

SPECIFICATIONS

FOR TOPLITE COB MODULE

MODEL: ATR-R27-4W



TOPLITE

TOPLITE INTERNATIONAL LLC.

www.topliteusa.com



TECHNICAL DATA SHEET

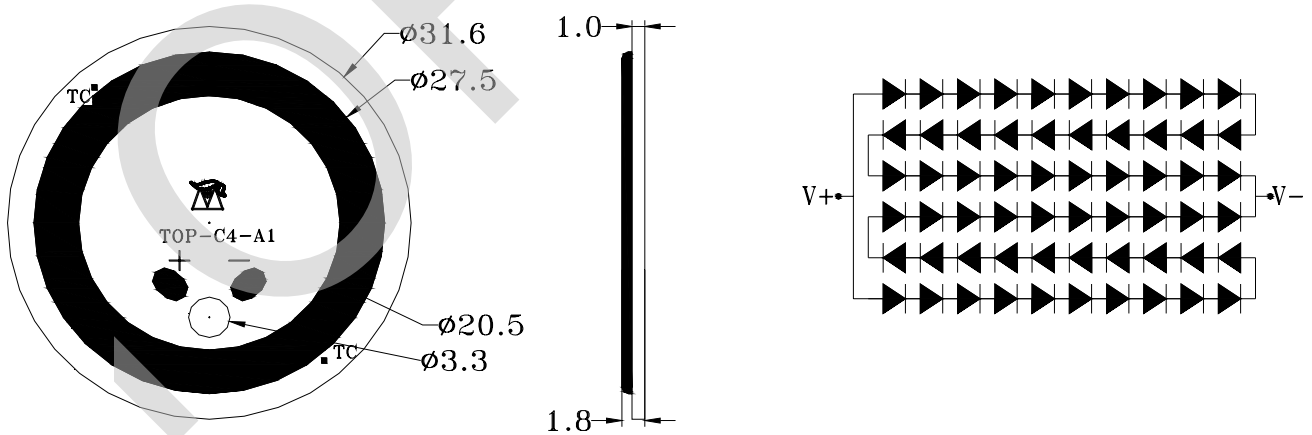
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1. PRODUCT APPEARANCE



2. OUTLINE DRAWING



Unit: mm

Tolerance: ± 0.25

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3. PERFORMANCE PARAMETERS**3-1. ABSOLUTE MAXIMUM RATINGS**

| ITEM | SYMBOL | RATING | UNIT |
|-----------------------|-------------------|--------------|------|
| Power Dissipation | P | 7.2 | W |
| Forward Current | I _F | 40 | mA |
| Reverse Voltage | V _R | 300 | V |
| Operating Temperature | T _{opr} | - 30 ~ + 85 | °C |
| Storage Temperature | T _{stg} | - 40 ~ + 100 | °C |
| Junction Temperature | T _{jmax} | + 125 | °C |

Note:

*1. Forward Current allows maximum surge current ≤ 10 ms.

*2. Power dissipation and forward current are the values when the LED is used within the range of the derating curve in this data sheet.



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3-2. ELECTRICAL-OPTICAL CHARACTERISTICS

(T_c=25°C)

| ** | PARAMETER | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT | |
|--------|-----------------------------|---------------------|----------------------|------|------|------|------|------|
| common | Forward Voltage *1 | V _F | I _F =25mA | 168 | 174 | 180 | V | |
| | Beam Angle | — | | — | 120 | — | Deg | |
| W | ** Color Temp. | — | I _F =25mA | 2870 | 3045 | 3220 | K | |
| | ** Color Rendering Index *3 | R _a | | 80 | — | — | — | |
| | W ₁ | Luminous Flux *2 | | Φ | 344 | 365 | — | lm |
| | | Luminous Efficiency | | η | 80 | 85 | — | lm/W |
| | W ₂ | Luminous Flux *2 | | Φ | 387 | 408 | — | lm |
| | | Luminous Efficiency | | η | 90 | 95 | — | lm/W |
| D | ** Color Temp. | — | I _F =25mA | 4745 | 5028 | 5311 | K | |
| | ** Color Rendering Index *3 | R _a | | 80 | — | — | — | |
| | D ₁ | Luminous Flux *2 | | Φ | 408 | 430 | — | lm |
| | | Luminous Efficiency | | η | 95 | 100 | — | lm/W |
| | D ₂ | Luminous Flux *2 | | Φ | 434 | 451 | — | lm |
| | | Luminous Efficiency | | η | 101 | 105 | — | lm/W |
| C | ** Color Temp. | — | I _F =25mA | 6020 | 6530 | 7040 | K | |
| | ** Color Rendering Index *3 | R _a | | 80 | — | — | — | |
| | C ₁ | Luminous Flux *2 | | Φ | 430 | 451 | — | lm |
| | | Luminous Efficiency | | η | 100 | 105 | — | lm/W |
| | C ₂ | Luminous Flux *2 | | Φ | 456 | 473 | — | lm |
| | | Luminous Efficiency | | η | 106 | 110 | — | lm/W |

(Note) Parameters is formulated based on shipping samples

*1. After 20 ms drive, Measurement tolerance: ± 3 %

*2. Monitored by TOPLITE's 1m integrating sphere, after 20 ms drive, Measurement tolerance: ± 10 %

*3. Monitored by TOPLITE's 1m integrating sphere, after 20 ms drive, Measurement tolerance:± 2

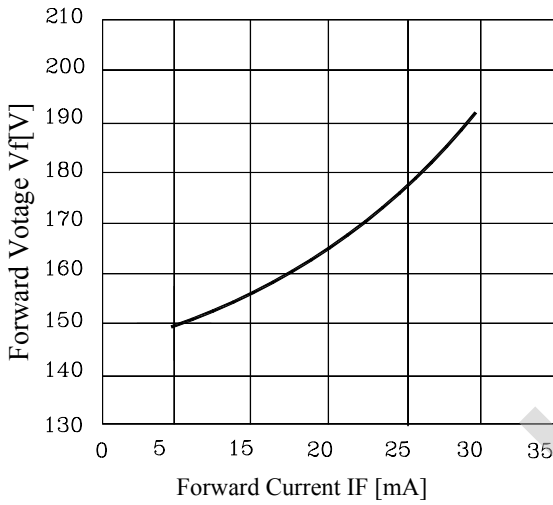


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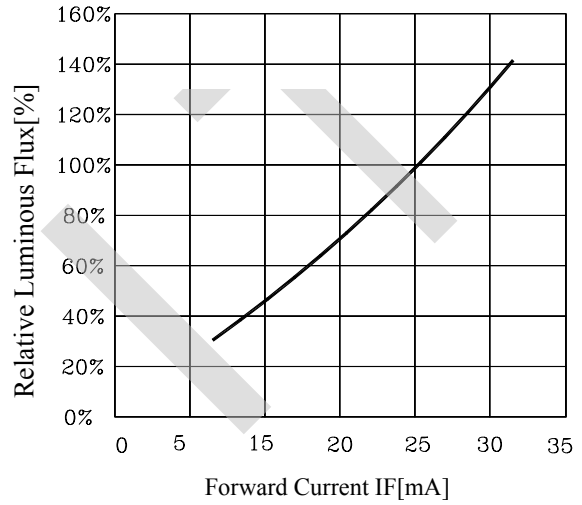
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3-3. Characteristics diagram (TYP.)

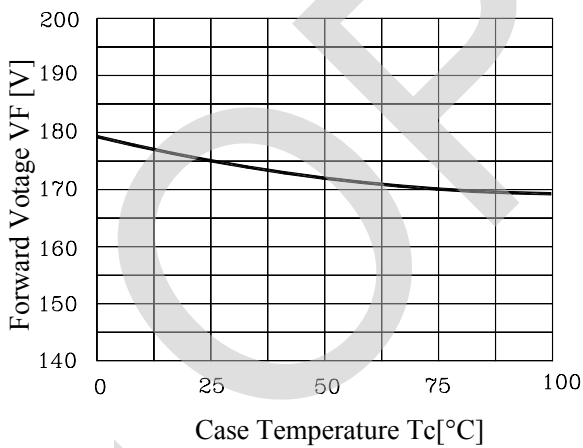
Forward Current Vs. Forward Voltage
 $T_c=25^\circ\text{C}$



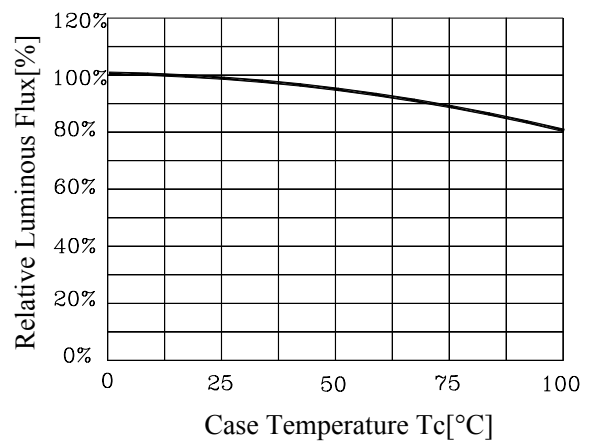
Forward Current Vs. Relative Luminous Flux
 $T_c=25^\circ\text{C}$



Case Temperature Vs. Forward Voltage
 $I_f=25\text{mA}$



Case Temperature Vs. Relative Luminous Flux
 $I_f=25\text{mA}$



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4. RELIABILITY

The reliability of products shall be satisfied with items listed below.

4-1. TEST ITEMS AND TEST CONDITIONS

| NO. | TEST ITEM | TEST CONDITIONS | RESULT |
|-----|---------------------------|---|--------|
| 1 | Continuous operation test | $T_a = 25^\circ\text{C}$, $I_F = 25\text{mA} \times 1000$ hours(with Al fin) | PASS |
| | | $T_a = 80^\circ\text{C}$, $T_j = 120^\circ\text{C}$, $I_F = 25\text{mA} \times 1000$ hours(with Al fin) | |
| 2 | Low temperature storage | $T_a = -40^\circ\text{C} \times 1000$ hours | PASS |
| 3 | High temperature storage | $T_a = 100^\circ\text{C} \times 1000$ hours | PASS |
| 4 | Moisture resistance | $T_a = 60^\circ\text{C}$, 90%RH for 1000 hours | PASS |
| 5 | Thermal shock | $T_a = -40^\circ\text{C} \times 30$ minutes $\sim 100^\circ\text{C} \times 30$ minutes, 100 cycle | PASS |

4-2. FAILURE CRITERIA

| NO. | PARAMETER | SYMBOL | FAILURE CRITERIA |
|-----|-----------------|--------|--|
| 1 | Forward Voltage | V_F | $V_F > \text{Initial value} \times 1.1$ |
| 2 | Luminous Flux | Φ | $\Phi < \text{Initial value} \times 0.7$ |



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5. CHROMATICITY COORDINATES REGIONAL

5-1. 3000K CHROMATICITY COORDINATES

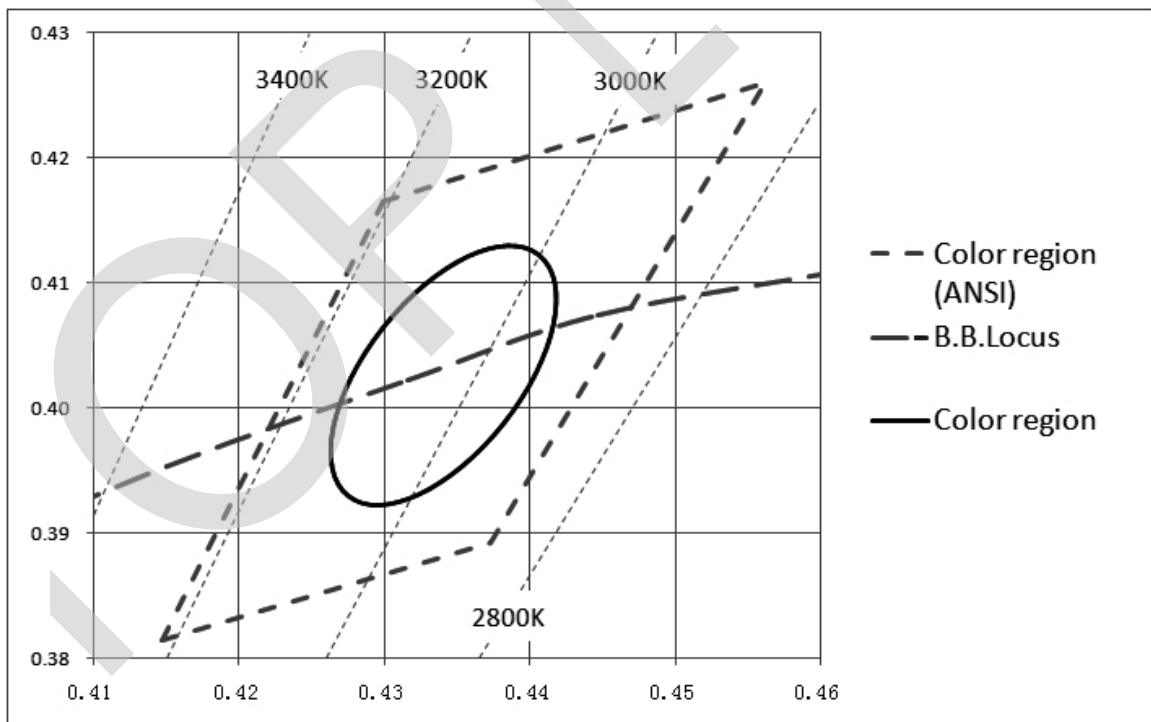
(Tolerance: $x,y \pm 0.005$)

($I_f = 25\text{mA}, T_c = 25^\circ\text{C}$)

| Range | Chromaticity coordinates | | | | | |
|-------|--------------------------|--------|--------|--------|--------|--------|
| | | NO.1 | NO.2 | NO.3 | NO.4 | CENTER |
| | x | 0.4562 | 0.4299 | 0.4147 | 0.4373 | 0.4338 |
| | y | 0.4260 | 0.4165 | 0.3814 | 0.3893 | 0.4030 |

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is $V_f \pm 3\%$, $D_v \pm 10\%$, Chromaticity(x,y) ± 0.005 .



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5-2. 5000K CHROMATICITY COORDINATES

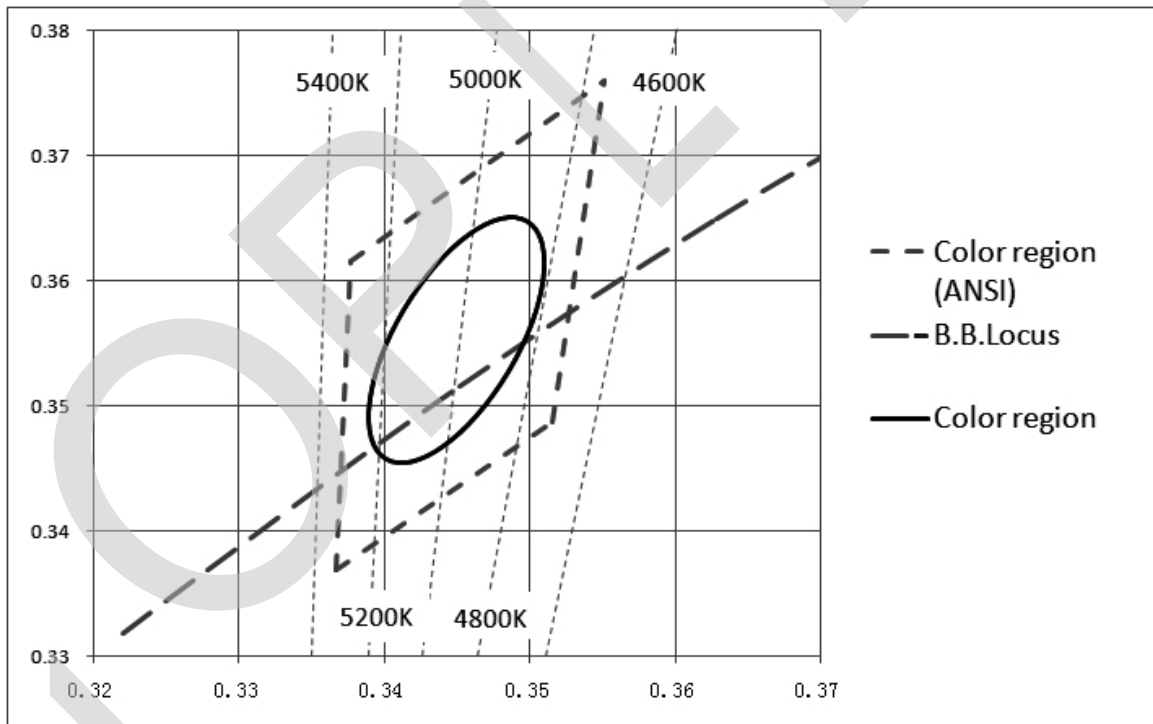
(Tolerance: x,y ± 0.005)

(I_F =25mA, T_c= 25°C)

| Range | | Chromaticity coordinates | | | | |
|-------|---|--------------------------|--------|--------|--------|--------|
| | | NO.1 | NO.2 | NO.3 | NO.4 | CENTER |
| | x | 0.3551 | 0.3376 | 0.3366 | 0.3515 | 0.3447 |
| | y | 0.376 | 0.3616 | 0.3369 | 0.3487 | 0.3553 |

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is VF±3% , Dv±10% , Chromaticity(x,y)±0.005.



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5-3. 6500K CHROMATICITY COORDINATES

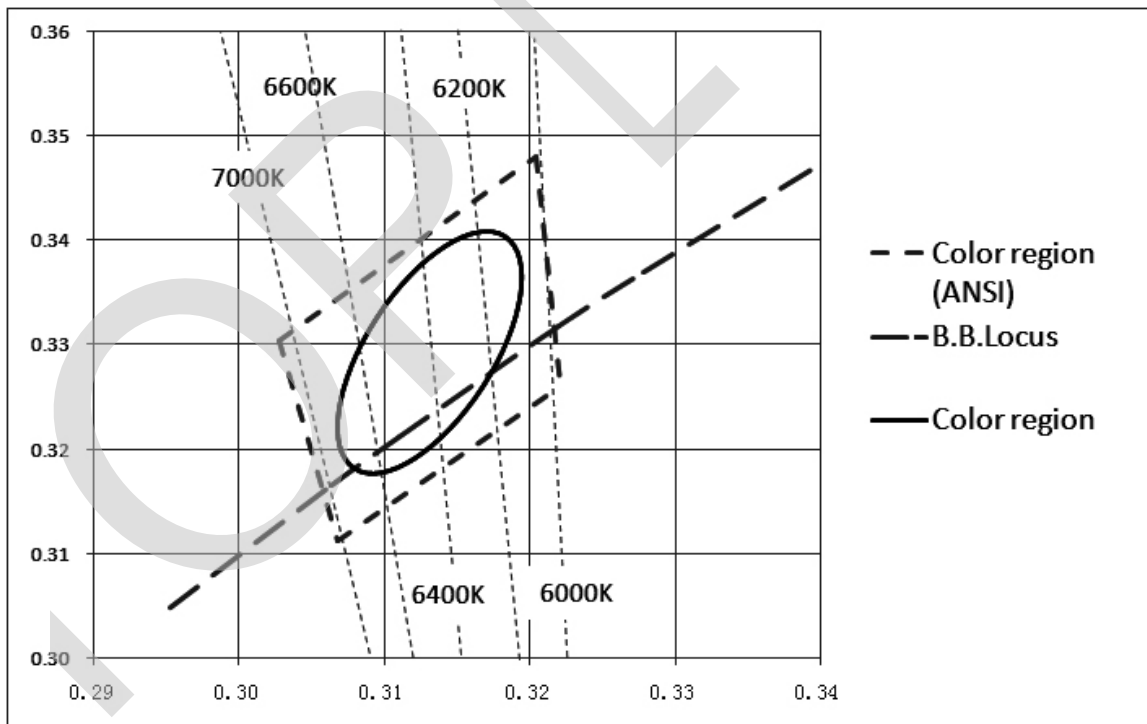
(Tolerance: $x,y \pm 0.005$)

($I_f = 25\text{mA}$, $T_c = 25^\circ\text{C}$)

| Range | | Chromaticity coordinates | | | | |
|-------|---|--------------------------|--------|--------|--------|--------|
| | | NO.1 | NO.2 | NO.3 | NO.4 | CENTER |
| | x | 0.3205 | 0.3028 | 0.3068 | 0.3221 | 0.3123 |
| | y | 0.3481 | 0.3304 | 0.3113 | 0.3261 | 0.3238 |

* The percentage of each rank in the shipment shall be determined by TOPLITE.

Chromaticity Diagram



Note: The tolerance of measurement at our tester is $Vf \pm 3\%$, $Dv \pm 10\%$, Chromaticity(x,y) ± 0.005 .



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6. USE STANDARD & PRECAUTIONS

Before use TOPLITE COB product, carefully read the specifications;

Handling with care for this product

Never touch the optical surface with finger or sharp object. The LED surface could be soiled or damaged, which could affect the optical performance of the LED.

Do not apply direct pressure on the optical surface.

Do not touch the resin with tweezers to avoid scratching or other damage.

In work environment, please keep handling the LEDs with appropriate ESD grounding. because this is a semiconductor product.

Please take adequate measures to prevent any static electricity being produced: such as the wearing of a wristband or anti-static gloves when handling this product.

