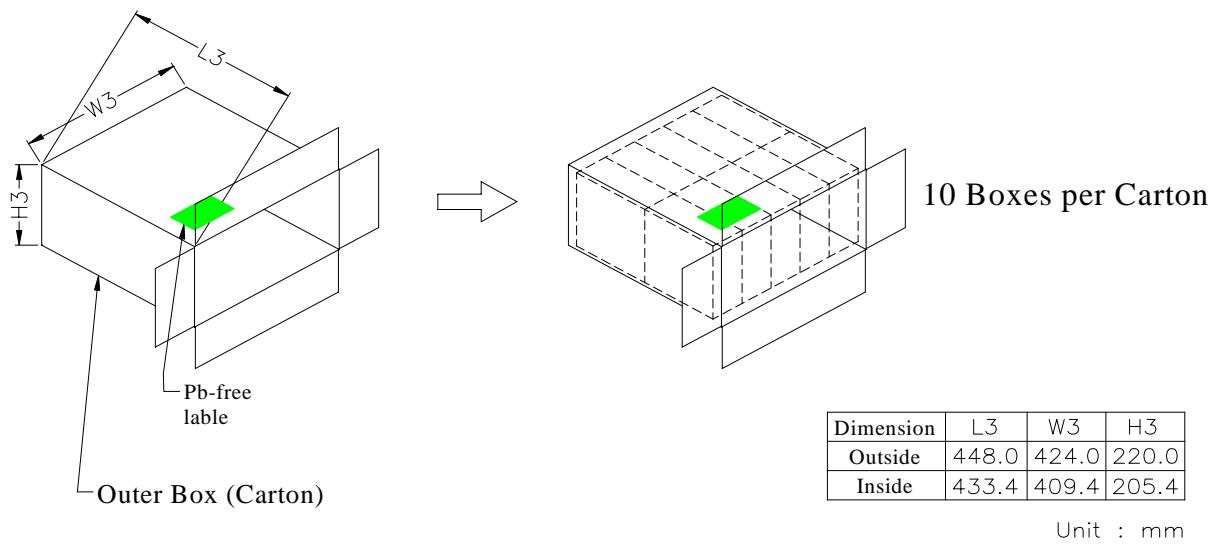
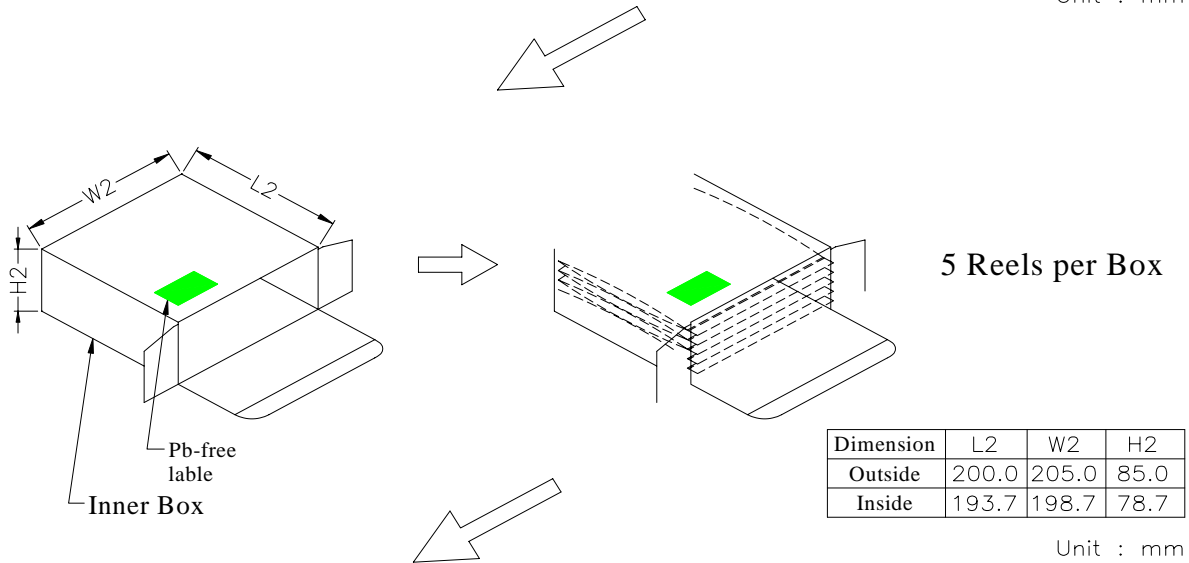
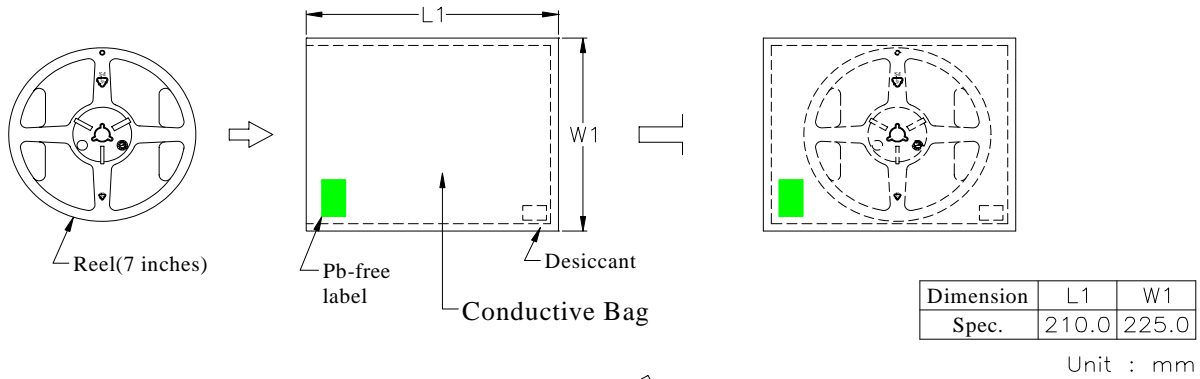
Packing Size													
Item	W	P1	E	F	D <sub>o</sub>	D <sub>1</sub>	P <sub>o</sub>	10P <sub>o</sub>	P <sub>2</sub>	A <sub>o</sub>	B <sub>o</sub>	K <sub>o</sub>	t
Spec.	8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	2.75	3.35	1.35	0.23
Tolerance	±0.20	±0.10	±0.10	±0.05	+0.10 -0.00	±0.05	±0.05	±0.20	±0.05	±0.10	±0.10	±0.10	±0.05



### Packing and Shipping Specifications



### Packaging



### Precautions for Use

- The Chip-LED Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature application, etc.

No.	Item	Test Conditions	Test hr/cycle/time	Sample Q'ty	Ac / Re
1	Solder Heat	TEMP : 260°C±5°C ; 10±1 sec	2 times	30 pcs	0 / 1
2	Solderability Test ※	TEMP : 235°C±5°C ; 3±1 sec	1 time	5 pcs	0 / 1
3	Temperature Cycle	H : +85°C 30min. ∫ 5min. L : -40°C 30min.	100 cycles	20 pcs	0 / 1
4	Thermal Shock	H : +85°C 5min. ∫ L : -40°C 5min.	50 cycles	20 pcs	0 / 1
5	High Temperature Storage	TEMP : 85°C	1000 hrs	20 pcs	0 / 1
6	Low Temperature Storage	TEMP : -40°C	1000 hrs	20 pcs	0 / 1
7	DC Operating Life	$I_F = I_{Fmax}$	1000 hrs	20 pcs	0 / 1
8	High Temperature High Humidity	85°C / 90~95%R.H.	1000 hrs	20 pcs	0 / 1
9	Shocking test	100~2000Hz ; 98.1m/s <sup>2</sup> X,Y,Z direction	2 hrs	20 pcs	0 / 1
10	Dropping test	Put on pallet ; height : 75cm	3 times	20 pcs	0 / 1

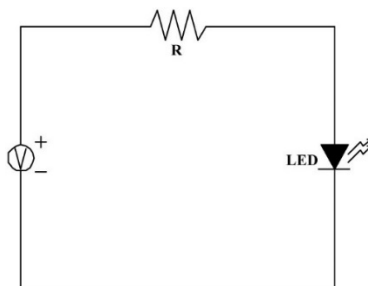
#### Judgment Criteria

Forward Voltage $V_F$	$V_F$ Max-Increase < 1.1x
Reverse Current $I_R$	$I_R$ Max-Increase < $I_{Rmax}$
Luminous Intensity $I_V$	$I_V$ Decay < 40%

※ Solderability test criteria : coverage is not less than 95%

Note : Measurement shall be taken after the tested samples have been returned to normal ambient conditions (generally after two hours)

### Test Circuit



- *Overdrive current proof*

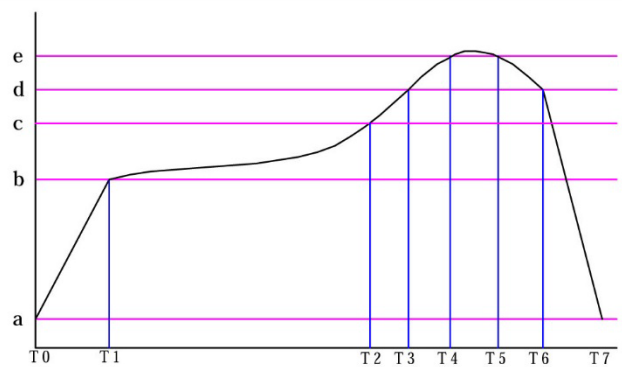
Customer must apply resistors for protection, otherwise slight voltage shift will cause current change with great deal. ( Burn out will happen )

- *Storage*

1. The operation of temperature and R.H. are : 5°C~30°C, 60%R.H. Max.
2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccant. Considering the tape life, we suggest our customers use our products within 1.5 years (from production date).
3. It is recommended to bake before soldering when the package is unsealed more than 72 hrs. The condition is: 60°C±5°C for 15hrs.

### ***Reflow Temperature/Time***

TEMP (°C)		TIME (sec)	
a	25	T0~T1	5°C/sec max
b	150	T1~T2	90~130
c	200	T2~T3	5°C/sec max
d	230	T3~T6	60~90
e	260	T4~T5	10±1
		T6~T7	-6°C/sec max
<b>MSL level</b>		<b>Level 1</b>	



### ***Hand Soldering Iron***

Temperature at tip of iron: 400°C Max (35W Max)

Soldering time: 3 +/-1 sec.





**P-TEC**

<b>PL00182-WCRR2121 Customer Approval Signatures</b>	<b>Approved By</b>	<b>Checked By</b>	<b>Prepared By</b>

**Record of Revisions**

<b>Rev.</b>	<b>Comments</b>	<b>Page</b>	<b>Date</b>
0	Released Spec	--	12/16/14
1	Updated Spec	--	01/28/21