

**Features**

- ◆ High luminous power.
- ◆ Typical chromaticity coordinates  $x=0.28, y=0.30$  according to CIE1931.
- ◆ Reliable and rugged
- ◆ ESD-withstand voltage: Up to 4KV
- ◆ General purpose leads
- ◆ Pb free
- ◆ 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
- ◆ Specialty lighting
- ◆ Marker Lights

**Technical Datasheet**

Lamp LEDs are effective in hot thermal and humid condition. This high brightness and weather-resistant packaging design makes these Lamp LEDs ideal for outdoor applications such as traffic signals, variable message signs and backlighting for transparent sign panels

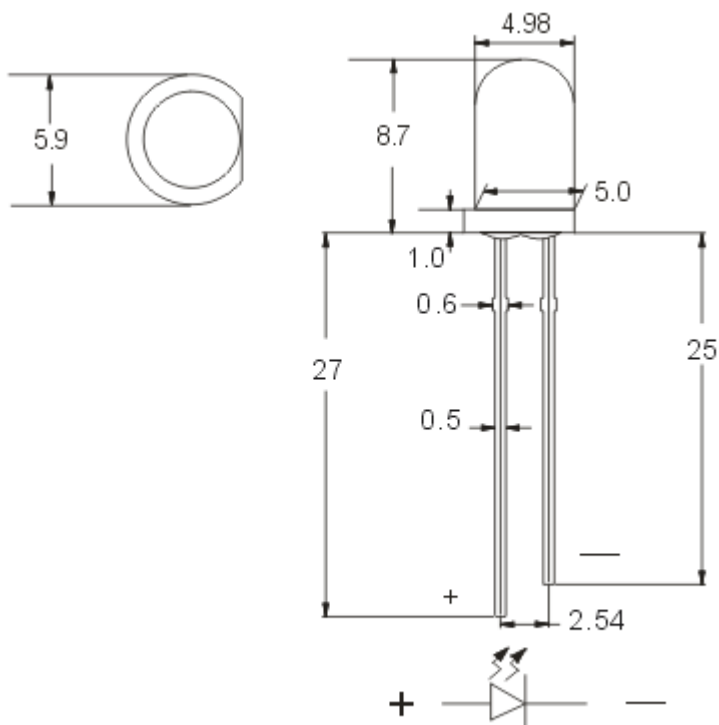
**Device Selection Guide**

| Part NO.   | Chip     |              | Lens Color  |
|------------|----------|--------------|-------------|
|            | Material | Source Color |             |
| 5W4VC-A15Y | InGaN    | White        | Water Clear |

**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.

Package Dimension:



**NOTE:TOLERANCE  $\pm 0.5\text{mm}$**

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

| Parameter  | Symbol | MAX.                         | Unit  |
|--|--------|------------------------------|-------|
| Power Dissipation  | Pd     | 120                          | mW    |
| Peak Forward Current ( 1/10 Duty Cycle,0.1ms Pulse Width ) | IFP    | 100                          | mA    |
| DC Forward Current   | IF     | 30                           | mA    |
| Derating Linear From 50°C                                  |        | 0.4                          | mA/°C |
| Reverse DC Voltage   | VR     | 5                            | V     |
| Zener Reverse Current                                      | Iz     | 100                          | mA    |
| Electrostatic Discharge                                    | ESD    | 4K                           | V     |
| Operating Temperature Range                                | Topr   | -30°C to +80°C               |       |
| Storage Temperature Range                                  | Tstg   | -40°C to +100°C              |       |
| Lead Soldering Temperature [4mm(.157") From Body]          | Tsol   | Max. 260°C for 5 Seconds Max |       |
|  |        |                              |       |

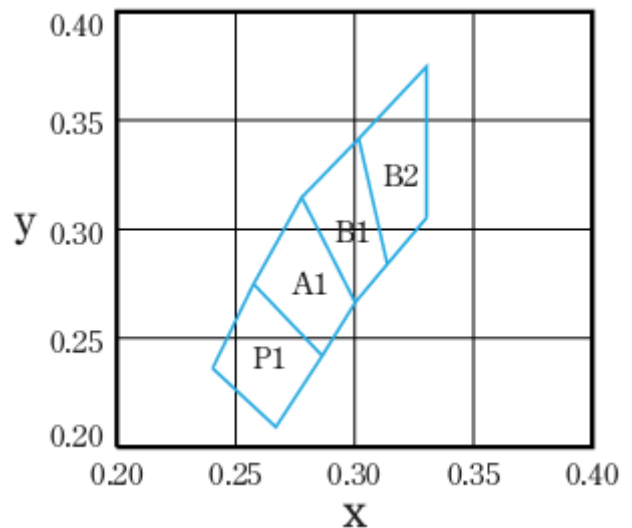
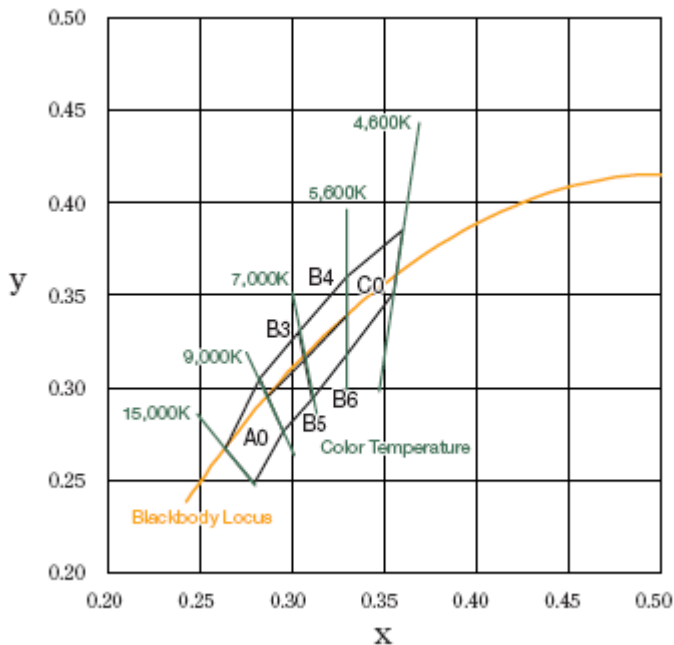
### Electrical Optical Characteristics: at Ta=25°C

| Parameter                | Symbol          | Min. | Typ.  | Max. | Unit          | Test Condition    |
|--------------------------|-----------------|------|-------|------|---------------|-------------------|
| Luminous Intensity       | $I_v$           |      | 20000 |      | mcd           | $I_F=20\text{mA}$ |
| Viewing Angle            | $2\theta_{1/2}$ |      | 15    |      | deg           | $I_F=20\text{mA}$ |
| Chromaticity Coordinates | X               |      | 0.28  |      |               | $I_F=20\text{mA}$ |
|                          | Y               |      | 0.30  |      |               |                   |
| Spectral Line Half-Width | $\Delta\lambda$ |      | 21    |      | nm            | $I_F=20\text{mA}$ |
| Color Temperature        | $T_C$           | 8000 |       | 9000 | K             | $I_F=20\text{mA}$ |
| Forward Voltage          | $V_F$           | 3.0  | 3.3   | 3.8  | V             | $I_F=20\text{mA}$ |
| Reverse Current          | $I_R$           |      |       | 50   | $\mu\text{A}$ | $V_R=5\text{V}$   |
| Zener Reverse Voltage    | $V_Z$           | 5.8  |       |      | V             | $I_Z=5\text{mA}$  |

#### Notes:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- $\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

#### Chromaticity Rank and Color Temperature of White LED



## Chromaticity Coordinate Groups

| Rank | Chromaticity |       | Rank | Chromaticity |       |
|------|--------------|-------|------|--------------|-------|
|      | x            | y     |      | x            | y     |
| A0   | 0.280        | 0.248 | B5   | 0.296        | 0.276 |
|      | 0.296        | 0.276 |      | 0.311        | 0.294 |
|      | 0.283        | 0.305 |      | 0.307        | 0.315 |
|      | 0.264        | 0.267 |      | 0.287        | 0.295 |
| B3   | 0.287        | 0.295 | B6   | 0.311        | 0.294 |
|      | 0.307        | 0.315 |      | 0.330        | 0.318 |
|      | 0.304        | 0.330 |      | 0.330        | 0.339 |
|      | 0.283        | 0.305 |      | 0.307        | 0.315 |
| B4   | 0.307        | 0.315 | C0   | 0.330        | 0.318 |
|      | 0.330        | 0.339 |      | 0.356        | 0.351 |
|      | 0.330        | 0.360 |      | 0.361        | 0.385 |
|      | 0.304        | 0.330 |      | 0.330        | 0.360 |

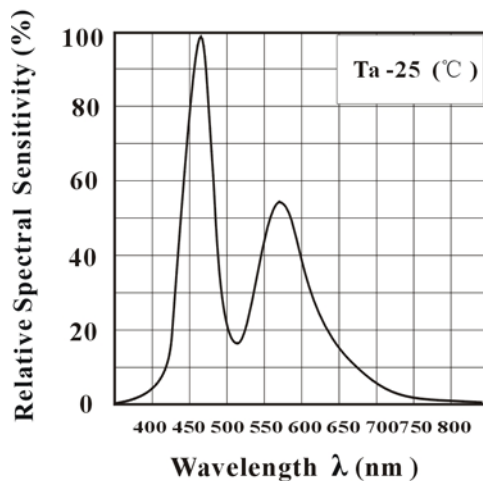
| Rank | Chromaticity |       |
|------|--------------|-------|
|      | x            | y     |
| P1   | 0.268        | 0.210 |
|      | 0.286        | 0.241 |
|      | 0.258        | 0.275 |
|      | 0.240        | 0.237 |
| PA   | 0.242        | 0.165 |
|      | 0.268        | 0.210 |
|      | 0.240        | 0.237 |
|      | 0.215        | 0.185 |

| Rank | Chromaticity |       |
|------|--------------|-------|
|      | x            | y     |
| F1   | 0.168        | 0.105 |
|      | 0.198        | 0.144 |
|      | 0.182        | 0.173 |
|      | 0.152        | 0.144 |
| F2   | 0.192        | 0.098 |
|      | 0.220        | 0.136 |
|      | 0.203        | 0.156 |
|      | 0.171        | 0.120 |
| F3   | 0.206        | 0.109 |
|      | 0.228        | 0.142 |
|      | 0.214        | 0.160 |
|      | 0.189        | 0.132 |

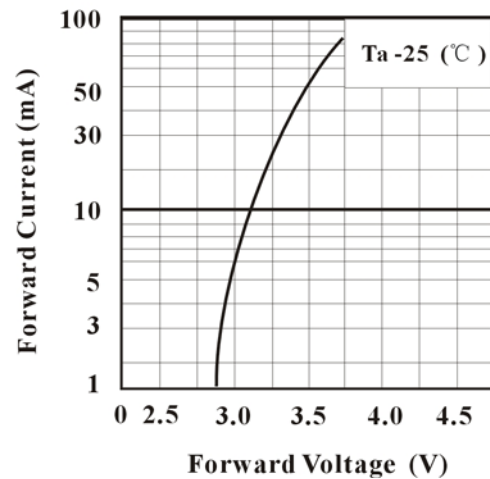
| Rank | Chromaticity |       |
|------|--------------|-------|
|      | x            | y     |
| Y1   | 0.305        | 0.383 |
|      | 0.333        | 0.355 |
|      | 0.375        | 0.397 |
|      | 0.347        | 0.425 |
| Y2   | 0.347        | 0.425 |
|      | 0.375        | 0.397 |
|      | 0.417        | 0.439 |
|      | 0.389        | 0.467 |

## Typical Electrical-Optical Characteristics Curves

**Fig.1 Spectral Sensitivity**

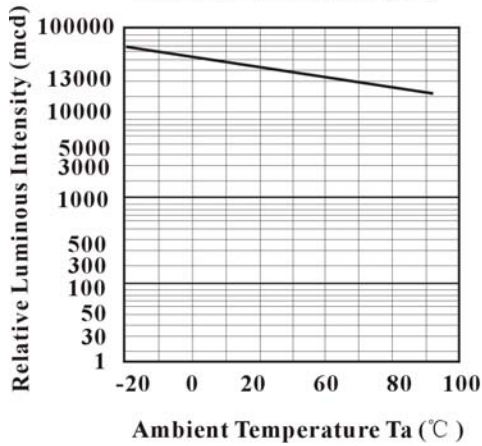


**Fig.2 Forward Current vs. Forward Voltage**

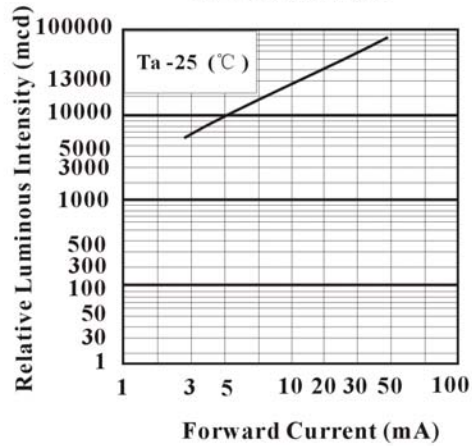


# Typical Electrical-Optical Characteristics Curves

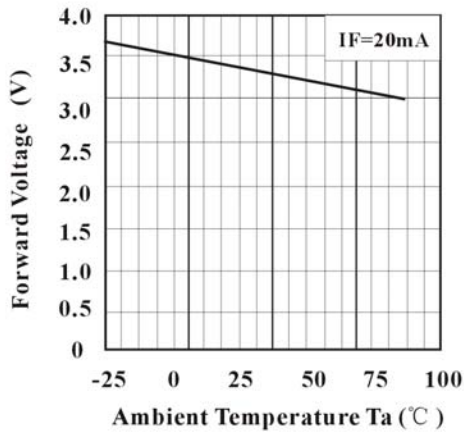
**Fig.3 Relative Luminous Intensity vs. Ambient Temperature (°C)**



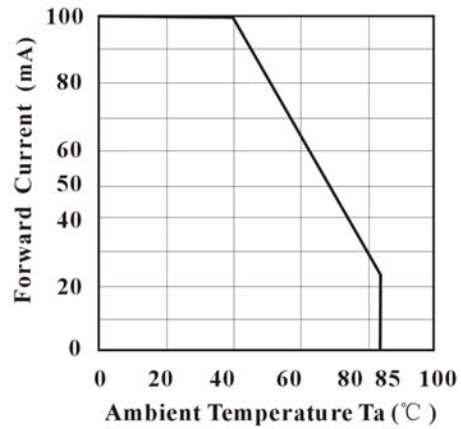
**Fig.4 Relative Luminous Intensity vs. Forward Current**



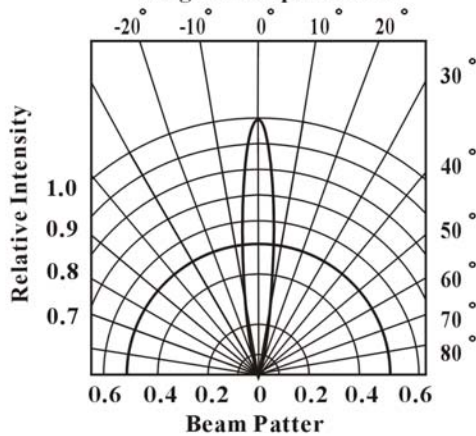
**Fig.5 Forward Voltage vs. Ambient Temperature (°C)**



**Fig.6 Forward Current vs. Ambient Temperature**



**Fig.7 Relative Radiant Intensity vs. Angular Displacement**



**Fig.8 Chromaticity Coordinate vs. Forward Current**

