

EVERLIGHT

Technical Data Sheet

3 mm Round White LED (T-1)

204-15/T2C3-4LQA

Features

- Popular T-1 colorless 3mm package.
- High luminous power.
- Typical chromaticity coordinates $x=0.30$, $y=0.29$ according to CIE1931.
- Bulk, available taped on reel.
- The product itself will remain within RoHS compliant version.

Descriptions

- The series is designed for application required high luminous intensity.
- The phosphor filled in the reflector converts the blue emission of InGaN chip to ideal white.



Applications

- Outdoor Displays
- Optical Indicators
- Backlighting
- Marker Lights

Device Selection Guide

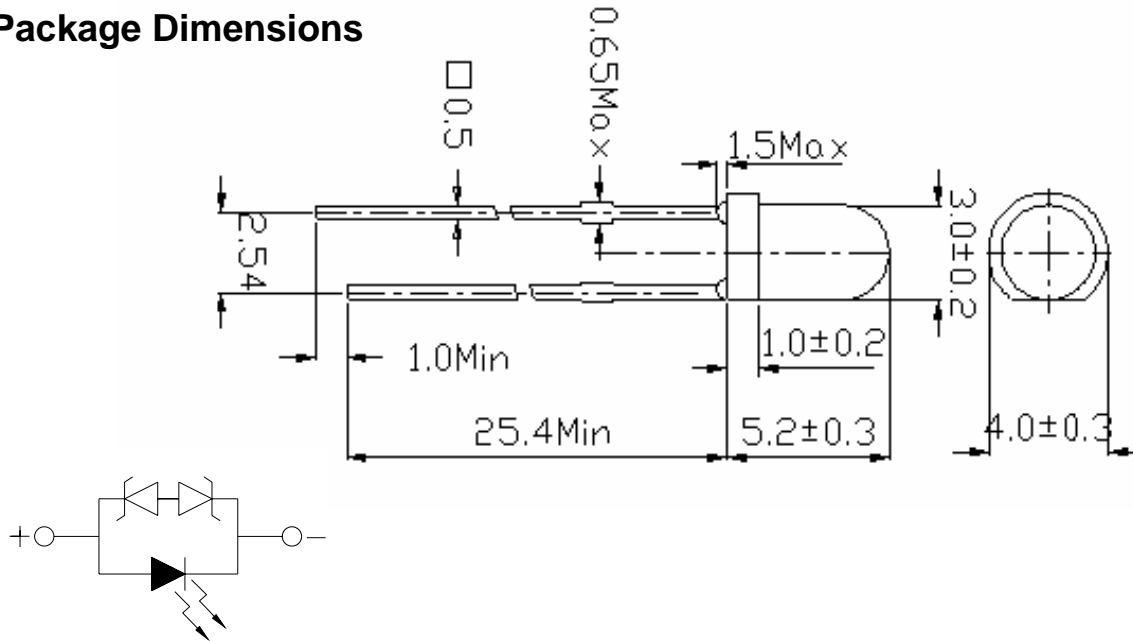
PART NO.	Chip		Lens Color
	Material	Emitted Color	
204-15/T2C3-4LQA	InGaN	White	Water Clear

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Package Dimensions



Notes:

- 1.All dimensions are in millimeters, and tolerance is 0.25mm except being specified.
- 2.Lead spacing is measured where the lead emerges from the package.
- 3.Protruded resin under flange is 1.5mm Max. LED.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I _F	30	mA
Peak Forward Current(Duty /10 @ 1KHZ)	I _{FP}	100	mA
Zener Reverse Current	I _Z	100	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Reverse Voltage	V _R	5	V
Soldering Temperature (T=5 sec)	T _{sol}	260 ± 5	°C
Power Dissipation	P _d	100	mW
Electrostatic Discharge	ESD	4K	V

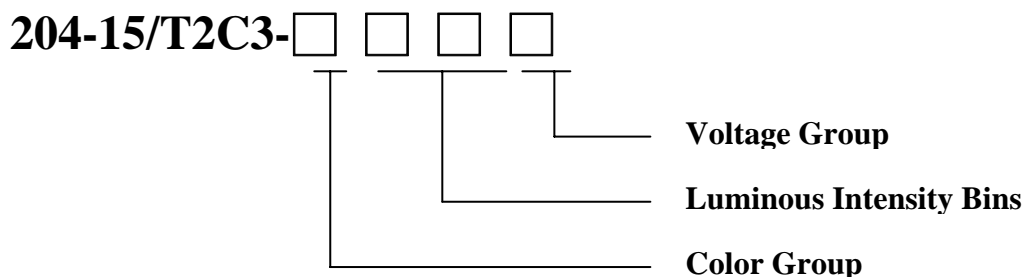


Technical Data Sheet

3 mm Round White LED (T-1)

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Production Designation



Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Forward Voltage	V_F	$I_F=20\text{mA}$	2.8	--	3.6	V
Reverse Current	I_R	$V_R=5\text{V}$	--	--	50	μA
Zener Reverse Voltage	V_Z	$I_Z=5\text{mA}$	5.2	----	----	V
Luminous Intensity	I_V	$I_F=20\text{mA}$	1425	--	4500	mcd
Viewing Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$	--	35	--	deg
Chromaticity Coordinates	x	$I_F=20\text{mA}$	--	0.30	--	
	y		--	0.29	--	



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Luminous Intensity Combination (mcd at 20mA)

Rank	Min	Max
L	1425	1800
M	1800	2250
N	2250	2850
P	2850	3600
Q	3600	4500

*Measurement Uncertainty of Luminous Intensity: $\pm 15\%$

Forward Voltage Combination (V at 20mA)

Group	A			
Rank	0	1	2	3
Min.	2.80	3.00	3.20	3.40
Max.	3.00	3.20	3.40	3.60

*Measurement Uncertainty of Forward Voltage : $\pm 0.1V$

Color Combination (at 20mA)

Group	Bins
4	A0+ B5+B6

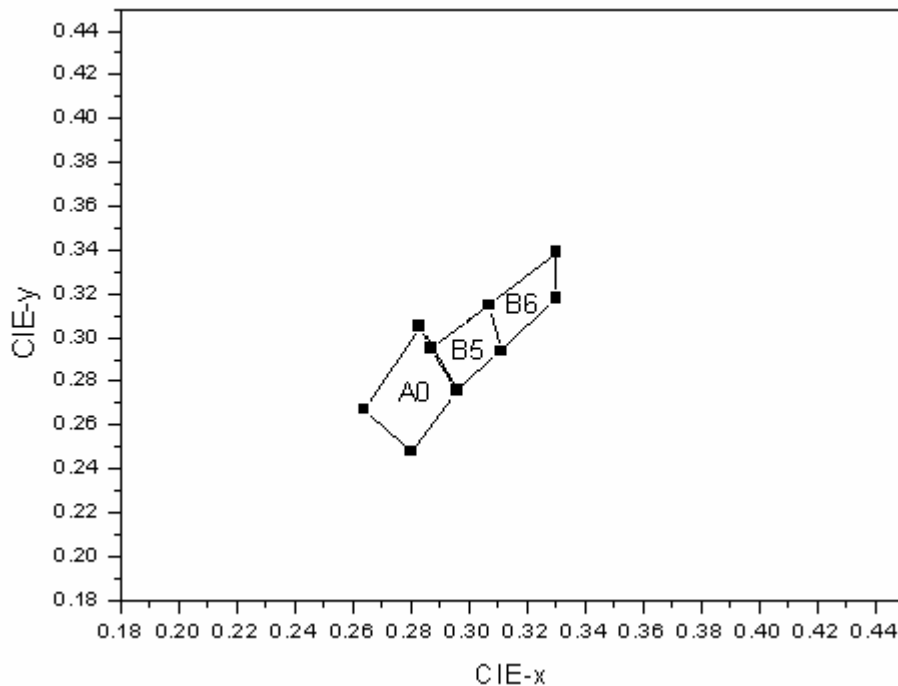


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CIE Chromaticity Diagram



Color Ranks (IF=20mA , Ta=25°C)

*Measurement uncertainty of the color coordinates : ± 0.01

Color Ranks		CIE			
A0	X	0.264	0.283	0.296	0.28
	Y	0.267	0.305	0.267	0.248
B5	X	0.287	0.307	0.311	0.296
	Y	0.295	0.315	0.294	0.276
B6	X	0.307	0.33	0.33	0.311
	Y	0.315	0.339	0.318	0.294



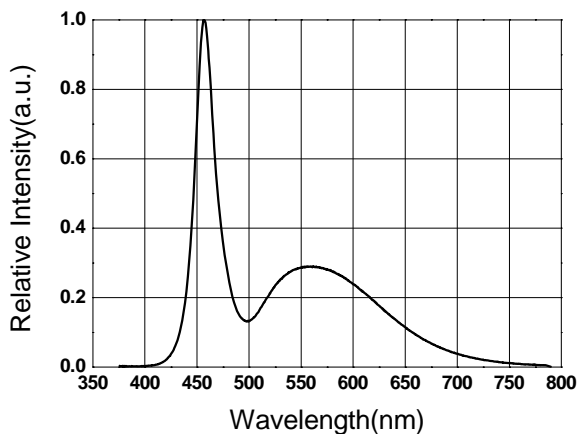
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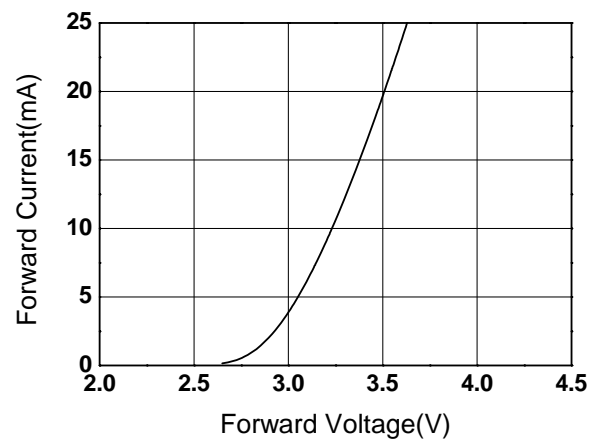
204-15/T2C3-4LQA

Typical Electro-Optical Characteristics Curves

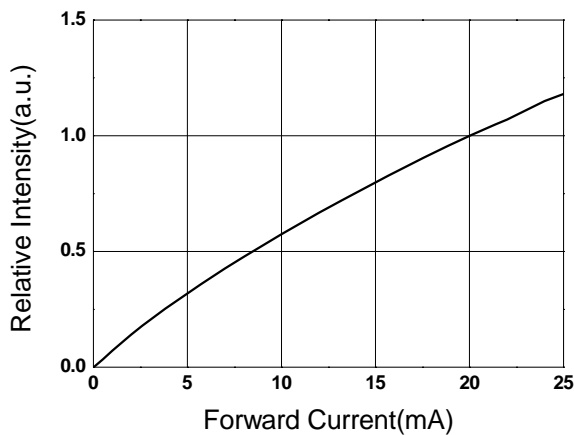
Relative Intensity vs. Wavelength



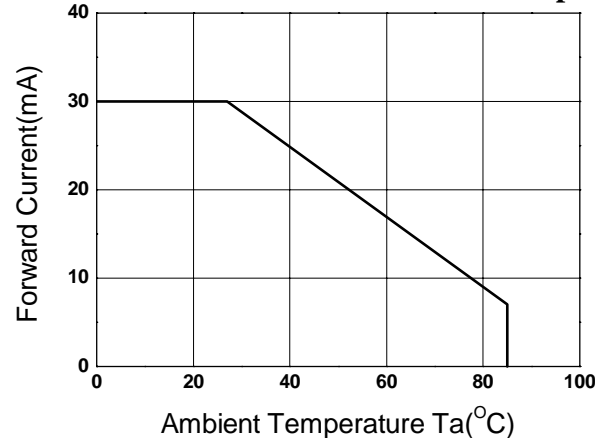
Forward Current vs. Forward Voltage



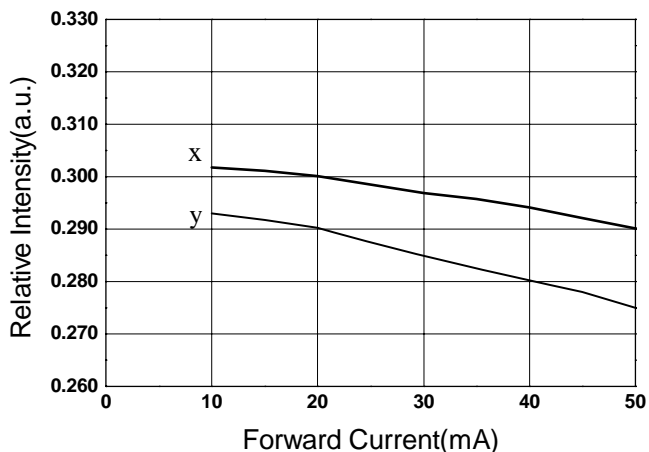
Relative Intensity vs. Forward Current



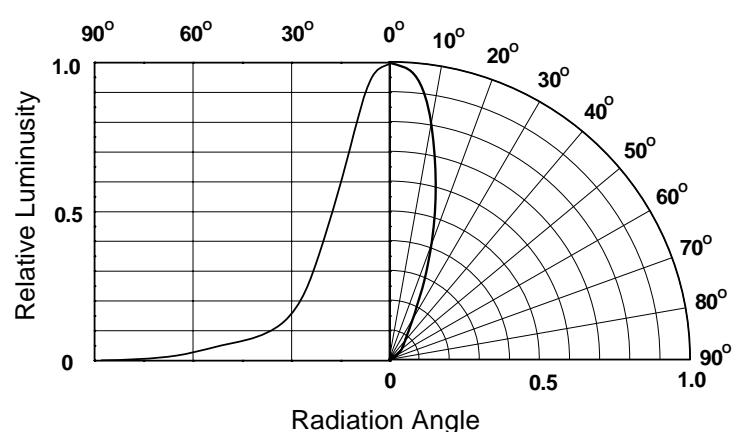
Forward Current vs. Ambient Temp.



Chromaticity Coordinate vs. Forward Current



Relative Intensity vs. Angle Displacement





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Label Form Specification

EVERLIGHT	
CPN:	
P/N:	RoHS
204-15/T2C3-4LQA	
QTY :	CAT:
LOT NO :	HUE:
REF:	
MADE IN TAIWAN	

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks of Luminous Intensity and Forward Voltage

HUE: Color Rank

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

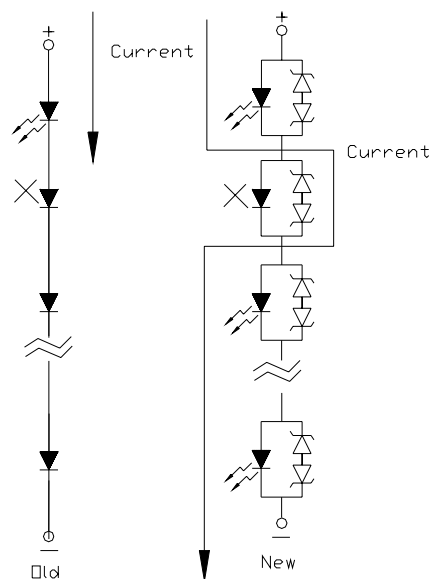
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Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
4. Below the zener reference voltage V_z , all the current flows through LED and as the voltage rises to V_z , the zener diode "breakdown." If the voltage tries to rise above V_z current flows through the zener branch to keep the voltage at exactly V_z .
5. When the LED is connected using serial circuit, if either piece of LED is no light up but current can't flow through causing others to light down. In new design, the LED is parallel with zener diode. if either piece of LED is no light up but current can flow through causing others to light up





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6. Soldering Condition

Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to case, and soldering beyond the base of the tie bar is recommended.

Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.

Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	400°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp.	265 Max.
Distance	3mm Min.(From solder joint to case)	Bath time.	5 sec Max.
		Distance	3mm Min.

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