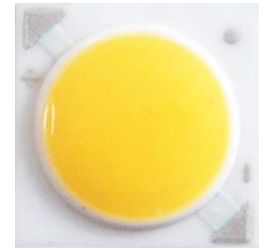


### PRODUCT:

13.5 MM CHIP ON BOARD LED

### FEATURES:

10W nominal 13.5 mm x 13.5 mm x 1.0 mm LED  
 120° emission angle  
 95 min Ra



### DESCRIPTION

YUJILED S™ high CRI COB provides excellent color rendering in a ceramic form factor that allows for high light output density. Providing 95 CRI (min), this point-source LED can be used in a variety of applications demanding high color quality and performance.



| ELECTRICAL-OPTICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C) |                      |       |      |      |      |           |                        |
|---|----------------------|-------|------|------|------|-----------|------------------------|
| PARAMETER   | SYMBOL               | VALUE |      |      | UNIT | TOLERANCE | CONDITION              |
|   |                      | MIN.  | TYP. | MAX. |      |           |                        |
| Forward voltage   | V <sub>f</sub>       | 14    | --   | 17   | V    | ±0.05     | I <sub>f</sub> = 600mA |
| Luminous flux   | Φ <sub>3200K</sub>   | 800   | --   | 920  | lm   | --        | I <sub>f</sub> = 600mA |
|   | Φ <sub>5600K</sub>   | 900   |      | 1100 |      |           |                        |
| Correlated color temperature                                | CCT <sub>3200K</sub> | 3050  | 3200 | 3350 | K    | --        | I <sub>f</sub> = 600mA |
|   | CCT <sub>5600K</sub> | 5300  | 5600 | 5900 |      |           |                        |
| Color rendering index                                       | R <sub>a</sub>       | 95    | --   | --   | --   | ±1        | I <sub>f</sub> = 600mA |
| TCS R9 (CRI Red)  | R <sub>9</sub>       | --    | 90   | --   | --   | --        | I <sub>f</sub> = 600mA |
| Chromaticity coordinates                                    | (X,Y)                | --    | --   | --   | --   | ±0.005    | --                     |
| Reverse current   | I <sub>r</sub>       | --    | --   | 10   | μA   | ±0.1      | V <sub>r</sub> = 25V   |
| Viewing angle   | 2θ <sub>1/2</sub>    | --    | 120  | --   | Deg  | ±5        | I <sub>f</sub> = 600mA |

| ORDERING INFORMATION |              |                   |
|----------------------|--------------|-------------------|
| PART NUMBER          | CCT          | CHROMATICITY BINS |
| YJ-BC-135L-G02-32    | 3200K ± 150K | 32L, 32R          |
| YJ-BC-135L-G02-56    | 5600K ± 300K | 56L, 56R          |
| YJ-BC-135L-G02-XX    | CUSTOM       |                   |

| VOLTAGE BIN CODES |            |
|-------------------|------------|
| <b>Bin</b>        | <b>V14</b> |
| V <sub>F</sub>    | 14-17      |

| ABSOLUTE MAXIMUM RATING (T <sub>A</sub> = 25 °C) |                  |           |      |
|--|------------------|-----------|------|
| PARAMETER  | SYMBOL           | LIMIT     | UNIT |
| Power Consumption                                | P <sub>D</sub>   | 13500     | mW   |
| DC Forward Current (pulsed)*                     | I <sub>Fp</sub>  | 1800**    | mA   |
| DC Forward Current                               | I <sub>F</sub>   | 900       | mA   |
| Reverse Voltage                                  | V <sub>R</sub>   | 25        | V    |
| Junction Temperature                             | T <sub>j</sub>   | 125       | °C   |
| Case Temperature***                              | T <sub>c</sub>   | 85        | °C   |
| Operating Temperature                            | T <sub>opr</sub> | -45 ~ +85 | °C   |
| Storage Temperature                              | T <sub>stg</sub> | -45 ~ +85 | °C   |
| Soldering Temperature                            | T <sub>sol</sub> | 260 ± 5   | °C   |
| Reflow Cycles Allowed                            | --               | 2         | --   |

\* Pulse width ≤ 0.1ms, Duty ≤ 1/10.

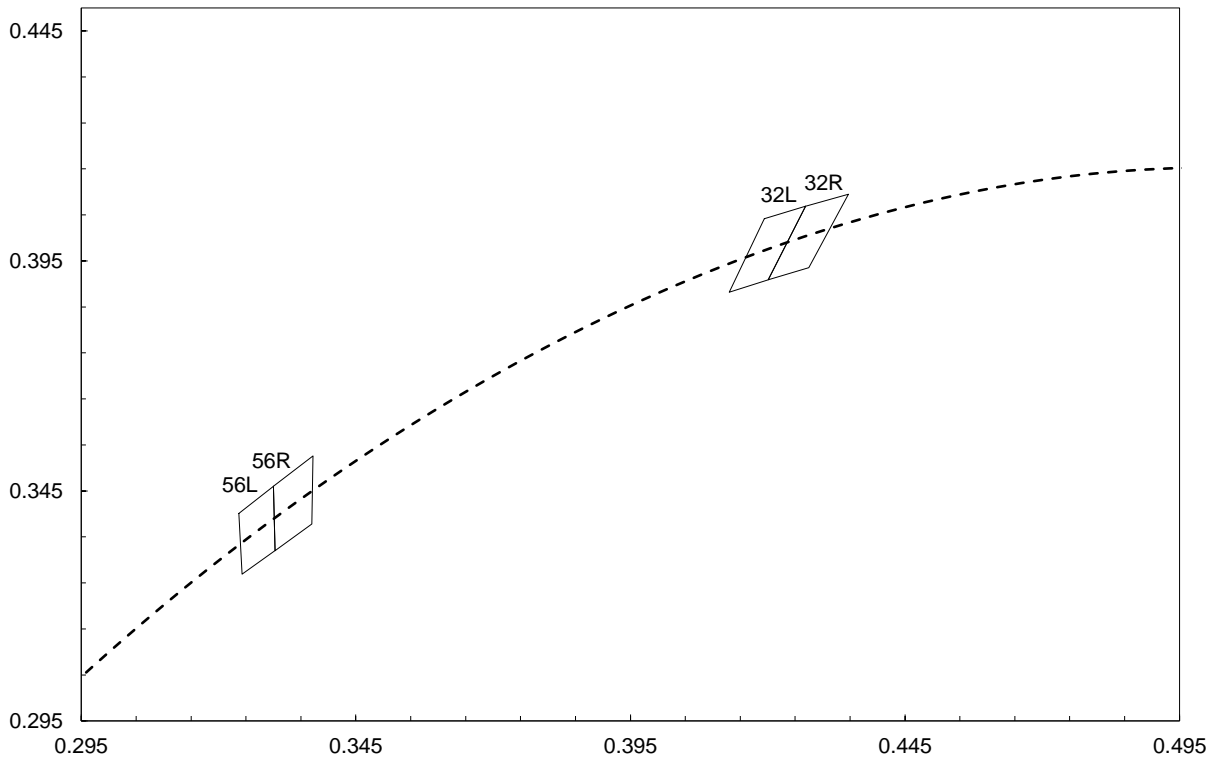
\*\* Theoretical data.

\*\*\* See page 4 for case temperature point definition.

| CHROMATICITY BINS & COORDINATES |     |                      |        |        |        |        |        |        |        |
|---------------------------------|-----|----------------------|--------|--------|--------|--------|--------|--------|--------|
| CCT                             | BIN | CIE 1931 COORDINATES |        |        |        |        |        |        |        |
|                                 |     | X0                   | Y0     | X1     | Y1     | X2     | Y2     | X3     | Y3     |
| 5600K                           | 56L | 0.3237               | 0.3401 | 0.3243 | 0.3269 | 0.3303 | 0.3320 | 0.3300 | 0.3460 |
|                                 | 56R | 0.3300               | 0.3460 | 0.3303 | 0.3320 | 0.3370 | 0.3378 | 0.3372 | 0.3526 |
| 3200K                           | 32L | 0.4194               | 0.4042 | 0.4130 | 0.3882 | 0.4201 | 0.3909 | 0.4269 | 0.4069 |
|                                 | 32R | 0.4269               | 0.4069 | 0.4201 | 0.3909 | 0.4275 | 0.3935 | 0.4347 | 0.4095 |

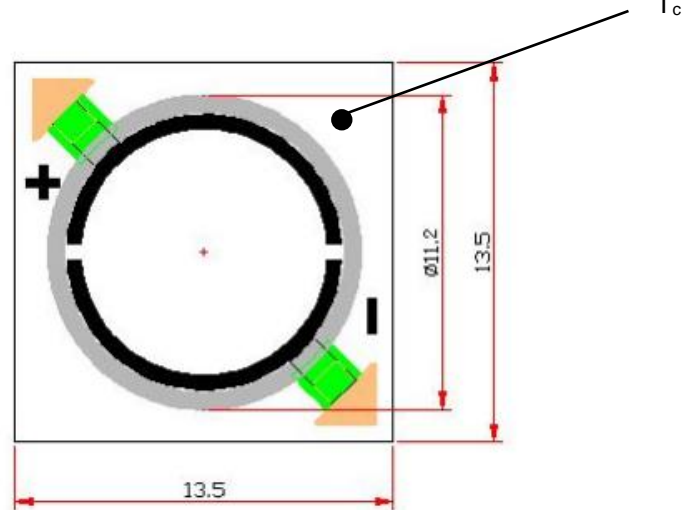
**CHROMATICITY BINS & COORDINATES**

**CIE 1931 COORDINATES**



**PACKAGE LAYOUT**

All dimensions in mm, tolerance unless mentioned is  $\pm 0.1$ mm.



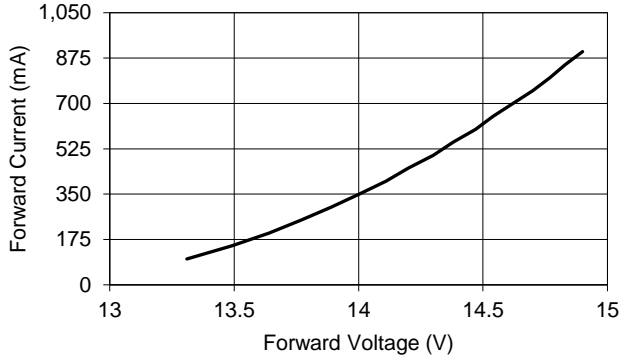
**PACKAGE MATERIALS**

| ITEM                       | DESCRIPTION         |
|----------------------------|---------------------|
| DIE MATERIAL               | InGaN               |
| LEAD FRAME MATERIAL        | CERAMIC             |
| ENCAPSULANT RESIN MATERIAL | SILICONE + PHOSPHOR |

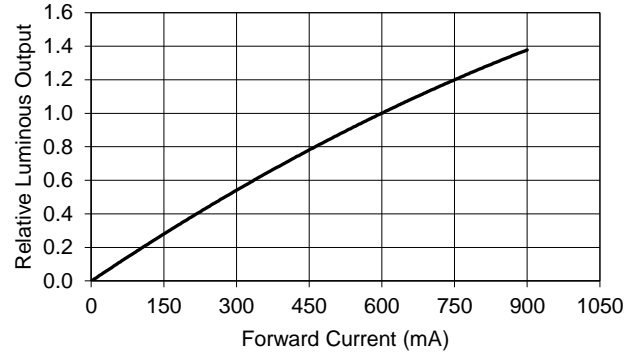
### CHARACTERISTIC CURVES

ALL CHARACTERISTIC CURVES ARE FOR REFERENCE ONLY AND NOT GUARANTEED

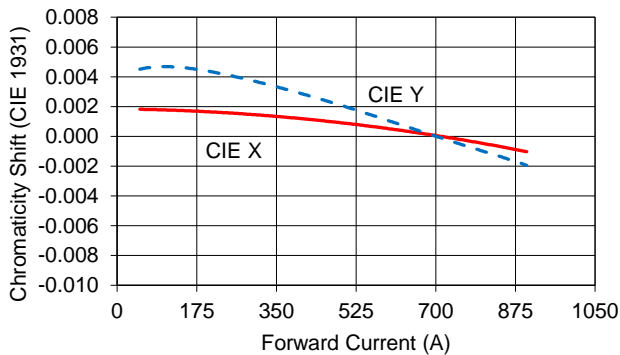
FORWARD CURRENT VS FORWARD VOLTAGE ( $T_A = 25^\circ\text{C}$ )



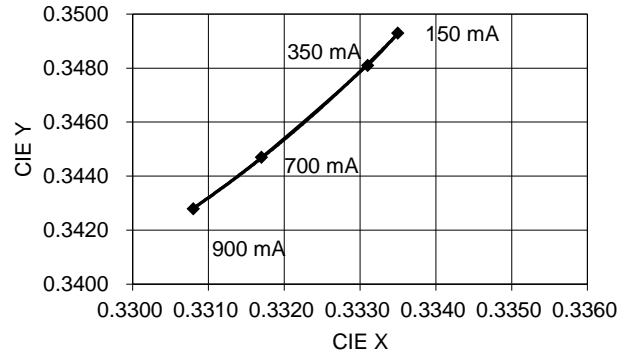
FORWARD CURRENT VS RELATIVE LUMINOUS OUTPUT ( $T_A = 25^\circ\text{C}$ )



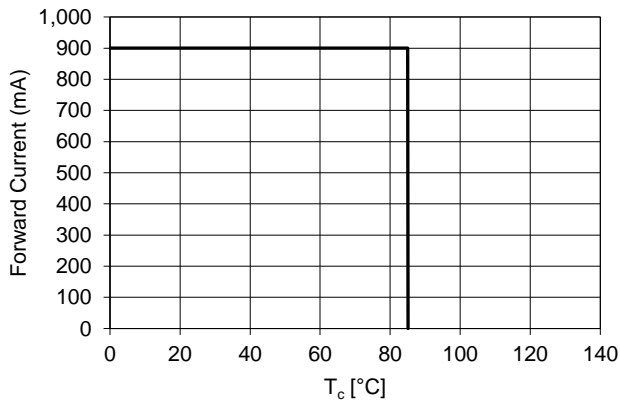
FORWARD CURRENT VS CHROMATICITY SHIFT (5600K,  $T_A = 25^\circ\text{C}$ )



FORWARD CURRENT VS CHROMATICITY SHIFT (5600K,  $T_A = 25^\circ\text{C}$ )

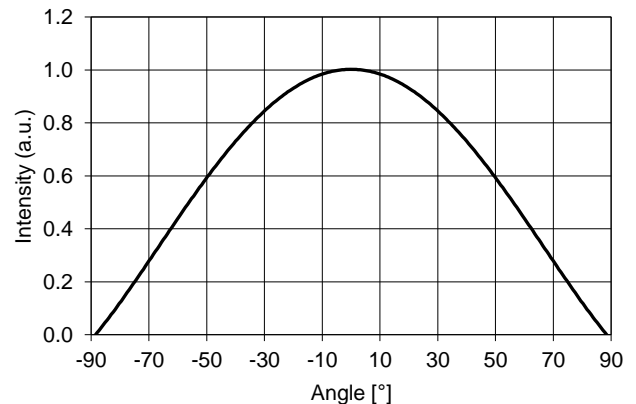


FORWARD CURRENT DERATING BASED ON CASE TEMPERATURE

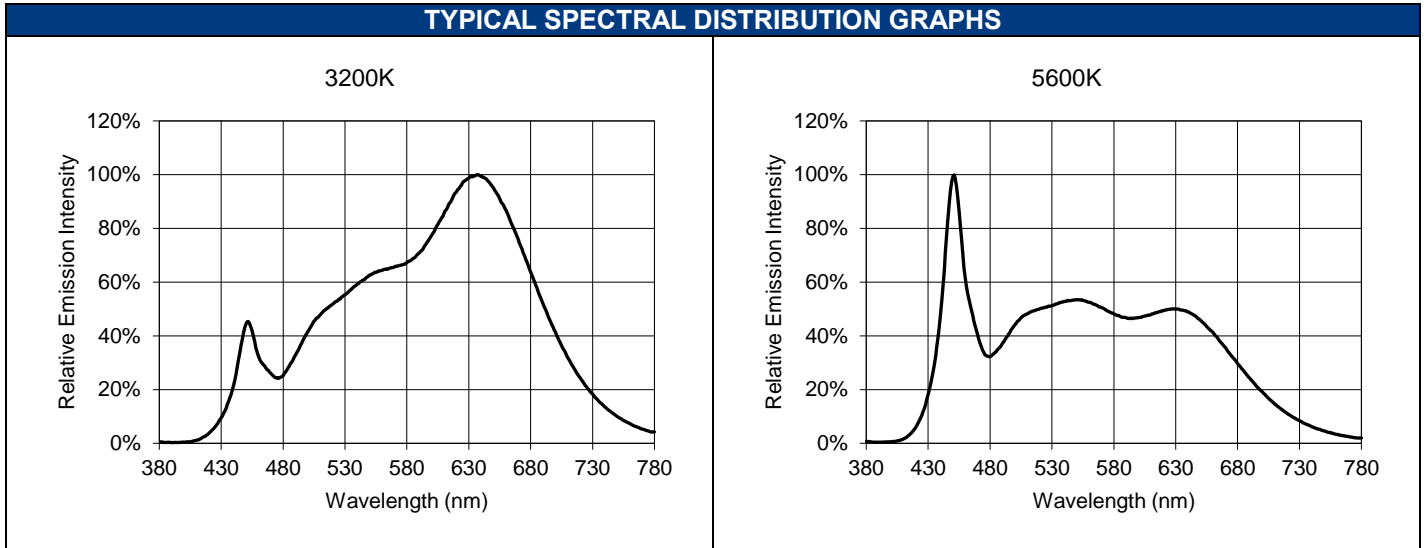


NOTE: DE-RATING CURVES ARE MEANT FOR RECOMMENDATION ONLY AND ARE NOT MEANT TO PROVIDE GUARANTEES OF PRODUCT STABILITY AND LONGEVITY

TYPICAL SPATIAL DISTRIBUTION ( $T_A = 25^\circ\text{C}$ ,  $I_F = 700\text{ mA}$ )



**TYPICAL SPECTRAL DISTRIBUTION GRAPHS**



**LOT NUMBERING SCHEME**

Yuji LED uses two formats for lot numbering purposes:

1) YYYY-MM-XXX-Z

YYYY: 4-digit manufacturing year  
 MM: 2-digit manufacturing month  
 XXX: 3-digit inventory number (000 – 999)  
 Z: internal alphanumeric code

2) YYYYMMXXX

YYYY: 4-digit manufacturing year  
 MM: 2-digit manufacturing month  
 XXX: 3-digit inventory number (000 – 999)