

# Technical Data Sheet

## 3 mm Round LED (T-1)

**204-15UTC/S400-X9**

### Features

- Popular T-1 colorless 3mm package.
- High luminous power.
- Typical chromaticity coordinates  $x=0.29$ ,  $y=0.28$  according to CIE1931.
- Bulk, available taped on reel.
- Pb free.
- ESD-withstand voltage: up to 4KV
- 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

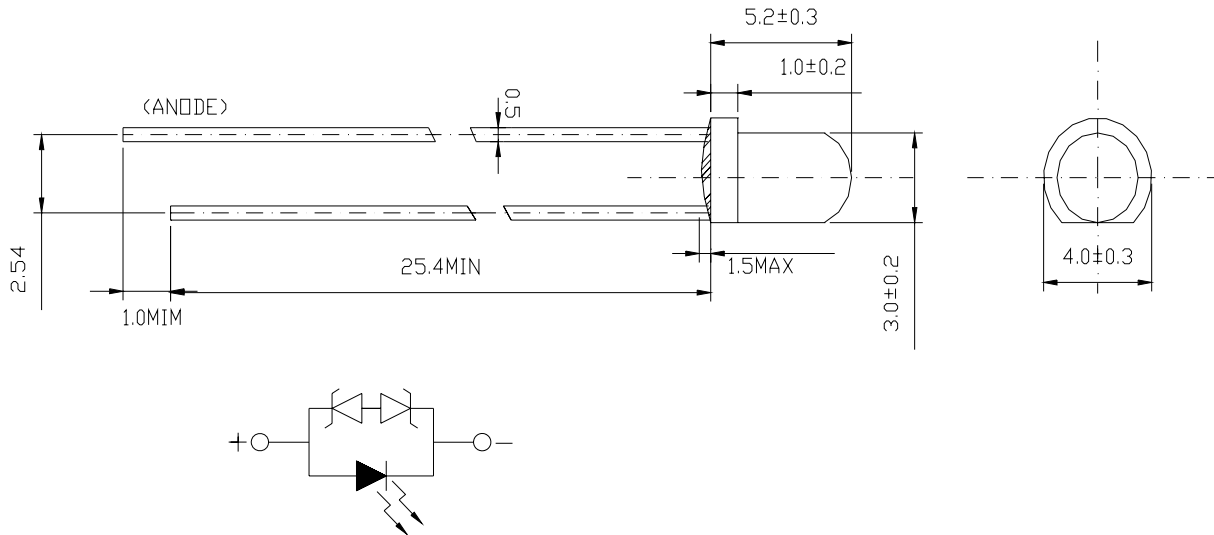
PART NO.	Chip		Lens Color
	Material	Emitted Color	
204-15UTC/S400-X9	InGaN	White	Water Clear

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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 <sub>F</sub>	25	mA
Peak Forward Current(Duty /10 @ 1KHZ)	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C
Soldering Temperature (T=5 sec)	T <sub>sol</sub>	260 ± 5	°C
Power Dissipation	P <sub>d</sub>	100	mW
Zener Reverse Current	I <sub>Z</sub>	100	mA
Electrostatic Discharge	ESD	4K	V

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### Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	--	3.5	4.0	V
Zener Reverse Voltage	V <sub>Z</sub>	I <sub>Z</sub> =5mA	5.8	----	----	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	--	--	50	uA
Luminous Intensity	I <sub>V</sub>	I <sub>F</sub> =20mA	2850	----	7150	mcd
Viewing Angle	2 θ 1/2	I <sub>F</sub> =20mA	--	25°	--	deg
Chromaticity Coordinates	x	I <sub>F</sub> =20mA	--	0.29	--	
	y	-----	--	0.28	--	

### Luminous Intensity Combination (mcd at 20mA)

I <sub>V</sub> Ranks	Y	Z0
Min.	2850	4500
Max.	4500	7150

\*Measurement Uncertainty of Luminous Intensity: ±15%

### Forward Voltage Combination (V at 20mA)

Group	Rank	
Min.	3.00	3.50
Max.	3.50	4.00

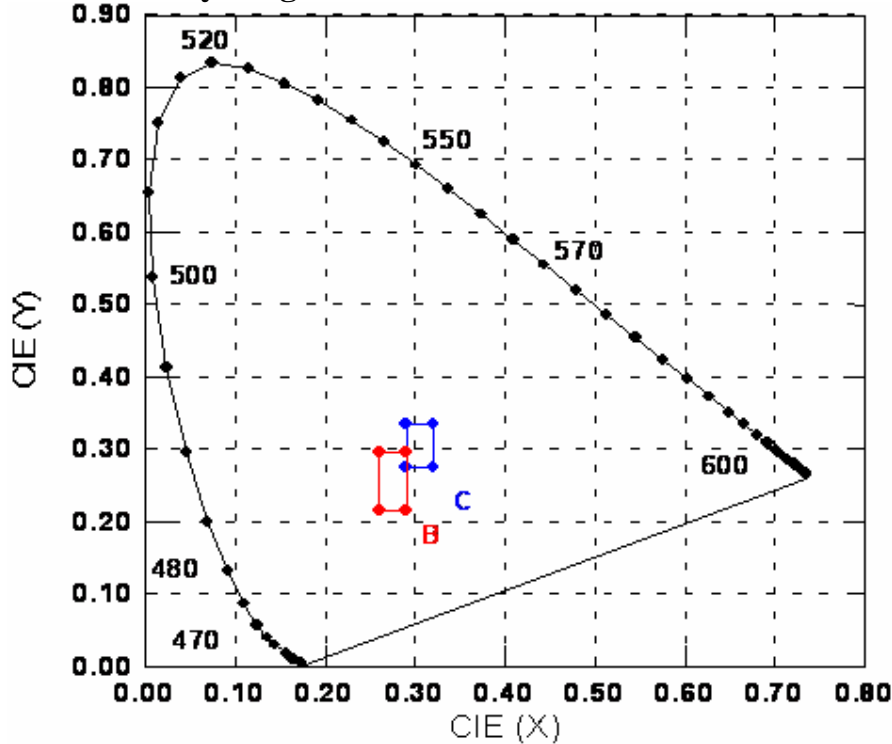
\*Measurement Uncertainty of Forward Voltage : ±0.1V

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CIE Chromaticity Diagram



Color Ranks (IF=20mA , Ta=25°C)

色度等級 Color grading	CIE X		CIE Y		Test condition
	Min.	Max.	Min.	Max.	
B1	0.260	0.275	0.215	0.275	IF=20mA
B2	0.275	0.290	0.245	0.295	
C1	0.290	0.305	0.275	0.315	
C2	0.305	0.320	0.295	0.335	

\*Measurement uncertainty of the color coordinates : ±0.01

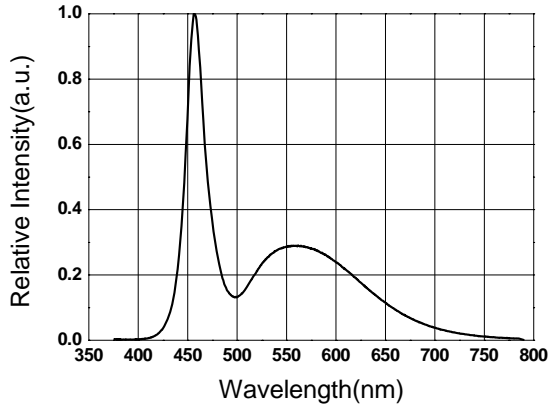
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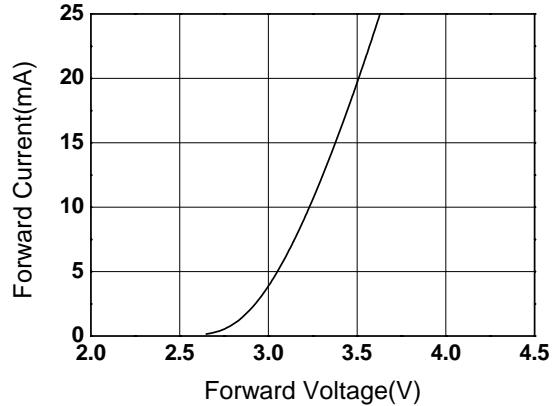
**204-15UTC/S400-X9**

### Typical Electro-Optical Characteristics Curves

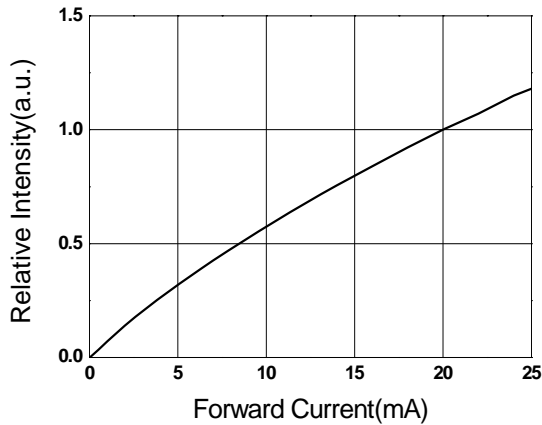
**Relative Intensity vs. Wavelength**



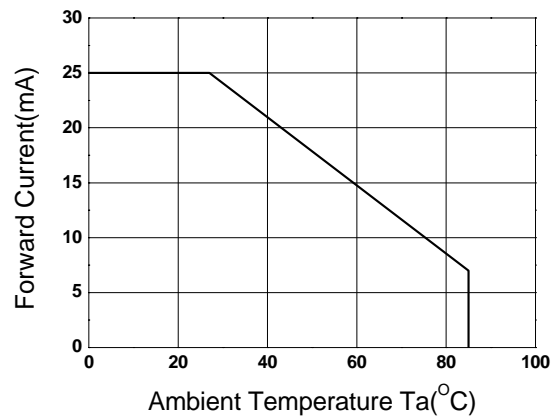
**Forward Current vs. Forward Voltage**



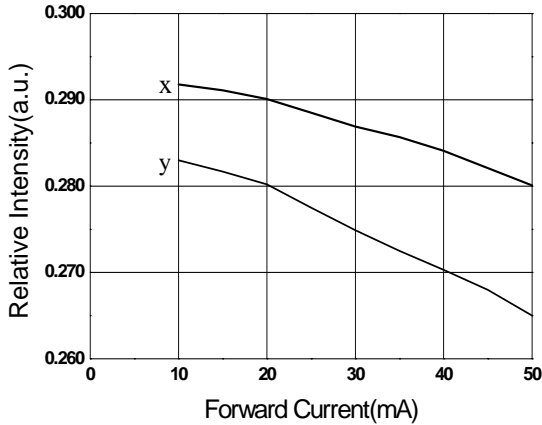
**Relative Intensity vs. Forward Current**



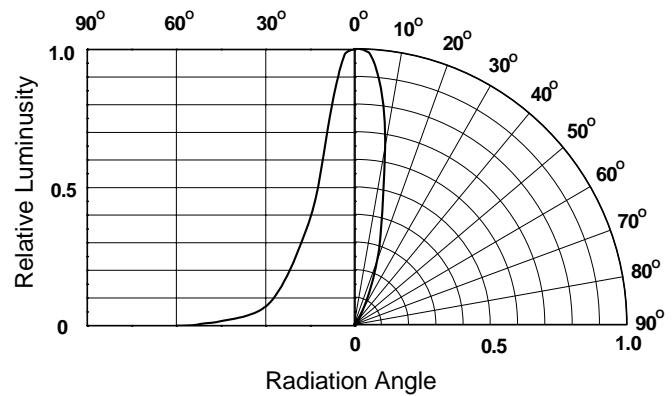
**Forward Current vs. Ambient Temp.**



**Chromaticity Coordinate vs. Forward Current**



**Relative Intensity vs. Angle Displacement**



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### Label Form Specification

<b>EVERLIGHT</b>	
CPN:	
P/N:	
	
204-15UTC/S400-X9	
QTY :	CAT:
	
LOT NO :	HUE:
	
MADE IN TAIWAN	

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: IV&amp;VF Rank

HUE: Color Rank

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

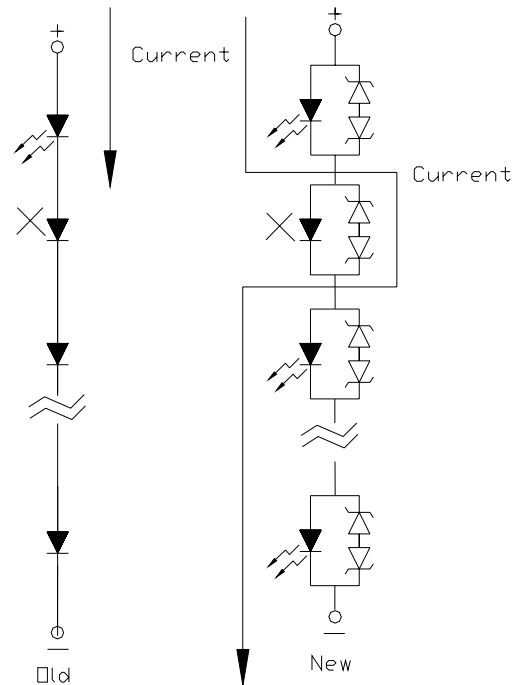
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### Notes

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. 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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