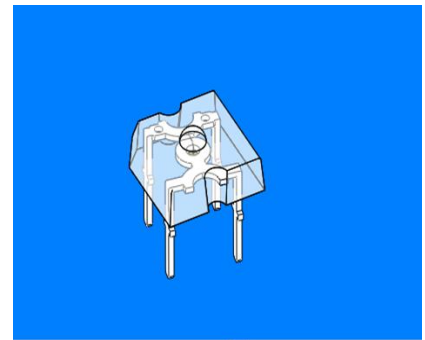


3mm Advanced Super Flux LEDs

31-01/T4C-4PRB



Features

- . High Flux Output.
- . Low Profile.
- . Low Thermal Resistance.
- . Low Power Consumption
- . The phosphor filled in the reflector converts the blue emission of InGaN chip to ideal white.
- . Typical chromaticity coordinates $x=0.30$, $y=0.29$ according to CIE1931
- . The product itself will remain within RoHS compliant version.
- . ESD-withstand voltage: up to 4KV

Descriptions

This revolutionary package design allows the light designer to reduce the number of LEDs required and provide a more uniform and unique illuminated appearance than with other LED solutions. This is possible through the efficient optical package design and high-current capabilities.

The low profile package can be easily coupled with reflectors or lenses to efficiently distribute light and provide the desired light appearance.

Applications

- . Automotive Lighting
- . Electronic Signs and Signals
- . Special Lighting application

Device Selection Guide

| PART NO. | Chip | | Lens Color |
|----------------|----------|---------------|-------------|
| | Material | Emitted Color | |
| 31-01/T4C-4PRB | InGaN | White | Water Clear |

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Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|---|-----------|------------|------|
| Reverse Voltage | V_R | 5 | V |
| Continuous Forward Current | I_F | 30 | mA |
| Peak Forward Current (Duty 1/10 @1KHz) | I_{FP} | 100 | mA |
| Power Dissipation | P_d | 100 | mW |
| Operating Temperature | T_{opr} | -40 ~ +85 | °C |
| Storage Temperature | T_{stg} | -40 ~ +110 | °C |
| Electrostatic Discharge | ESD | 4000 | V |
| Soldering Temperature(T=5 sec) | T_{sol} | 260 ± 5 | °C |

Electro-Optical Characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|-----------------------------|-----------------|----------------|--------------|----------------|------|---------------------|
| Total Flux | Φ_v | 2850 | 4000 | 5650 | mlm | $I_F = 30\text{mA}$ |
| Viewing Angle | $2\theta_{1/2}$ | ----- | 45 | ----- | deg | $I_F = 30\text{mA}$ |
| Chromaticity Coordinates | X y | ----- ----- | 0.30 0.29 | ----- ----- | | $I_F = 30\text{mA}$ |
| Forward Voltage | V_F | 2.8 | ----- | 3.8 | V | $I_F = 30\text{mA}$ |
| Reverse Current | I_R | ----- | ----- | 10 | mA | $V_R = 5\text{V}$ |
| Zener Reverse Voltage | V_Z | 5.2 | ----- | ----- | V | $I_Z = 5\text{mA}$ |

Note:

1. Total Flux: $\pm 11\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Bin Range of Forward Voltage (Ta=25°C)

| Bin | Min. | Max. | Unit | Condition |
|-----|------|------|------|----------------------|
| 0 | 2.80 | 3.00 | V | I _F =30mA |
| 1 | 3.00 | 3.20 | | |
| 2 | 3.20 | 3.40 | | |
| 3 | 3.40 | 3.60 | | |
| 4 | 3.60 | 3.80 | | |

Note:

Tolerance of Forward Voltage: ±0.1V

Bin Range of Total Flux (Ta=25°C)

| Bin | Min. | Max. | Unit | Condition |
|-----|------|------|------|----------------------|
| P | 2850 | 3600 | mlm | I _F =30mA |
| Q | 3600 | 4500 | | |
| R | 4500 | 5650 | | |

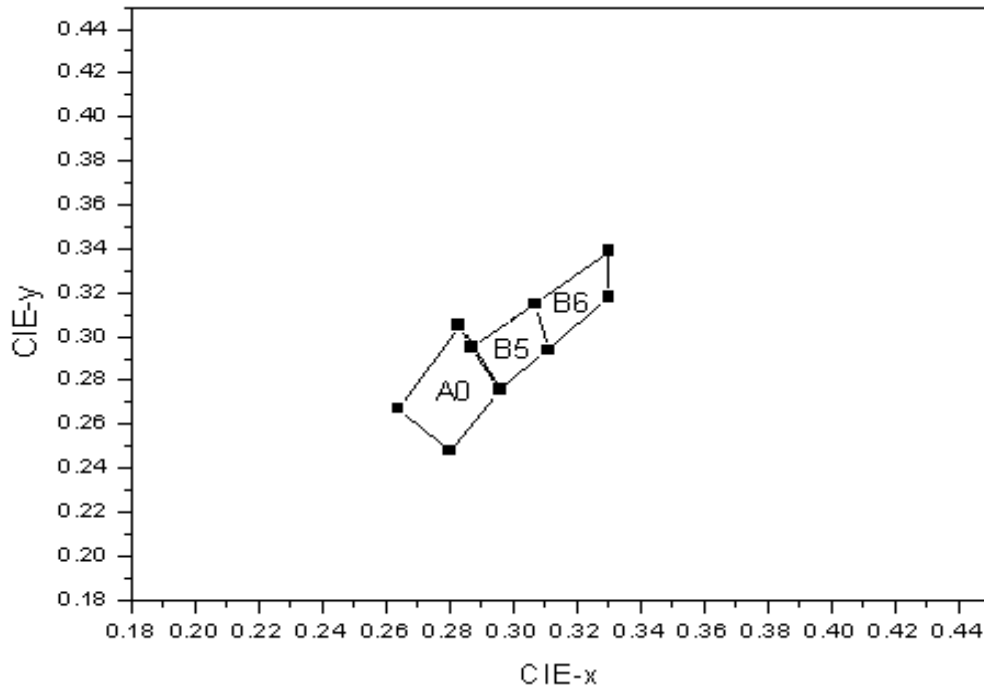
Note:

Tolerance of Total Flux: ±11%

Color Combination (at 30mA)

| Group | Bins |
|-------|----------|
| T4 | A0+B5+B6 |

CIE Chromaticity Diagram



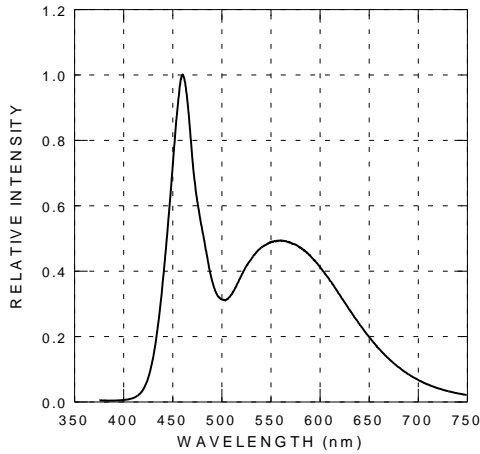
Color Ranks (IF=30mA , Ta=25°C)

| Color Ranks | | CIE Rank | | | |
|-------------|---|----------|-------|-------|-------|
| A0 | X | 0.280 | 0.264 | 0.283 | 0.296 |
| | Y | 0.248 | 0.267 | 0.305 | 0.276 |
| B5 | X | 0.296 | 0.287 | 0.307 | 0.311 |
| | Y | 0.276 | 0.295 | 0.315 | 0.294 |
| B6 | X | 0.311 | 0.307 | 0.330 | 0.330 |
| | Y | 0.294 | 0.315 | 0.339 | 0.318 |

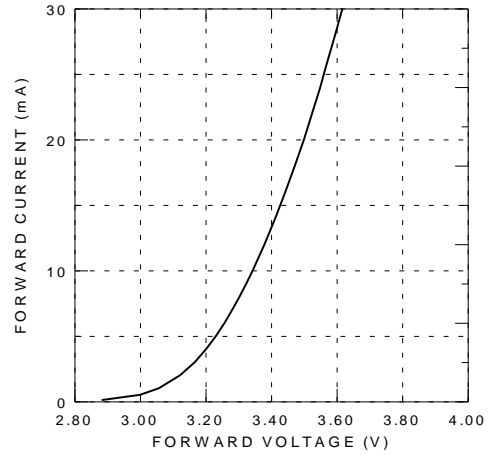
*Measurement uncertainty of the color coordinates : ± 0.01

Typical Electro-Optical Characteristics Curves

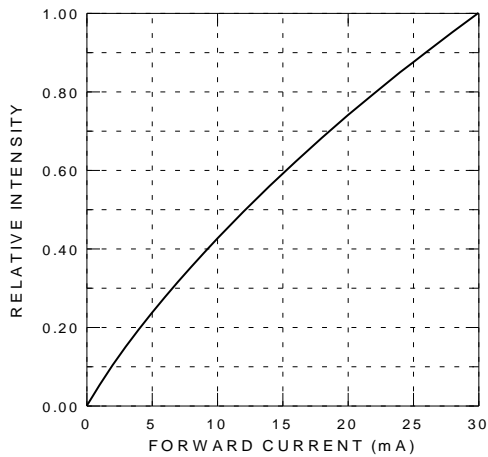
Relative Intensity vs. Wavelength



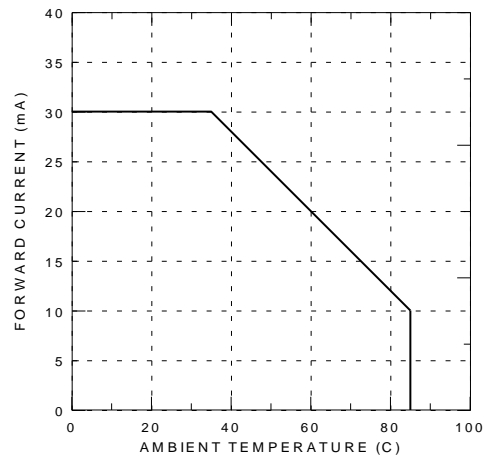
Forward Current vs. Forward Voltage



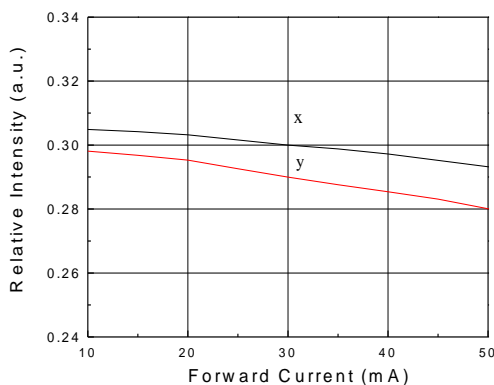
Relative Intensity vs. Forward Current



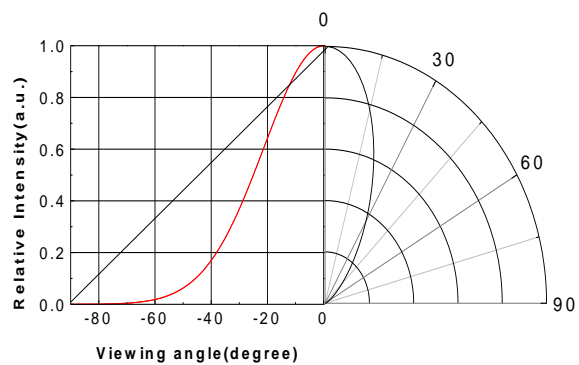
Forward Current vs. Ambient Temp.



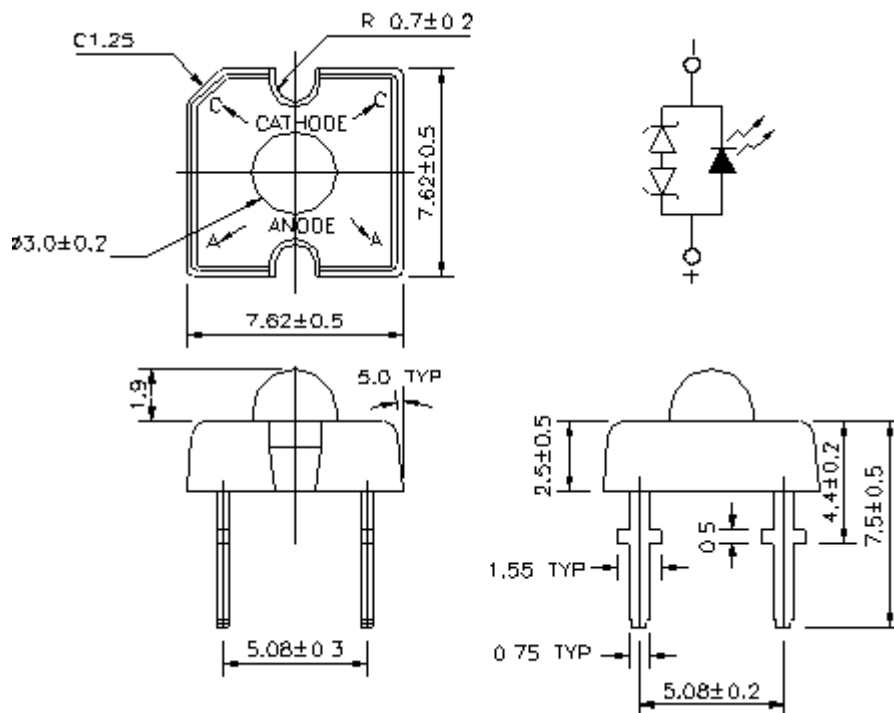
Chromaticity Coordinate vs. Forward Current



Radiation Characteristics



Package Dimensions



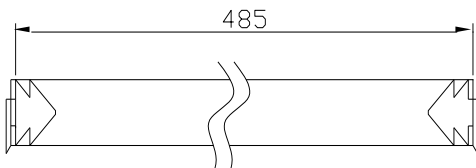
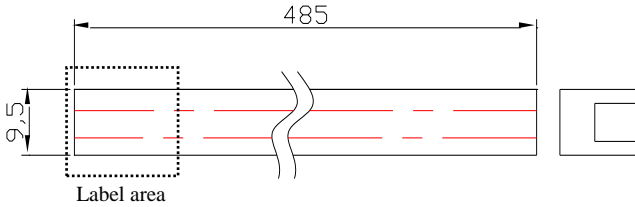
Notes: 1.All dimensions are in millimeters

2.An epoxy meniscus may extend about 1.5mm(0.059") down the leads

3.Tolerances unless dimensions ± 0.25 mm

Antistatic Packing Materials

Tube



Note: Tolerances unless mentioned $\pm 2.0\text{mm}$. Unit = mm



Tube Label Explanation

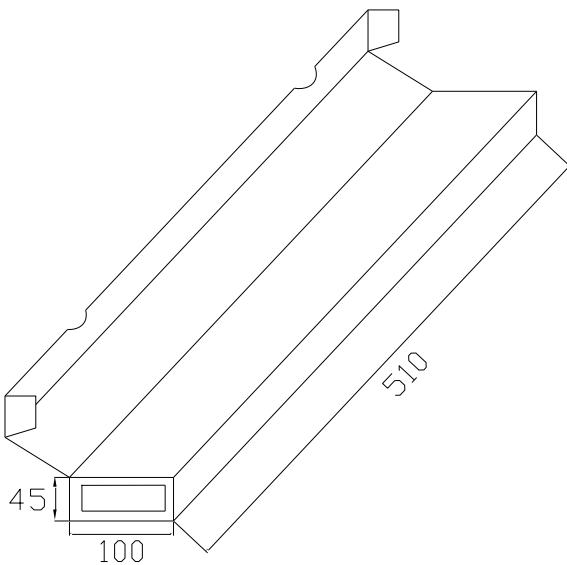
QTY: Packing Quantity

LOT No: Lot Number

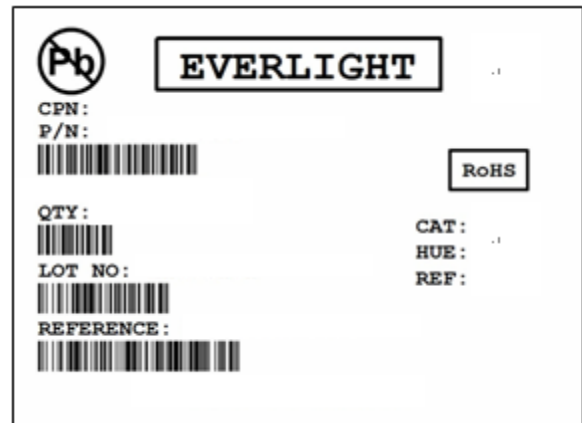
CAT: Rank of (VF)(Note*)(ΦV)

Note: λ_d /CIE/Color temperature

Standard Box



Note: Tolerances unless mentioned $\pm 3.0\text{mm}$. Unit = mm



Outer Label Explanation

CPN: Customer's Product Number

P/N: Product Number

QTY: Packing Quantity

CAT: Rank of (VF)(Note*)(ΦV)

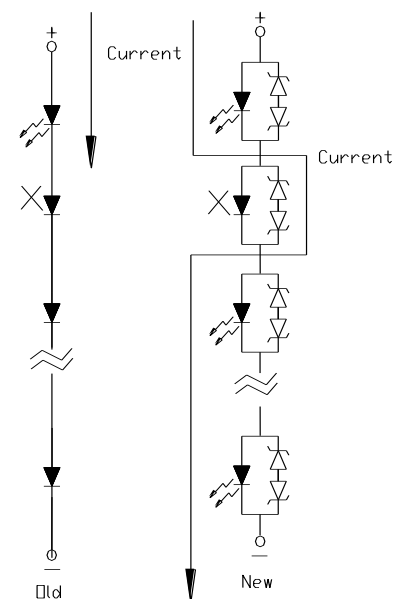
Note: λ_d /CIE/Color temperature

HUE/REF: Reference

LOT No: Lot Number

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.



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 | 300°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. |

Revision History

| Rev. | Modified date | File modified contents |
|------|---------------|------------------------------|
| 3 | 2013/5/24 | Change the form of datasheet |
| | | |
| | | |