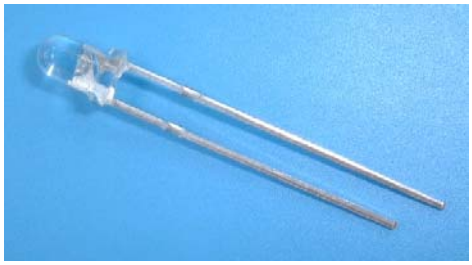
Technical Data Sheet
3 mm Round LED (T-1)

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.
- The product itself will remain within RoHS compliant version.
- ESD-withstand voltage: up to 4KV

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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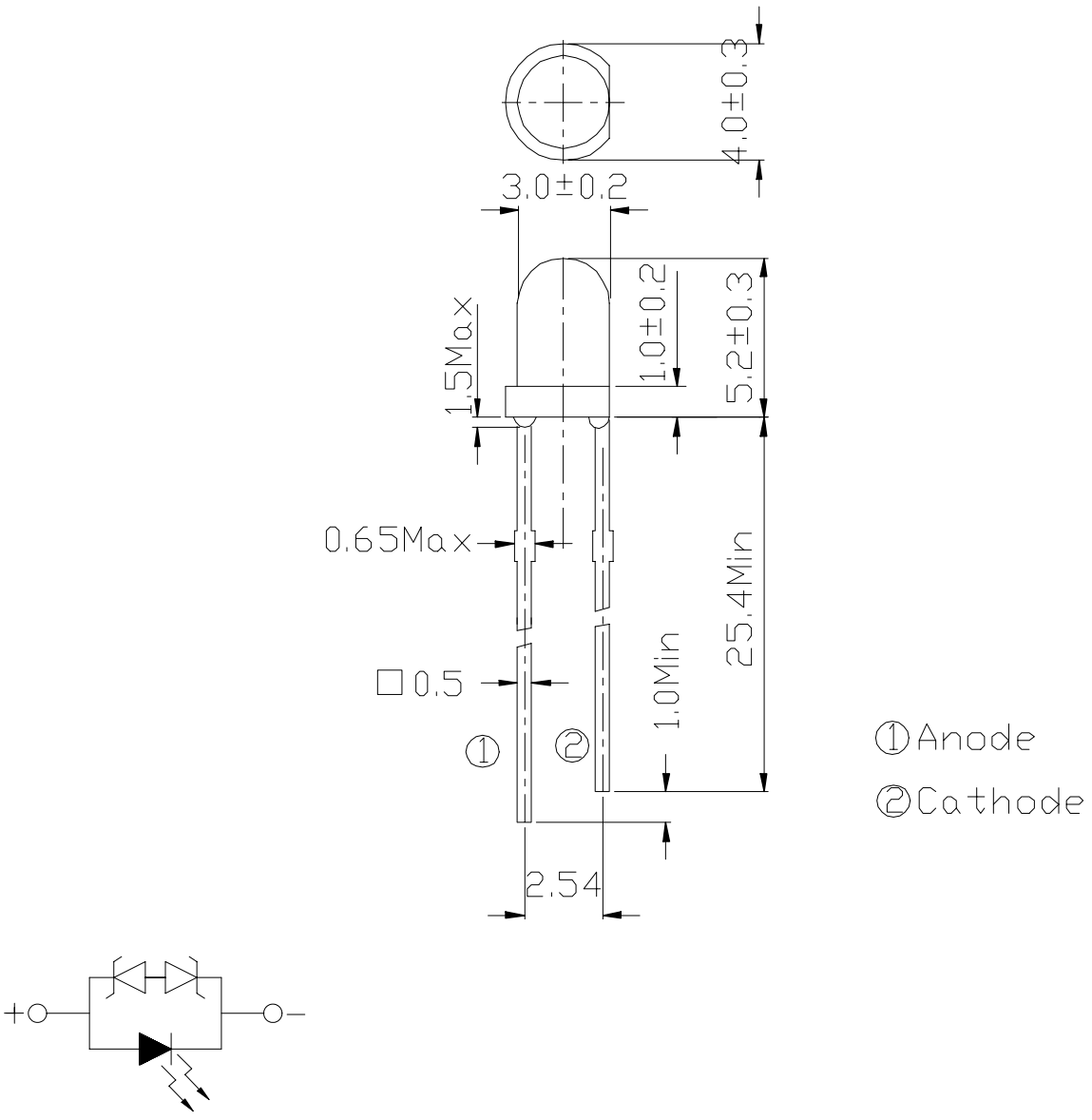
204-15UTC/S400-X9

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.

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204-15UTC/S400-X9

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I_F	30	mA
Peak Forward Current(Duty /10 @ 1KHZ)	I_{FP}	100	mA
Zener Reverse Current	Iz	100	mA
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Reverse Voltage	V_R	5	V
Soldering Temperature (T=5 sec)	T_{sol}	260 ± 5	℃
Power Dissipation	P_d	100	mW
Electrostatic Discharge	ESD	4K	V

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Forward Voltage	V_F	I_F=20mA	3.0	3.5	4.0	V
Reverse Current	I_R	V_R=5V	--	--	50	uA
Zener Reverse Voltage	Vz	Iz=5mA	5.2	--	--	V
Luminous Intensity	I_V	I_F=20mA	2850	--	7150	mcd
Viewing Angle	2θ 1/2	I_F=20mA	--	25	--	deg
Chromaticity Coordinates	x	I_F=20mA	--	0.29	--	
	y	------	--	0.28	--	

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Luminous Intensity Combination (mcd at 20mA)

Ranks	G2	H1	H2	J1
Min.	2850	3600	4500	5650
Max.	3600	4500	5650	7150

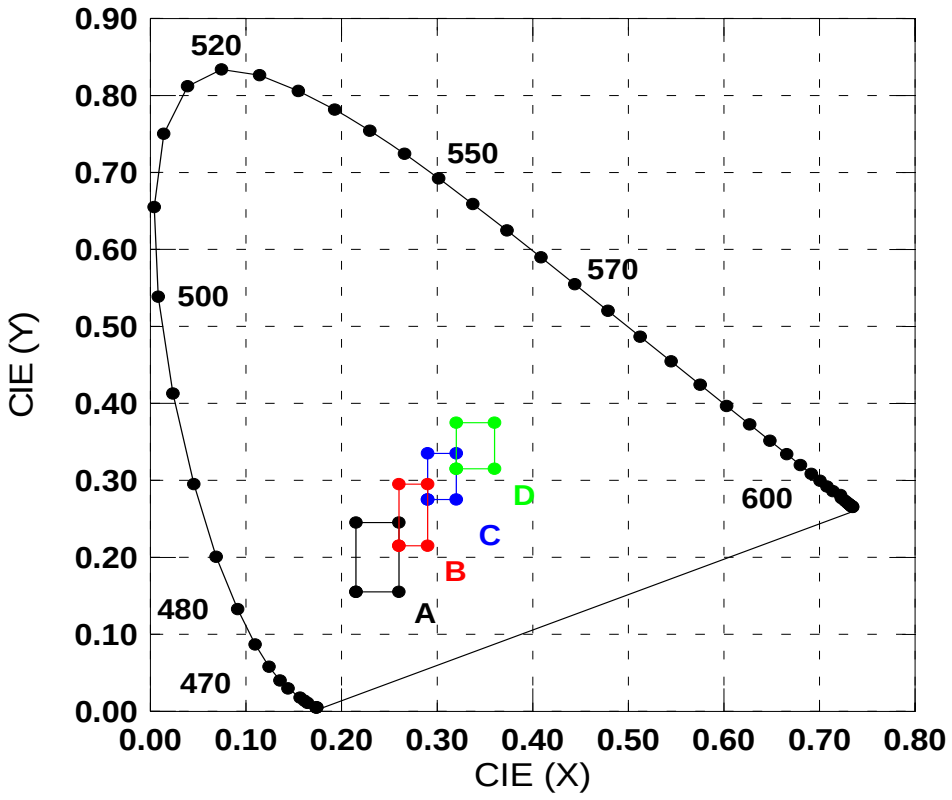
*Measurement Uncertainty of Luminous Intensity: ±15%

Forward Voltage Combination (V at 20mA)

Rank	1	2
Min.	3.0	3.5
Max.	3.5	4.0

*Measurement Uncertainty of Forward Voltage：±0.1V

CIE Chromaticity Diagram



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Color Ranks (IF=20mA，Ta=25℃)

Color Ranks	CIE X		CIE Y	
	Min.	Max.	Min.	Max.
A1	0.215	0.245	0.155	0.215
A2	0.245	0.260	0.185	0.245
B1	0.260	0.275	0.215	0.275
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
D1	0.320	0.340	0.315	0.355
D2	0.340	0.360	0.335	0.385

*Measurement uncertainty of the color coordinates：±0.01

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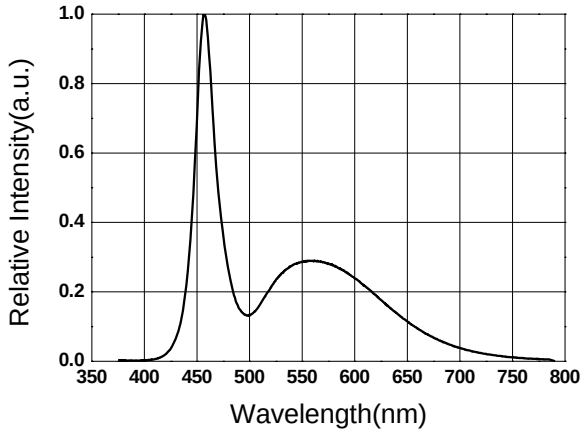
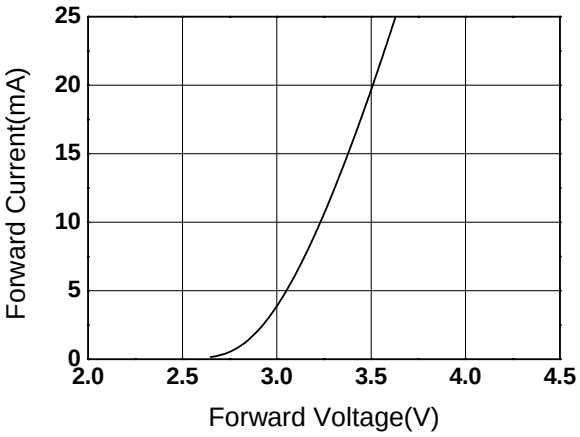
Typical Electro-Optical Characteristics Curves

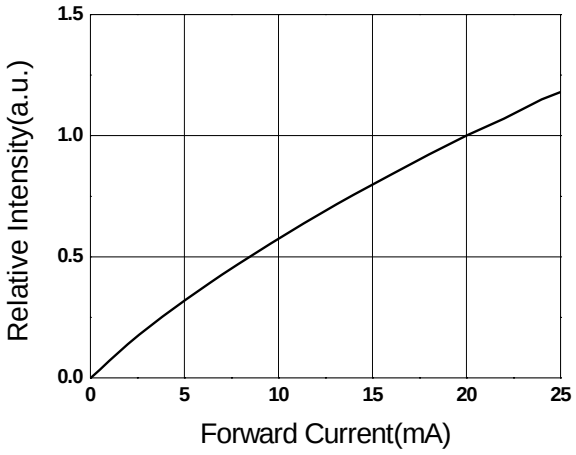
Relative Intensity vs. Wavelength



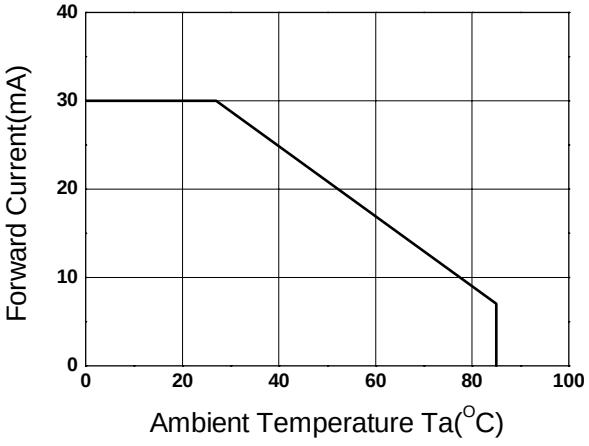
Forward Current vs. Forward Voltage



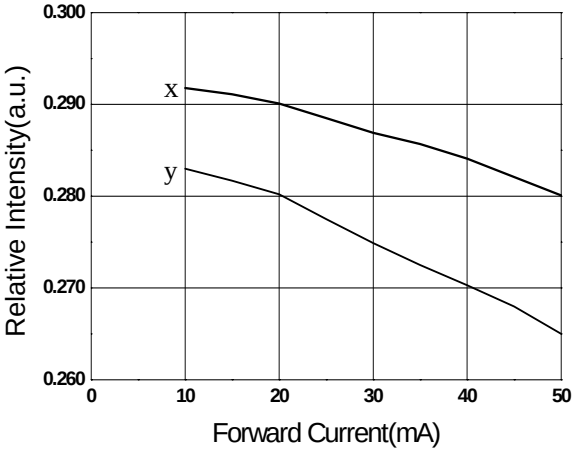
Relative Intensity vs. Forward Current



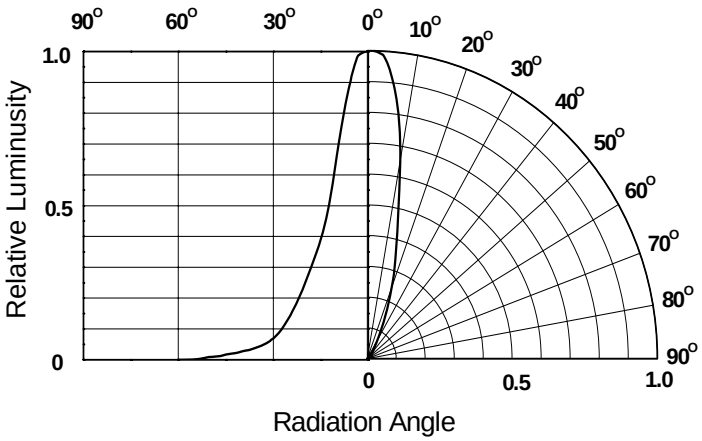
Forward Current vs. Ambient Temp.



Chromaticity Coordinate vs. Forward Current



Relative Intensity vs. Angle Displacement



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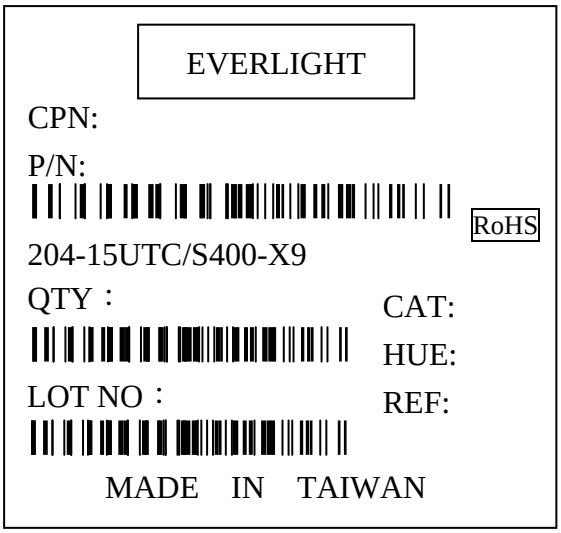
204-15UTC/S400-X9

Label Form Specification



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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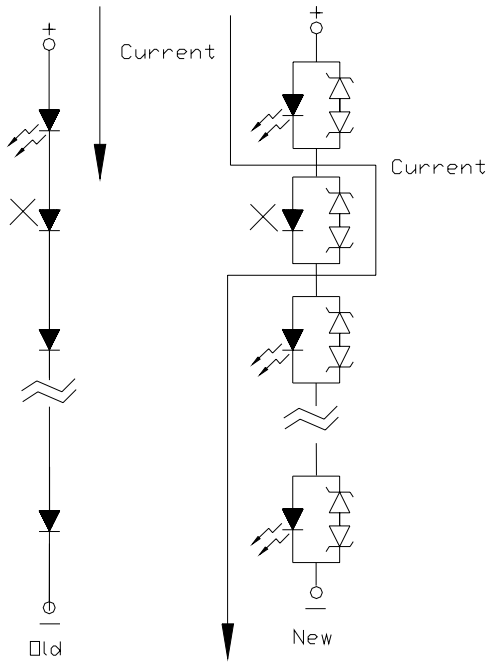
Notes

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 Vz, all the current flows through LED and as the voltage rises to Vz, the zener diode "breakdown." If the voltage tries to rise above Vz current flows through the zener branch to keep the voltage at exactly Vz.
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



6. Soldering Condition

Careful attention should be paid during soldering. When soldering, leave more then 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℃ Max. (30W Max.)	Preheat temp.	100℃ 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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