

SPECIFICATIONS

FOR TOPLITE COB MODULE

MODEL: ATE-R7



TOPLITE INTERNATIONAL LLC.

www.toplightusa.com



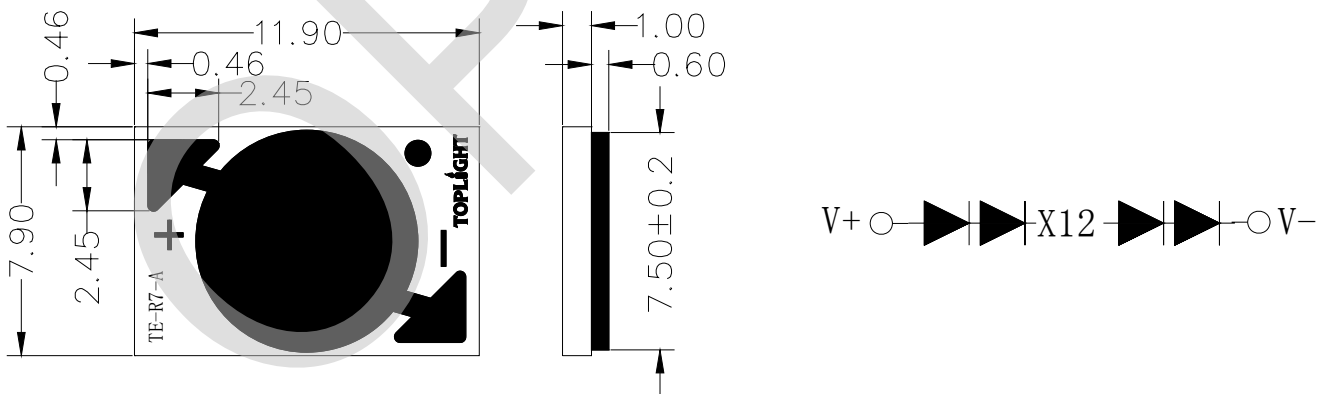
TECHNICAL DATA SHEET

ATE-R7 <FOR TOPLITE COB MODULE>

1. PRODUCT APPEARANCE



2. OUTLINE DRAWING



Unit: mm

Tolerance: ±0.25

**TECHNICAL DATA SHEET****ATE-R7** <FOR TOPLITE COB MODULE>**3. PERFORMANCE PARAMETERS****3-1. ABSOLUTE MAXIMUM RATINGS**

| ITEM | SYMBOL | RATING | UNIT |
|-----------------------|-------------------|--------------|------|
| Power Dissipation | P | 4.75 | W |
| Forward Current | I _F | 120 | mA |
| Reverse Voltage | V _R | 60 | V |
| Operating Temperature | T _{opr} | - 30 ~ + 80 | °C |
| Storage Temperature | T _{stg} | - 40 ~ + 100 | °C |
| Junction Temperature | T _{jmax} | 110 | °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.



TECHNICAL DATA SHEET

ATE-R7 <FOR TOPLITE COB MODULE>

3-2. ELECTRICAL-OPTICAL CHARACTERISTICS

(T_c=25°C)

| ** | PARAMETER | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT | |
|--------|--|-----------------------------|----------------------|------|------|------|------|------|
| common | Forward Voltage ^{*1} | V _F | I _F =80mA | 34.8 | 36 | 39.6 | V | |
| | Beam Angle | Deg | | — | 120 | — | Deg | |
| W | ** Color Temp. | T _C | I _F =80mA | 2870 | 3045 | 3220 | K | |
| | ** Color Rendering Index ^{*3} | R _a | | 80 | — | — | — | |
| | W ₁ | Luminous Flux ^{*2} | | Φ | 274 | 288 | — | lm |
| | | Luminous Efficiency | | η | 95 | 100 | — | lm/W |
| | W ₂ | Luminous Flux ^{*2} | | Φ | 291 | 302 | — | lm |
| | | Luminous Efficiency | | η | 101 | 105 | — | lm/W |
| D | ** Color Temp. | T _C | I _F =80mA | 4745 | 5028 | 5311 | K | |
| | ** Color Rendering Index ^{*3} | R _a | | 80 | — | — | — | |
| | D ₁ | Luminous Flux ^{*2} | | Φ | 302 | 316 | — | lm |
| | | Luminous Efficiency | | η | 105 | 110 | — | lm/W |
| | D ₂ | Luminous Flux ^{*2} | | Φ | 330 | 340 | — | lm |
| | | Luminous Efficiency | | η | 115 | 118 | — | lm/W |
| C | ** Color Temp. | — | I _F =80mA | 6020 | 6530 | 7040 | K | |
| | ** Color Rendering Index ^{*3} | R _a | | 80 | — | — | — | |
| | C ₁ | Luminous Flux ^{*2} | | Φ | 316 | 330 | — | lm |
| | | Luminous Efficiency | | η | 110 | 115 | — | lm/W |
| | C ₂ | Luminous Flux ^{*2} | | Φ | 340 | 354 | — | lm |
| | | Luminous Efficiency | | η | 118 | 123 | — | lm/W |

(Note) Parameters is formulated based on shipping samples

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

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

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



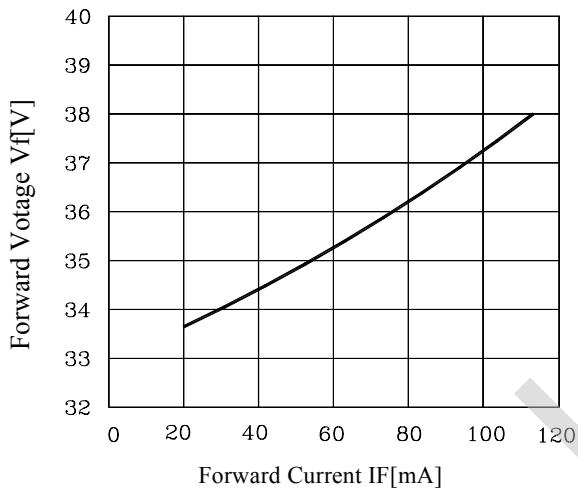
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3-3. Characteristics diagram (TYP.)

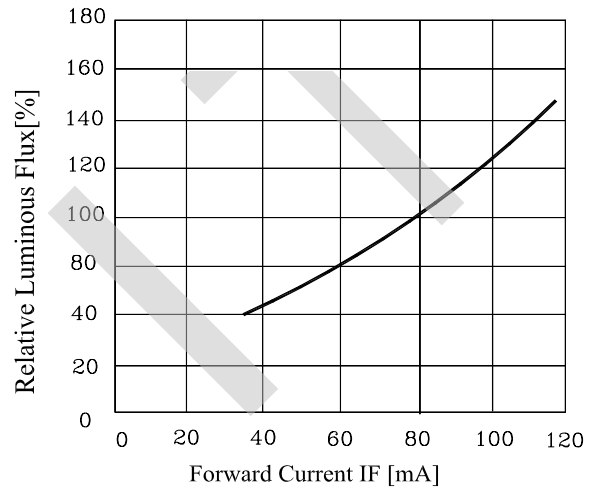
Forward Votage Vs. Forward Current

Tc=25°C



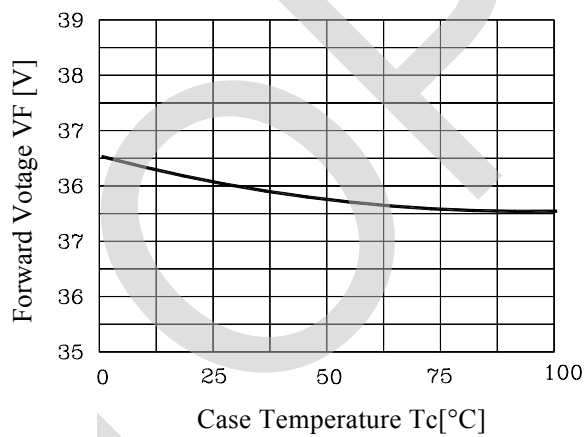
Forward Current Vs. Relative Luminous Flux

Tc=25°C



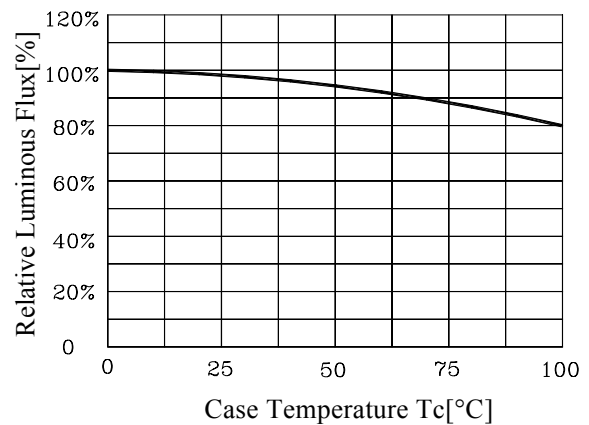
Case Temperature Vs. Forward Votage

If=80mA



Case Temperature Vs. Relative Luminous Flux

If=80mA



**TECHNICAL DATA SHEET****ATE-R7** <FOR TOPLITE COB MODULE>**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 | $T_a = 25^{\circ}\text{C}$, $I_F = 80\text{mA}$ × 1000 hours(with Al fin) | PASS |
| | | $T_a = 80^{\circ}\text{C}$, $T_j = 120^{\circ}\text{C}$, $I_F = 80\text{mA}$ × 1000 hours(with Al fin) | |
| 2 | Low temperature storage | $T_a = -40^{\circ}\text{C}$ × 1000 hours | PASS |
| 3 | High temperature storage | $T_a = 100^{\circ}\text{C}$ × 1000 hours | PASS |
| 4 | Moisture resistance | $T_a = 60^{\circ}\text{C}$, 90%RH for 1000 hours | PASS |
| 5 | Thermal shock | $T_a = -40^{\circ}\text{C}$ × 30minutes ~ 100°C × 30minutes, 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 | $\Phi < \text{Initial value} \times 0.7$ |



TECHNICAL DATA SHEET

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5. CHROMATICITY COORDINATES REGIONAL

5-1. 3000K CHROMATICITY COORDINATES

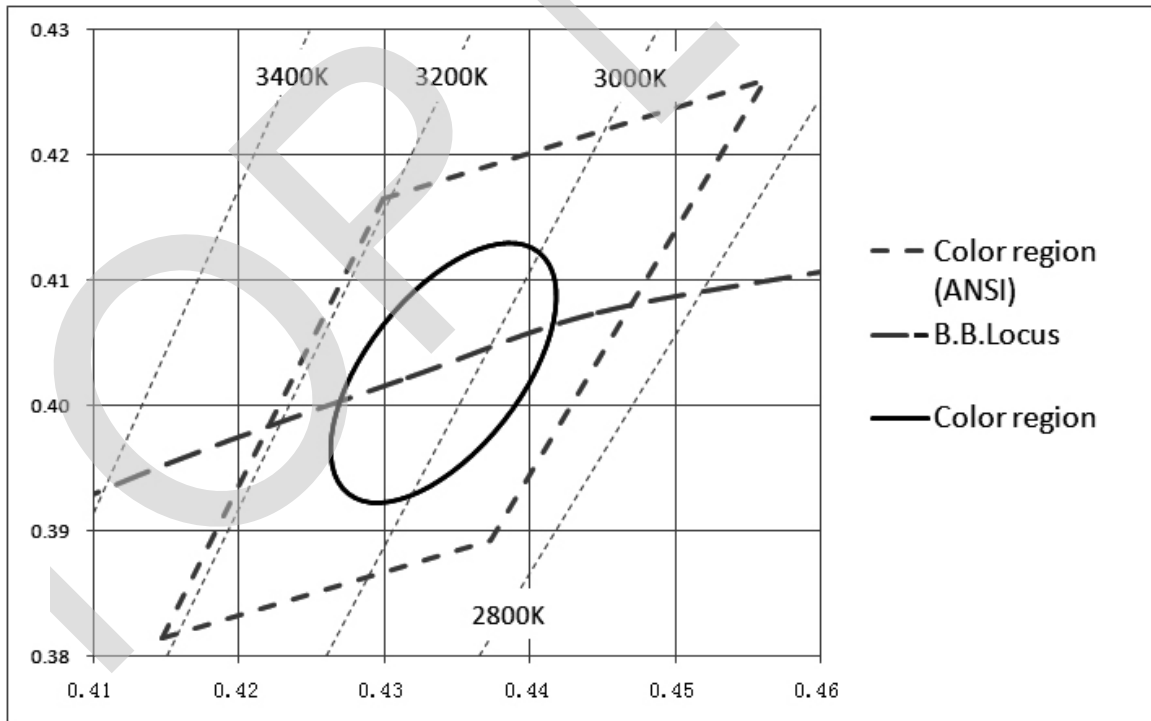
(Tolerance: $x,y \pm 0.005$)

($I_f = 80\text{mA}, T_c = 25^\circ\text{C}$)

| 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 $Vf \pm 3\%$, $Dv \pm 10\%$, Chromaticity(x,y) ± 0.005 .



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5-2. 5000K CHROMATICITY COORDINATES

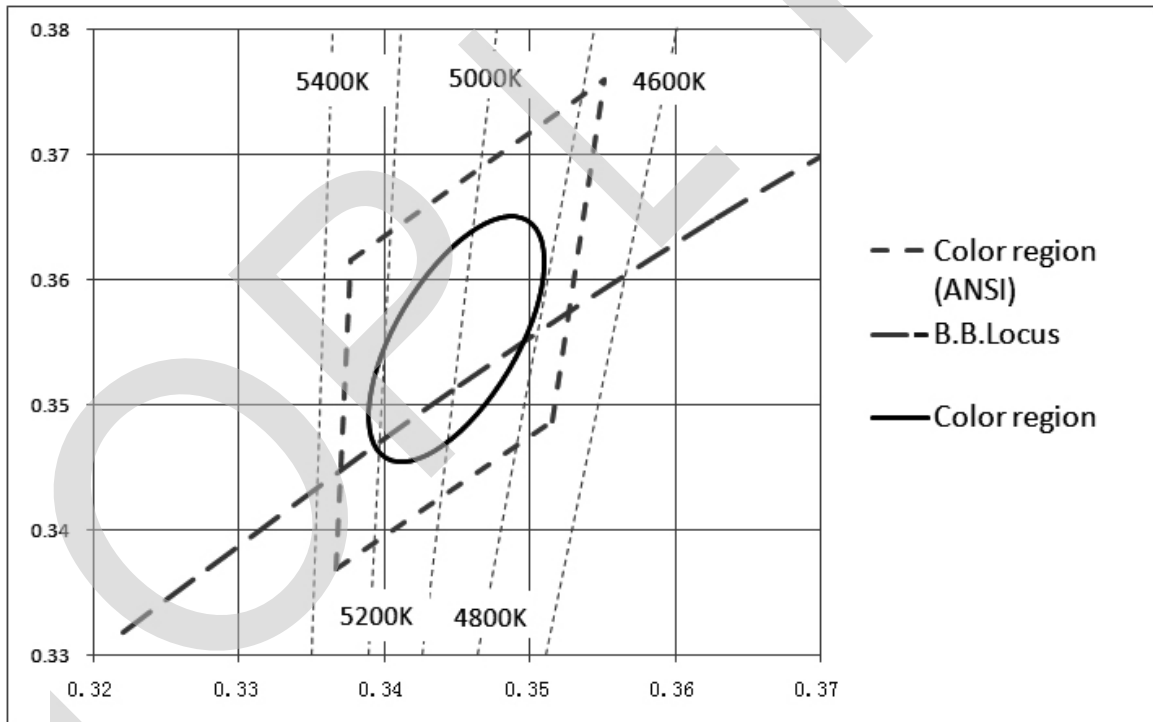
(Tolerance: $x,y \pm 0.005$)

($I_f = 80\text{mA}$, $T_c = 25^\circ\text{C}$)

| Range | | Chromaticity coordinates | | | | |
|-------|---|--------------------------|--------|--------|--------|--------|
| | | NO.1 | NO.2 | NO.3 | NO.4 | CENTER |
| | x | 0.3551 | 0.3376 | 0.3366 | 0.3515 | 0.3447 |
| | y | 0.3760 | 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 $V_f \pm 3\%$, $D_v \pm 10\%$, Chromaticity(x,y) ± 0.005 .



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5-3. 6500K CHROMATICITY COORDINATES

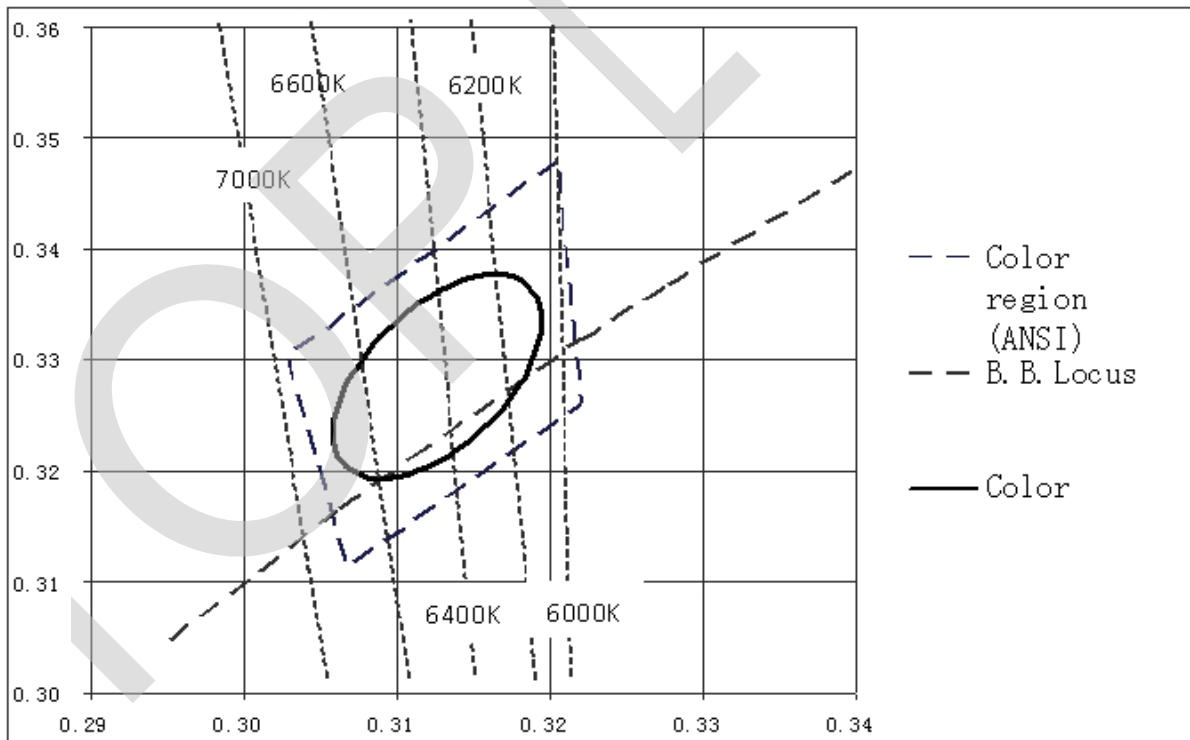
(Tolerance: $x,y \pm 0.005$)

($I_f = 80\text{mA}$, $T_c = 25^\circ\text{C}$)

| 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 $V_f \pm 3\%$, $D_v \pm 10\%$, 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.

