

AlGaInP ITO-top LED Chip

□ Features:

- High luminous intensity
- ITO layer on top

□ Applications:

- Mobil appliances
- Indoor application
- Consumer electronic

□ Mechanical Specification:

(1) Dimension

Chip size : 9 mil x 9 mil ($230 \pm 25 \mu\text{m} \times 230 \pm 25 \mu\text{m}$)

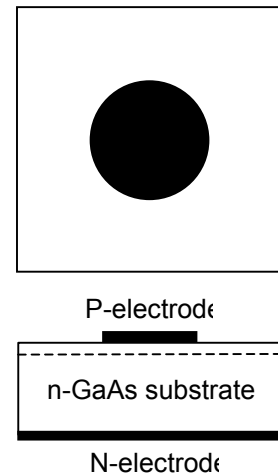
Thickness : 6.7 mil ($170 \pm 25 \mu\text{m}$)

P bonding pad : 3.9 mil ($100 \pm 10 \mu\text{m}$)

(2) Metallization

Topside P electrode : Au alloy

Backside N electrode : Au alloy



□ Electro-optical Characteristics at 25 °C:

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|-----------------|------------------------|------|------|------|---------------|
| Forward voltage | V_{f1} | $I_f = 10 \mu\text{A}$ | 1.4 | | | V |
| | V_{f2} | $I_f = 20 \text{mA}$ | | 2.05 | 2.40 | V |
| Reverse current | I_r | $V_r = 10 \text{V}$ | | | 10 | μA |
| Peak wavelength | λ_p | $I_f = 20 \text{mA}$ | | 587 | | nm |
| Dominant wavelength ⁽¹⁾ | λ_d | $I_f = 20 \text{mA}$ | 581 | 585 | 589 | nm |
| Spectral half-width | $\Delta\lambda$ | $I_f = 20 \text{mA}$ | | 15 | | nm |
| Luminous intensity ⁽²⁾⁽³⁾ | I_v | $I_f = 20 \text{mA}$ | E4 | 45 | | mcd |
| | | | E5 | 60 | | |
| | | | E6 | 75 | | |
| | | | E7 | 90 | | |

Note:

(1) Basically, the wavelength span is 8nm; however, customers' special requirements are also welcome.

(2) Customers' special requirements are also welcome.

(3) Luminous intensity is measured by EPISTAR's equipment on bare chips.

This product is made and sold under one or more of the following patents: Taiwan Patent Certificate Nos.: 098998; 113696; 128153; 131010; 144415; 148677; 170789; 183481; 183846; U.S. Patent Nos.: 5,008,718; 5,164,798; 5,233,204; 5,789,768; 6,078,064; 6,057,562; 6,225,648; 6,552,367; 6,876,005, and any foreign counterparts.

□ Absolute Maximum Ratings:

| Parameter | Symbol | Condition | Rating | Unit |
|------------------------------|------------------|-----------------------------|-------------|------------------|
| Forward DC current | I_f | $T_a=25^\circ\text{C}$ | ≤ 30 | mA |
| Reverse voltage | V_r | $T_a=25^\circ\text{C}$ | ≤ 10 | V |
| Junction temperature | T_j | --- | ≤ 115 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | chip | -40 ~ +85 | $^\circ\text{C}$ |
| | | chip-on-tape/storage | 0 ~ 40 | $^\circ\text{C}$ |
| | | chip-on-tape/transportation | -20 ~ +65 | $^\circ\text{C}$ |
| Temperature during packaging | --- | --- | 280(<10sec) | $^\circ\text{C}$ |

Note:

Maximum ratings are package dependent. The above maximum ratings were determined using a Printed Circuit Board (PCB) without an encapsulant. Stresses in excess of the absolute maximum ratings such as forward current and junction temperature may cause damage to the LED.

□ Characteristic Curves:

Fig.1-Relative Luminous Intensity vs. Forward Current

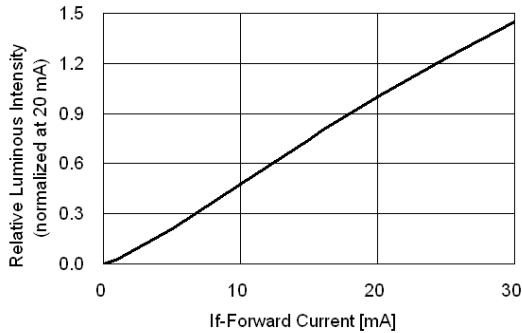


Fig.2- Forward Current vs. Forward Voltage

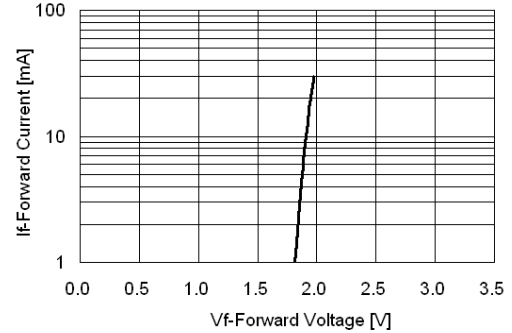


Fig.3-Relative Intensity (@20mA) vs. Ambient Temperature

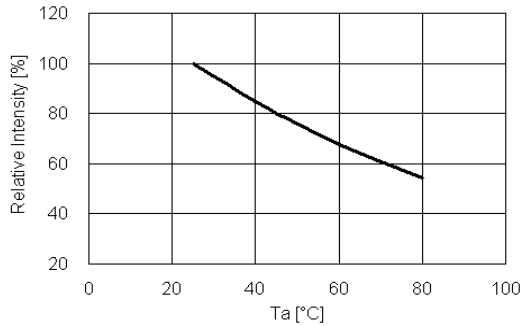


Fig.4-Forward Voltage (@20mA) vs. Ambient Temperature

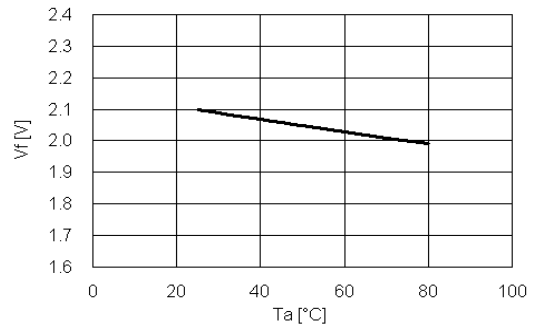


Fig.5-Dominant Wavelength(@20mA) vs. Ambient Temperature

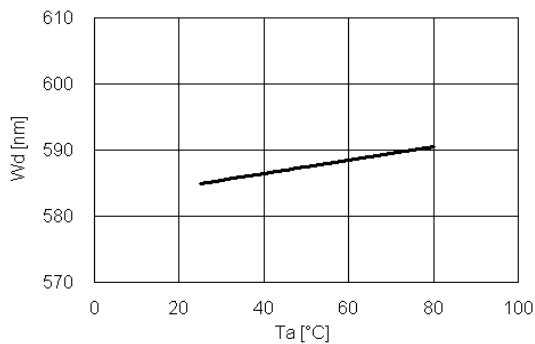


Fig.6 Maximum Driving Forward DC Current vs. Ambient Temperature (Derating based on $T_j \text{ max.} = 115^\circ\text{C}$)

