

Rev No.: V.4 Spec No.: DL-PCB3535RGBW-10W HONGKONG DOUBLE LIGHT ELECTRONICS TECHNOLOGY CO.,LIMITED

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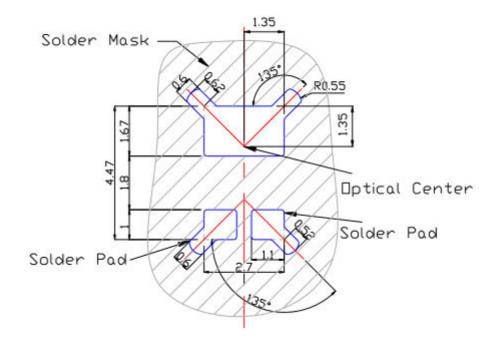
Features:

- Small package with high efficiency 1.
- 2. Long operating life.
- 3. Available in white, green, blue, red, yellow, Amber
- 4. View angle: 120°.
- 5. Low voltage DC operated.
- 6. The product itself will remain within RoHS compliant Version.
- 7. ESD protection.

Applications:

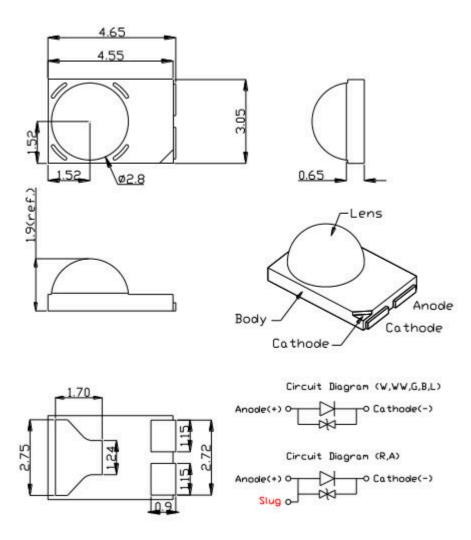
- Reading lights (car, bus, aircraft).
- 2. Portable (flashlight, bicycle).
- 3. Mini_accent/Uplighters/Downlighters/Orientation.
- 4. Bollards/Security/Garden.
- 5. Cove/Undershelf/Task.
- 6. Automotive rear combination lamps.
- 7. Traffic signaling/Beacons/ Rail crossing and Wayside.
- 8. Indoor/Outdoor Commercial and Residential Architectural.
- 9. Edge lit signs (Exit, point of sale).
- 10. LCD Backlights/Light Guides.

Solder Pad



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Mechanical Dimensions



Part No.	Chip Material	Lens Color	Source Color
DL-TOP3045W-1W	InGaN	White Diffused	White

Notes:

1. The marked is cathode.

- 2. All dimensions are in millimeters.
- 3. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
- 4. Specifications are subject to change without notice.

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♦ Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max.	Unit	
Power Dissipation	PD	1500	mW	
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	500	mA	
Forward Current	IF	350	mA	
Reverse Voltage	VR	5	V	
Electrostatic Discharge (HBM)	ESD	4000	V	
Operating Temperature Range	Topr	-10°C to +70°C		
Storage Temperature Range	Tstg	-20°C to +80°C		
Soldering Temperature	Tsld	260℃ for 5 Seconds		

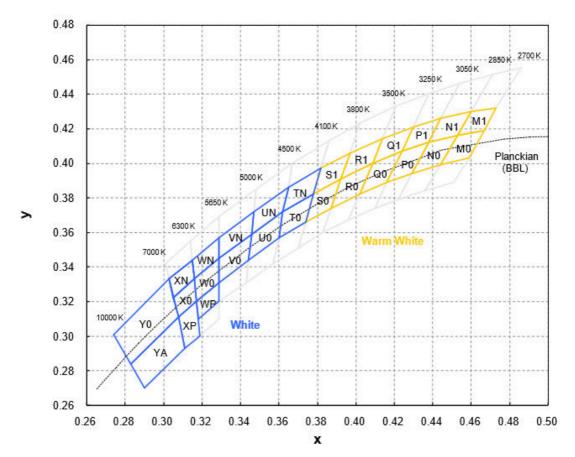
Electrical Optical Characteristics at Ta=25 ℃

Parameter	Symbol	Min.	Тур.	Max.	Unit	Test Condition
Luminous Flux	Ф	80	100	130	lm	If=350mA
Viewing Angle	2θ(1/2)		90		Deg	If=350mA
Color Temperature	TC	5500		6500	К	If=350mA
Forward Voltage	VF	2.80	3.40	3.80	V	If=350mA
Reverse Current	IR			10	μΑ	VR=5V

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CIE Chromaticity Diagram:



Color Bin Limits

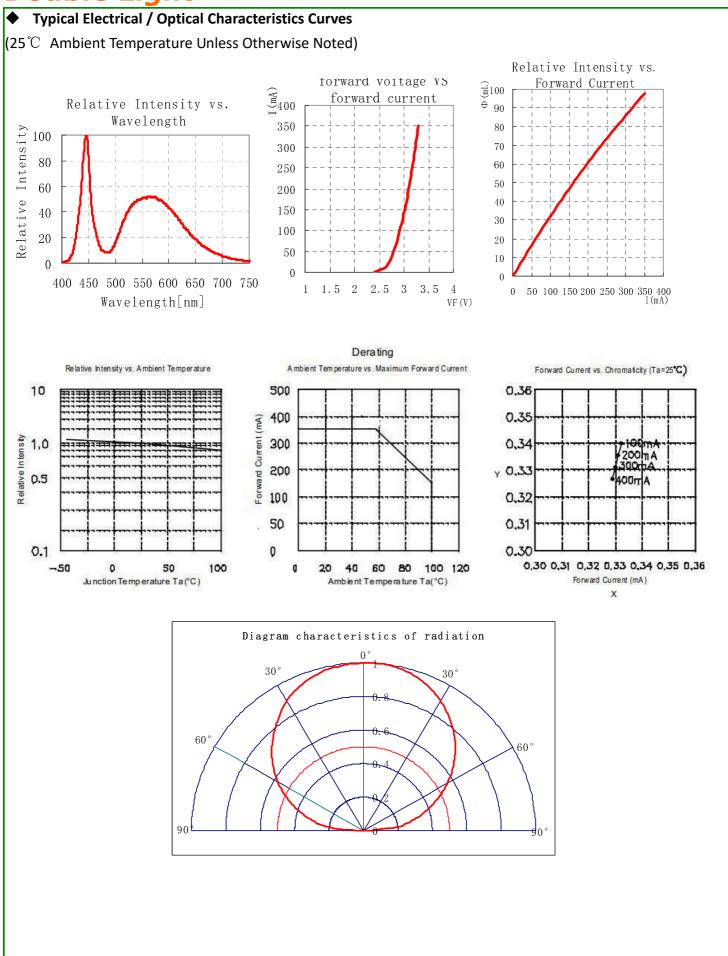
х	у	Typ. CCT (K)	Bin Code	x	у	Typ. CCT (K)
0.378	0.382		WN	0.329	0.345	
0.374	0.366	4300		0.316	0.333	5970
0.360	0.357			0.315	0.344	3310
	0.372				0.357	
					0.331	
	0.382	4300	WP	0.329	0.320	5970
	0.372	4500		0.318	0.310	3370
0.365	0.386			0.317	0.320	
0.362	0.372			0.308	0.311	
0.360	0.357	4750	X0	0.305	0.322	6650
0.344	0.344	4750		0.316	0.333	0030
0.346	0.359			0.317	0.320	
0.365	0.386		XN	0.305	0.322	
0.362	0.372	4750		0.303	0.333	6650
0.346	0.359			0.315	0.344	0030
0.347	0.372			0.316	0.333	
0.329	0.331	E220	XP	0.308	0.311	
0.329	0.345			0.317	0.320	6650
0.346	0.359	5520		0.319	0.300	0030
0.344	0.344			0.311	0.293	
0.329	0.345			0.308	0.311	
0.329	0.357	E220	Y0	0.283	0.284	8000
0.347	0.372	5320		0.274	0.301	0000
0.346	0.359			0.303	0.333	
0.329	0.345			0.308	0.311	
0.329	0.331	E070	V۸	0.311	0.293	8000
0.317	0.320	2310	TA	0.290	0.270	0000
0.316	0.333			0.283	0.284	
	0.378 0.374 0.360 0.362 0.382 0.378 0.362 0.365 0.362 0.360 0.344 0.365 0.362 0.346 0.347 0.329 0.329 0.344 0.329 0.329 0.347 0.329 0.347 0.329 0.347	0.378 0.382 0.374 0.366 0.360 0.357 0.362 0.372 0.382 0.397 0.378 0.382 0.362 0.372 0.365 0.386 0.362 0.372 0.364 0.357 0.344 0.344 0.346 0.359 0.365 0.386 0.362 0.372 0.346 0.359 0.347 0.372 0.329 0.345 0.344 0.344 0.329 0.345 0.347 0.372 0.347 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.347 0.372 0.346 <td>x y (K) 0.378 0.382 0.374 0.366 4300 0.360 0.357 4300 0.362 0.372 0.382 0.397 0.382 0.397 0.378 0.382 0.372 0.365 0.386 0.365 0.386 0.372 0.360 0.357 0.344 0.344 0.344 0.345 0.362 0.372 0.365 0.386 0.362 0.372 0.362 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.347 0.372 0.346 0.359 0.345 0.344 0.344 0.344 0.344 0.344 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 0.329 0.345 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0.357 0.344 0.344 0.344 0.346 0.359 0.365 0.386 0.362 0.372 0.346 0.359 4750 XN XN 0.347 0.372 0.345 0.347 0.372 0.346 0.359 0.345 0.344 0.344 0.329 0.345 0.329 0.345 0.329 0.345 0.359 0.347 0.347 0.372 5320 Y0 0.347 0.372 5320 Y0 0.347 0.345 0.359 0.349 0.345 0.359 0.329<td>X Y (K) Bin Code X 0.378 0.382 0.329 0.329 0.316 0.360 0.357 4300 WN 0.315 0.362 0.372 0.329 0.329 0.382 0.397 0.329 0.378 0.382 4300 WP 0.329 0.362 0.372 0.318 0.317 0.365 0.386 0.317 0.308 0.360 0.357 4750 X0 0.305 0.344 0.344 0.344 0.316 0.305 0.362 0.372 4750 XN 0.303 0.346 0.359 0.317 0.305 0.315 0.346 0.359 4750 XN 0.303 0.329 0.331 0.308 0.305 0.347 0.372 0.316 0.308 0.329 0.345 5320 XP 0.317 0.346 0.359 0.308 0.308<</td><td>X Y K Bill Code X Y 0.378 0.382 0.329 0.345 0.374 0.366 4300 WN 0.316 0.333 0.360 0.357 0.329 0.357 0.382 0.397 0.329 0.351 0.378 0.382 4300 WP 0.329 0.320 0.362 0.372 0.318 0.310 0.318 0.310 0.365 0.386 0.317 0.320 0.308 0.311 0.360 0.357 4750 X0 0.305 0.322 0.344 0.344 0.344 0.316 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 $[\]bullet$ Tolerance on each color bin (x , y) is $\pm~0.01$

Note: Although several bins are outlined, product availability in a particular bin varies by production run and by product performance. Not all bins are available in all colors.

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Reliability Test Items And Conditions:

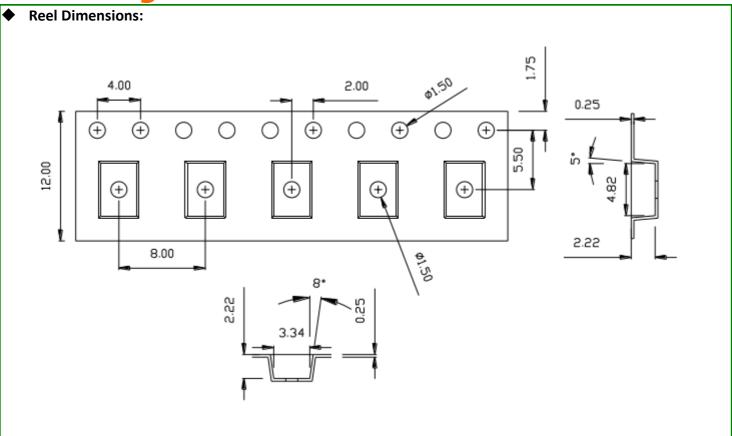
The reliability of products shall be satisfied with items listed below:

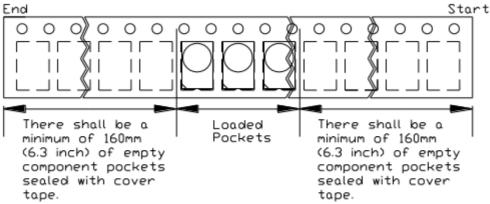
Confidence level: 90%.

LTPD: 10%.

No.	ltem	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgment Criteria	Ac/ Re
1	Reflow Soldering	TEMP.: 260℃ <u>+</u> 5℃ 5secs	6mins	22pcs		0/1
2	Temperature Cycle	H: $+100^{\circ}\mathbb{C}$ 15mins $ \int $ 5 mins $ \int $ L: $-40^{\circ}\mathbb{C}$ 15mins	50Cycles	22pcs	IR ≧ U*2 Ee ≦ L*0.8 VF ≧ U*1.2 U: Upper Specification	0/1
3	Thermal Shock	H: $+100^{\circ}\mathbb{C}$ 15mins $ \int $ 10mins $ \int $ L: $-10^{\circ}\mathbb{C}$ 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.: +100℃	1000hrs	22pcs	Limit L: Lower	0/1
5	Lower Temperature Storage	TEMP.: -40°C	1000hrs	22pcs	Specification Limit	0/1
6	DC Operating Life	V _{CE} =5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ /85% R.H.	1000hrs	22pcs		0/1

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Notes:

- 1. Drawing not to scale.
- 2. All dimensions are in millimeters.
- 3. General tolerance is ± 0.10 mm.

Precautions for Use:

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift may cause enormous current change and burn out failure would happen.

- 2. Storage
 - a) Do not open moisture proof bag before the products are ready to use.
 - b) Before opening the package, the Infrareds should be kept at 30° C or less and 90%RH or less.
 - c) The Infrared LED should be used within a year.
 - d) After opening the package, the Infrareds should be kept at 30 $^{\circ}$ C or less and 70%RH or less.
 - e) The Infrared LED should be used within 168 hours (7 days) after opening the package.
 - f) If the moisture absorbent material (silicone gel) has faded away or the Infrareds have exceeded the storage time, baking treatment should be performed using the following conditions.
 - g) Pre-curing treatment: 60±5℃ for 24 hours.
- 3. Thermal Management
 - a) Because the Infrared LED is a high power dissipation device, special and sufficient consideration in thermal management design must be made to optimize the thermal performance.
 - b) Heat sink design is implemented in the device for an additional thermal connection. Since the device is capable of SMT process, tin must be spread both heat sink and solder pads areas to dissipate the heat.
 - c) A high thermal conductivity substrate, such as Aluminum or Copper plate etc, must be applied for external thermal management. It is strongly recommended that the outer heat sink or PCB dimension per Infrared LED can not be less than 25 x 25 x 1 (L x W x H) mm. The materials for outer heat sink can be FR4 on Aluminum, MCPCB, or FPC on Aluminum.
 - d) Special thermal designs are also recommended to take in outer heat sink design, such as FR4 PCB on Aluminum with thermal vias or FPC on Aluminum with thermal conductive adhesive, etc.
 - e) Sufficient thermal management must be conducted, or the die junction temperature will be over the limit under large electronic driving and Infrared LED lifetime will decrease critically.
- 4. Soldering Condition
 - a) Reflow soldering should not be done more than two times.
 - b) While soldering, do not put stress on the Infrareds during heating.
 - c) After soldering, do not warp the circuit board.
- 5. Soldering Iron
 - a) For prototype builds or small series production runs it is possible to place and solder the LED by hand.
 - b) Dispensing thermal conductive glue or grease on the substrates and follow its curing spec. Press Infrared housing to closely connect Infrared and substrate.
 - c) It is recommended to hand solder the leads with a solder tip temperature of 280°C for less than 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal.
 - d) Be careful because the damage of the product is often started at the time of the hand solder.

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