

5mm Round White LED (T-1 3/4)

Features

- Standard T-1 3/4 Package
- High Luminous Intensity White Light
- High Efficiency
- Emission Color: $x=0.31, y=0.32$
- RoHS Compliant



T-1 3/4



Applications

- Backlighting
- Indicator

Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
TLH-W1R5-5GEG	InGaN	White	Water Clear

5mm Round LED

TLH-W1R5-5GEG

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Reverse Voltage	VR	5	V
Average Forward Current (Note 1&3)	IF	25	mA
Peak Forward Current (Note 2)	IFP	100	mA
Power Dissipation	Pd	100	mW
LED Junction Temperature	TJ	125	°C
Soldering Temperature	Tsol	260 °C / 5 Seconds	
Operating Temperature (Note 3)	Topr	-40 ~ +100	°C
Storage Temperature	Tstg	-40 ~ +100	°C

Notes: 1. Design of heat dissipation should be considered.

2. Duty Ratio=1/10, Pulse Width=0.1ms.

3. The allowable operating current at different operation temperature, please take reference from Fig. 5 page 3.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	1590	2400	-----	mcd	IF =20mA
Viewing Angle	2θ1/2	-----	60	-----	deg	
Forward Voltage	VF	-----	3.2	4.0	V	
Reverse Current	IR	-----	-----	10	μA	VR=5V
Chromaticity Coordinates	x	-----	0.31	-----	-----	IF =20mA
	y	-----	0.32	-----	-----	

Notes: Tolerance of Luminous Intensity: ±10%

Tolerance of Chromatic Coordinates: ±0.01

Tolerance of Forward Voltage: ±0.1V

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Typical Electro-Optical Characteristics Curves (Ta=25°C)

Fig.1 Relative Intensity vs. wavelength

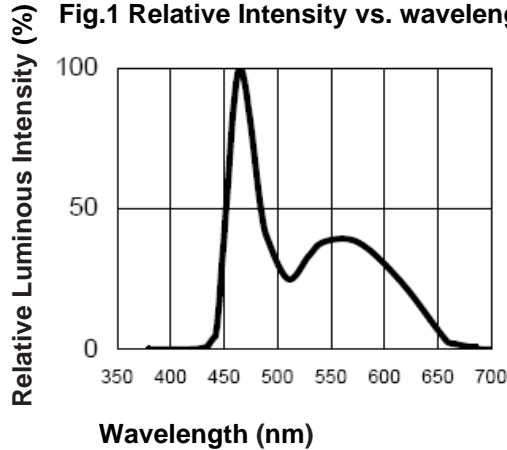


Fig.2 Forward Current vs. Forward Voltage

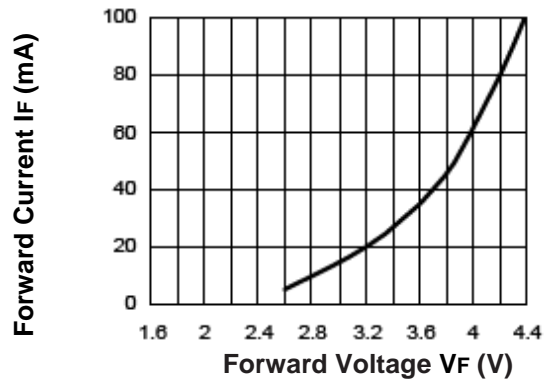


Fig.3 Relative Intensity vs. Forward Current

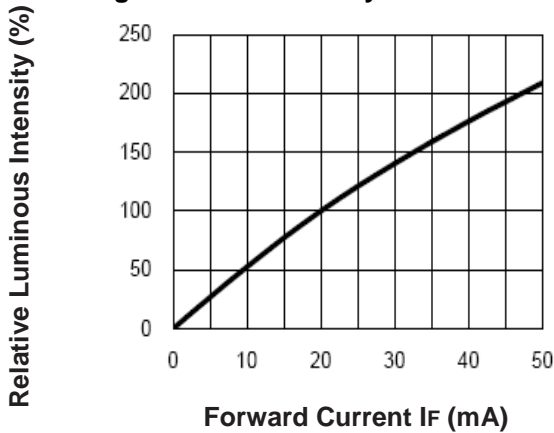


Fig.4 Relative Intensity vs. Ambient Temperature

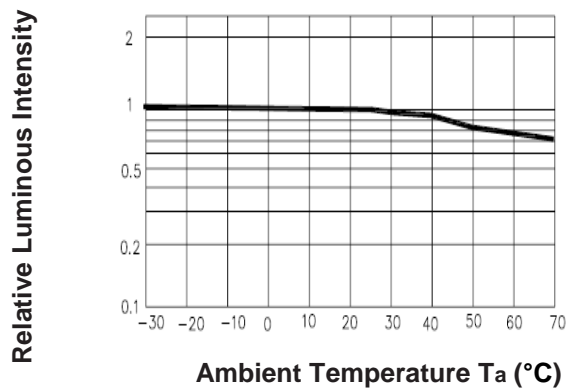


Fig.5 Forward Current vs. Ambient Temperature

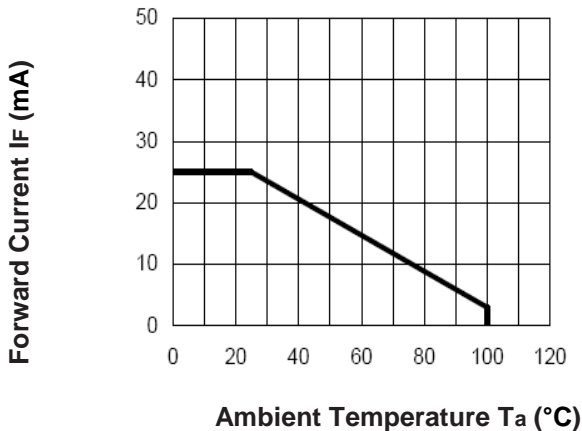
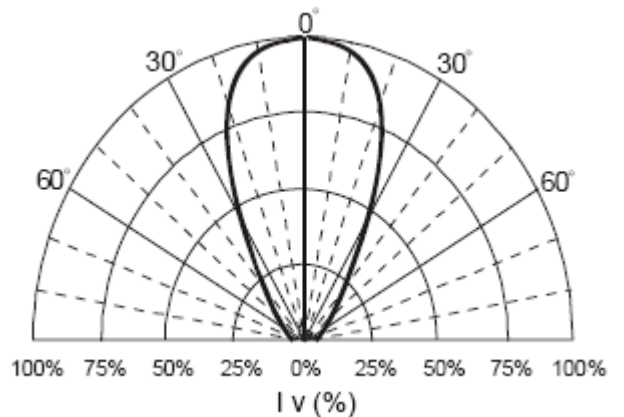


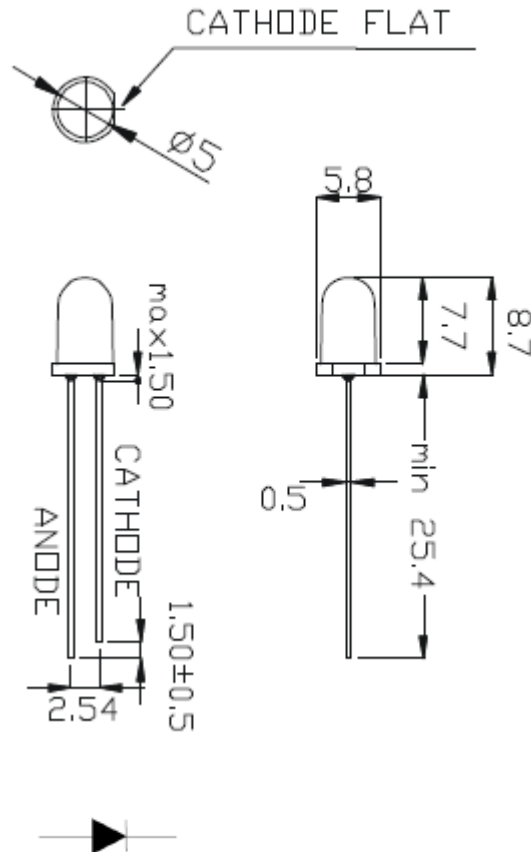
Fig.6 Radiation Diagram



5mm Round LED

TLH-W1R5-5GEG

Package Dimensions (In mm)



Note:

1. All dimensions are in millimeters, and tolerance is 0.2mm.
2. Protruded resin under flange is 1.5mm max.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to be changed without notice.

Packing Quantity Specification

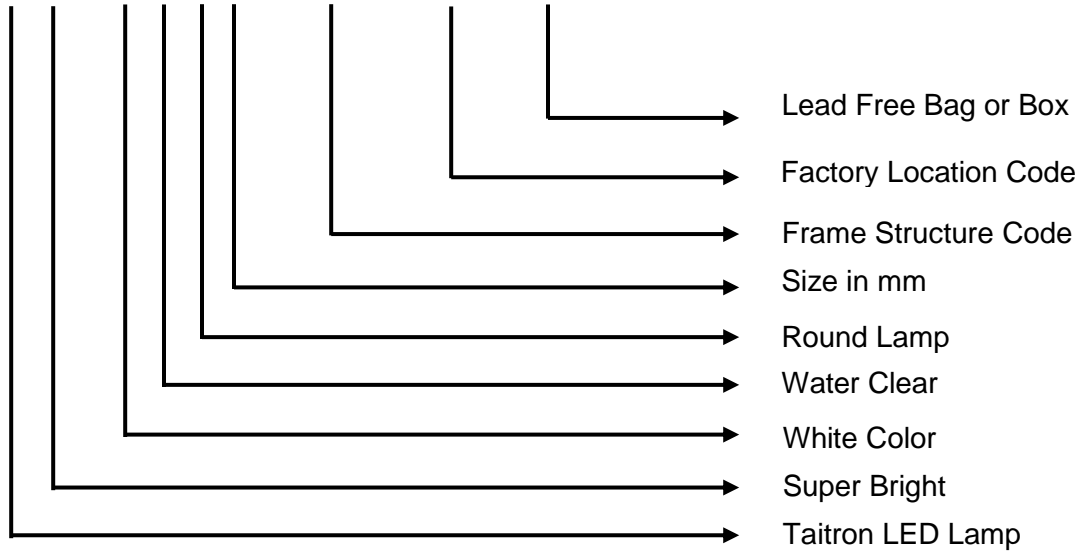
Packing Type	PCS per Bag	PCS Per Inner Box	PCS Per Carton
Bulk	500	10,000	20,000

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Ordering Information

TL H - W 1 R 5 - 5GEG - 88 - BL



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Rank Combinations

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
0T	1590	2225	mcd	IF=20 mA
0U	2225	3115		
0V*	3115	4360		

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
A	2.6	2.8	V	IF=20 mA
B	2.8	3.0		
C	3.0	3.2		
D	3.2	3.4		
E	3.4	3.6		
F	3.6	3.8		
G	3.8	4.0		

Notes: Tolerance of Luminous Flux: $\pm 10\%$
Tolerance of Forward Voltage: $\pm 0.1V$
* Bin with less distribution

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Chromaticity Coordinates Specifications for Bin Group

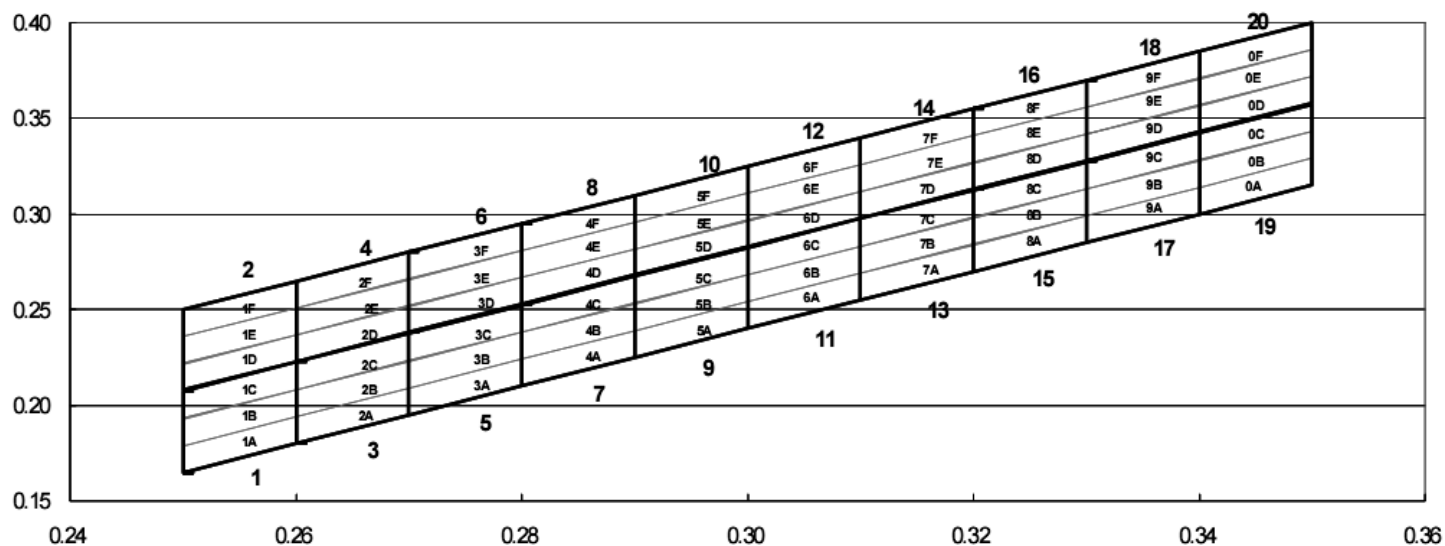
Typical CCT (K)	Bin Group	Bin Code	Chromaticity Coordinates (x, y)
18000	1	1A	(0.260, 0.194) (0.250, 0.179) (0.250, 0.165) (0.260, 0.180)
		1B	(0.260, 0.208) (0.250, 0.193) (0.250, 0.179) (0.260, 0.194)
		1C	(0.260, 0.223) (0.250, 0.208) (0.250, 0.193) (0.260, 0.208)
	2	1D	(0.260, 0.237) (0.250, 0.222) (0.250, 0.208) (0.260, 0.223)
		1E	(0.260, 0.251) (0.250, 0.236) (0.250, 0.222) (0.260, 0.237)
		1F	(0.260, 0.265) (0.250, 0.250) (0.250, 0.236) (0.260, 0.251)
13000	3	2A	(0.260, 0.194) (0.270, 0.209) (0.270, 0.195) (0.260, 0.180)
		2B	(0.260, 0.208) (0.270, 0.223) (0.270, 0.209) (0.260, 0.194)
		2C	(0.260, 0.223) (0.270, 0.238) (0.270, 0.223) (0.260, 0.208)
	4	2D	(0.260, 0.237) (0.270, 0.252) (0.270, 0.238) (0.260, 0.223)
		2E	(0.260, 0.251) (0.270, 0.266) (0.270, 0.252) (0.260, 0.237)
		2F	(0.260, 0.265) (0.270, 0.280) (0.270, 0.266) (0.260, 0.251)
10500	5	3A	(0.270, 0.209) (0.280, 0.224) (0.280, 0.210) (0.270, 0.195)
		3B	(0.270, 0.223) (0.280, 0.238) (0.280, 0.224) (0.270, 0.209)
		3C	(0.270, 0.238) (0.280, 0.253) (0.280, 0.238) (0.270, 0.223)
	6	3D	(0.270, 0.252) (0.280, 0.267) (0.280, 0.253) (0.270, 0.238)
		3E	(0.270, 0.266) (0.280, 0.281) (0.280, 0.267) (0.270, 0.252)
		3F	(0.270, 0.280) (0.280, 0.295) (0.280, 0.281) (0.270, 0.266)
8900	7	4A	(0.280, 0.224) (0.290, 0.239) (0.290, 0.225) (0.280, 0.210)
		4B	(0.280, 0.238) (0.290, 0.253) (0.290, 0.239) (0.280, 0.224)
		4C	(0.280, 0.253) (0.290, 0.268) (0.290, 0.253) (0.280, 0.238)
	8	4D	(0.280, 0.267) (0.290, 0.282) (0.290, 0.268) (0.280, 0.253)
		4E	(0.280, 0.281) (0.290, 0.296) (0.290, 0.282) (0.280, 0.267)
		4F	(0.280, 0.295) (0.290, 0.310) (0.290, 0.296) (0.280, 0.281)
7700	9	5A	(0.300, 0.254) (0.290, 0.239) (0.290, 0.225) (0.300, 0.240)
		5B	(0.300, 0.268) (0.290, 0.253) (0.290, 0.239) (0.300, 0.254)
		5C	(0.300, 0.283) (0.290, 0.268) (0.290, 0.253) (0.300, 0.268)
	10	5D	(0.300, 0.297) (0.290, 0.282) (0.290, 0.268) (0.300, 0.283)
		5E	(0.300, 0.311) (0.290, 0.296) (0.290, 0.282) (0.300, 0.297)
		5F	(0.300, 0.325) (0.290, 0.310) (0.290, 0.296) (0.300, 0.311)
6850	11	6A	(0.310, 0.269) (0.300, 0.254) (0.300, 0.240) (0.310, 0.255)
		6B	(0.310, 0.283) (0.300, 0.268) (0.300, 0.254) (0.310, 0.269)
		6C	(0.310, 0.298) (0.300, 0.283) (0.300, 0.268) (0.310, 0.283)
	12	6D	(0.310, 0.312) (0.300, 0.297) (0.300, 0.283) (0.310, 0.298)
		6E	(0.310, 0.326) (0.300, 0.311) (0.300, 0.297) (0.310, 0.312)
		6F	(0.310, 0.340) (0.300, 0.325) (0.300, 0.311) (0.310, 0.326)
6250	13	7A	(0.310, 0.269) (0.320, 0.284) (0.320, 0.270) (0.310, 0.255)
		7B	(0.310, 0.283) (0.320, 0.298) (0.320, 0.284) (0.310, 0.269)
		7C	(0.310, 0.298) (0.320, 0.313) (0.320, 0.298) (0.310, 0.283)
	14	7D	(0.310, 0.312) (0.320, 0.327) (0.320, 0.313) (0.310, 0.298)
		7E	(0.310, 0.326) (0.320, 0.341) (0.320, 0.327) (0.310, 0.312)
		7F	(0.310, 0.340) (0.320, 0.355) (0.320, 0.341) (0.310, 0.326)

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Typical CCT (K)	Bin Group	Bin Code	Chromaticity Coordinates (x, y)
5750	15	8A	(0.330, 0.299) (0.320, 0.284) (0.320, 0.270) (0.330, 0.285)
		8B	(0.330, 0.313) (0.320, 0.298) (0.320, 0.284) (0.330, 0.299)
		8C	(0.330, 0.328) (0.320, 0.313) (0.320, 0.298) (0.330, 0.313)
	16	8D	(0.330, 0.342) (0.320, 0.327) (0.320, 0.313) (0.330, 0.328)
		8E	(0.330, 0.356) (0.320, 0.341) (0.320, 0.327) (0.330, 0.342)
		8F	(0.330, 0.370) (0.320, 0.355) (0.320, 0.341) (0.330, 0.356)
5350	17	9A	(0.330, 0.299) (0.340, 0.314) (0.340, 0.300) (0.330, 0.285)
		9B	(0.330, 0.313) (0.340, 0.328) (0.340, 0.314) (0.330, 0.299)
		9C	(0.330, 0.328) (0.340, 0.343) (0.340, 0.328) (0.330, 0.313)
	18	9D	(0.330, 0.342) (0.340, 0.357) (0.340, 0.343) (0.330, 0.328)
		9E	(0.330, 0.356) (0.340, 0.371) (0.340, 0.357) (0.330, 0.342)
		9F	(0.330, 0.370) (0.340, 0.385) (0.340, 0.371) (0.330, 0.356)
4950	19	0A	(0.350, 0.329) (0.340, 0.314) (0.340, 0.300) (0.350, 0.315)
		0B	(0.350, 0.343) (0.340, 0.328) (0.340, 0.314) (0.350, 0.329)
		0C	(0.350, 0.358) (0.340, 0.343) (0.340, 0.328) (0.350, 0.343)
	20	0D	(0.350, 0.372) (0.340, 0.357) (0.340, 0.343) (0.350, 0.358)
		0E	(0.350, 0.386) (0.340, 0.371) (0.340, 0.357) (0.350, 0.372)
		0F	(0.350, 0.400) (0.340, 0.385) (0.340, 0.371) (0.350, 0.386)

CIE Chromaticity Diagram



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