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[QT Brightek \(QTB\)](#)
[QBHP684UE-PCAV](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

QT-Brightek High Power Series

3W High Power 3535 PC-Amber LED

Part No.: QBHP684UE-PCAV

PCA = PC-Amber

V = 700mA



QBHP684UE-PCAV

3W High Power LED

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Introduction

Feature:

- 3W High Bright LED
- Phosphor-Converted (PC) Amber
- Packed in tape and reel
- Low thermal resistance <math><4^{\circ}\text{C}/\text{W}</math>
- Super high flux and luminance
- InGaN Material
- ESD protection up to 8KV
- Viewing Angle 130°

Description:

This 3W high bright high power LED has compact size of 3.6 x 3.6mm. It is ideal for both indoor and outdoor lighting

Application:

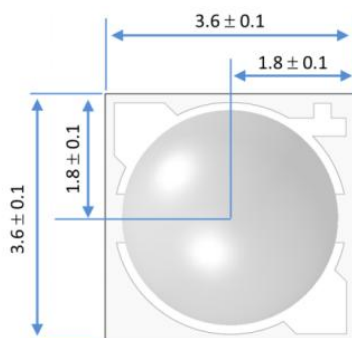
- Architectural and outdoor lighting
- Household appliances
- General lighting

Certification & Compliance:

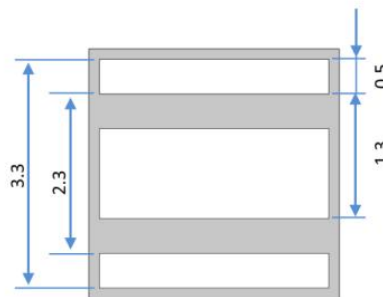
- TS16949
- ISO9001
- RoHS Compliant



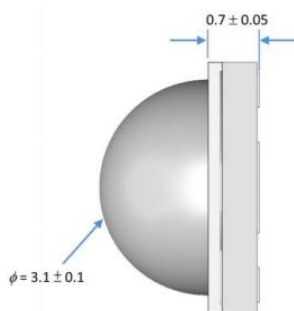
Dimensions:



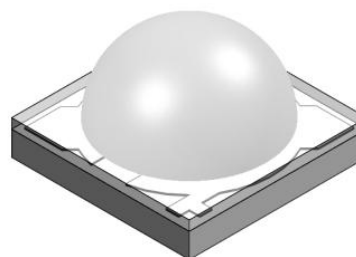
Top View



Bottom View



Side View



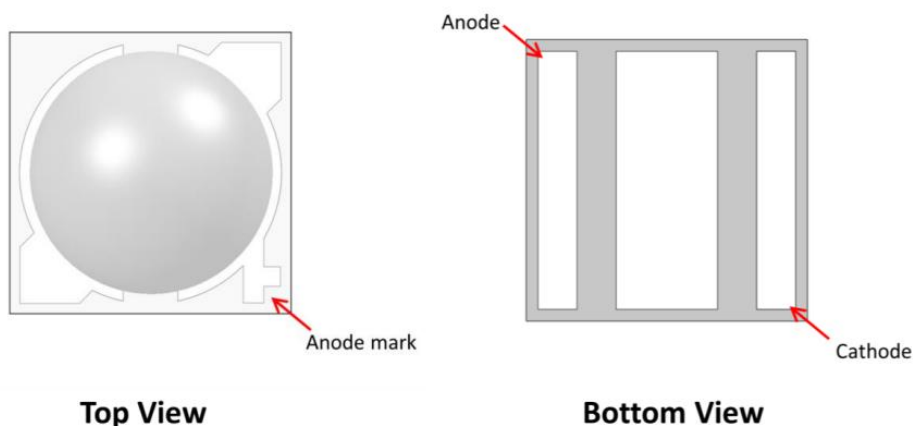
Units: mm / tolerance = +/-0.1mm



QBHP684UE-PCAV

3W High Power LED

Pad Configurations:



Electrical / Optical Characteristic (T_A=25°C)

| Product Number | Color | I _F (mA) | V _F (V) | | λ _D (nm) | | | Φ _v (lm) | |
|----------------|----------|---------------------|--------------------|------|---------------------|------|------|---------------------|------|
| | | | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. |
| QBHP684UE-PCAV | PC Amber | 700 | 3.8 | 4.0 | - | 590 | - | 95 | 105 |

Absolute Maximum Rating

| Material | P _d (W) | I _F (mA) | I _{FP} (mA)* | V _R (V) | T _{OP} (°C) | T _{ST} (°C) | T _{SOL} (°C) |
|----------|--------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|-----------------------|
| InGaN | 2.8 | 700 | 1000 | 5 | -40 to +85 | -40 to +100 | 240 |

*Duty 1/10 @ 0.1ms Pulse Width

Forward Voltage V_F @ I_F=700mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| H | 3.2 | 3.4 | V |
| I | 3.4 | 3.6 | |
| J | 3.6 | 3.8 | |
| K | 3.8 | 4.0 | |

Luminous Flux Φ_v @ I_F=700mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| AA | 95 | 110 | lm |
| AB | 110 | 125 | |
| AC | 125 | 140 | |
| AD | 140 | 155 | |
| AE | 155 | 170 | |
| AF | 170 | 185 | |
| AG | 185 | 200 | |

Note:

Tolerance of measurement of forward voltage: ±0.1V

Tolerance of measurement of luminous flux: ±10%

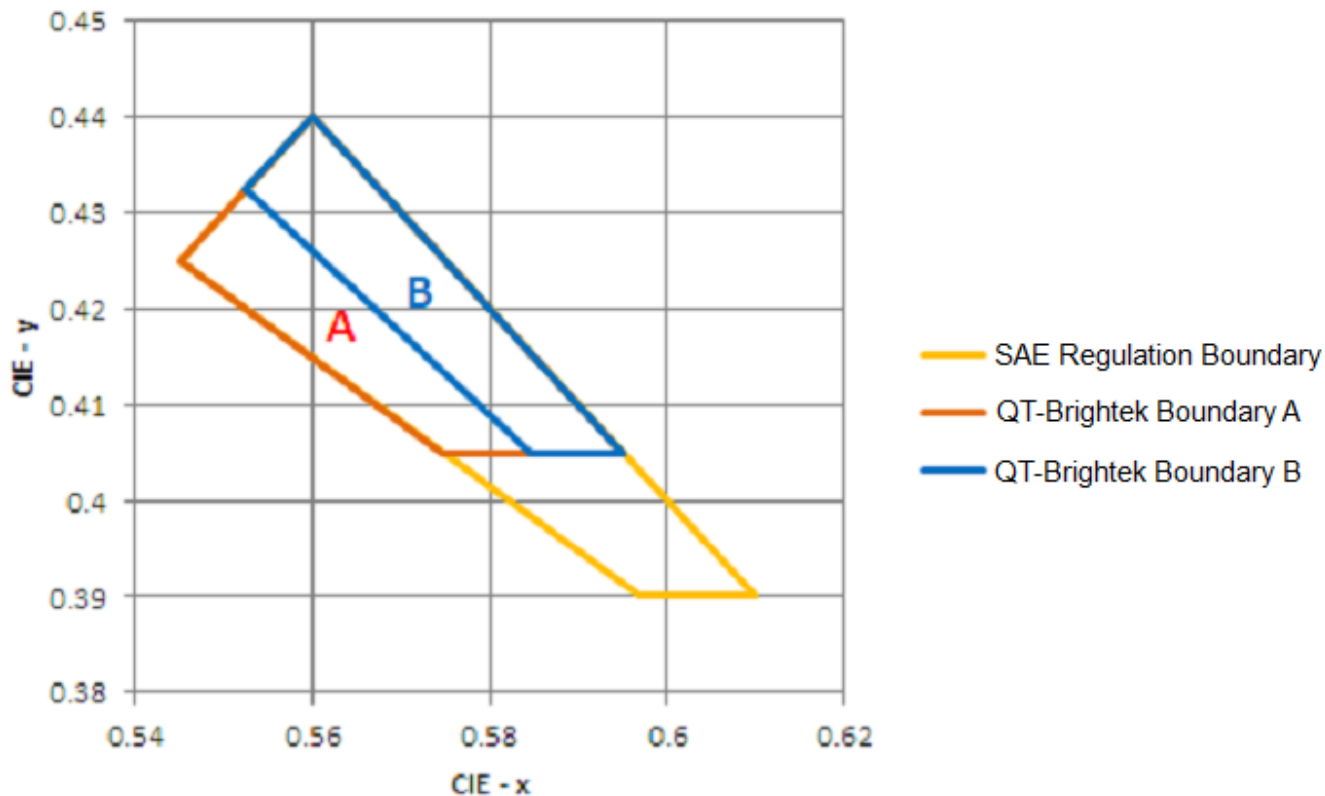
| | | |
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QBHP684UE-PCAV

3W High Power LED

Correlated Color Temperature and Chromaticity Correlation



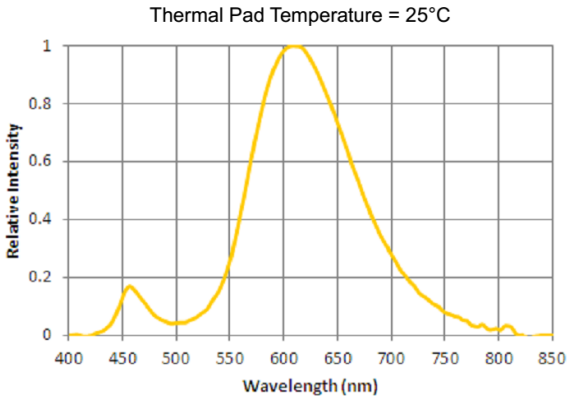
| SAE Regulation | | A | | B | |
|----------------|---------|----------|----------|----------|----------|
| x | y | x | y | x | y |
| 0.56 | 0.44 | 0.552455 | 0.432455 | 0.56 | 0.44 |
| 0.54491 | 0.42491 | 0.54491 | 0.42491 | 0.552455 | 0.432455 |
| 0.59701 | 0.39 | 0.57462 | 0.405 | 0.58481 | 0.405 |
| 0.61 | 0.39 | 0.58481 | 0.405 | 0.595 | 0.405 |
| 0.56 | 0.44 | 0.552455 | 0.432455 | 0.56 | 0.44 |

Note:

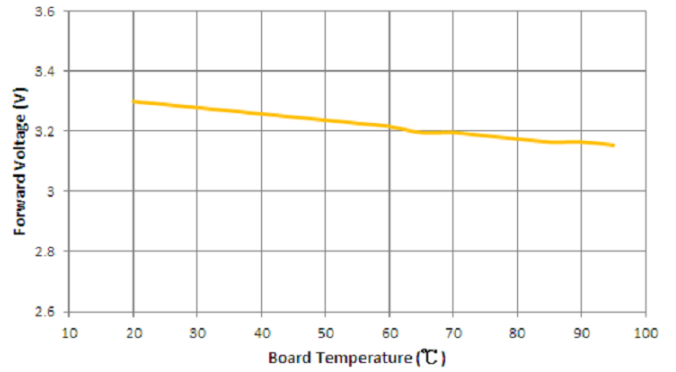
Tolerance of measurement of color coordinates: ± 0.01

Characteristic Curves

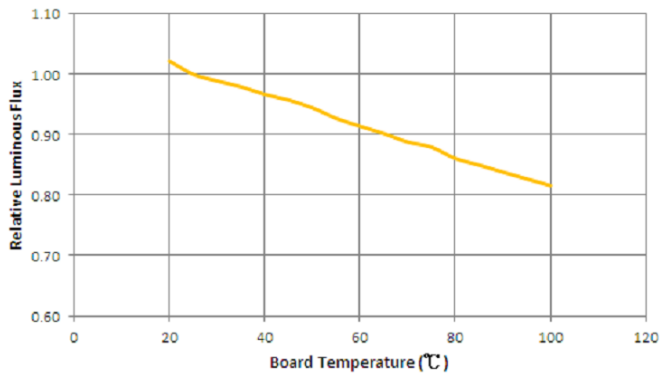
Relative Spectral Distribution vs. Wavelength Characteristics



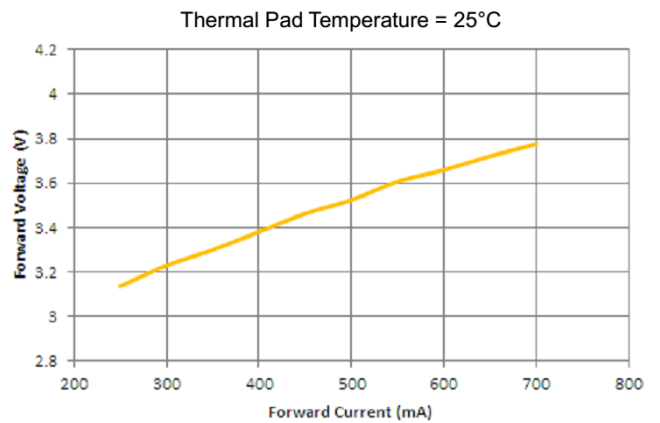
Forward Voltage vs. Thermal Pad Temperature



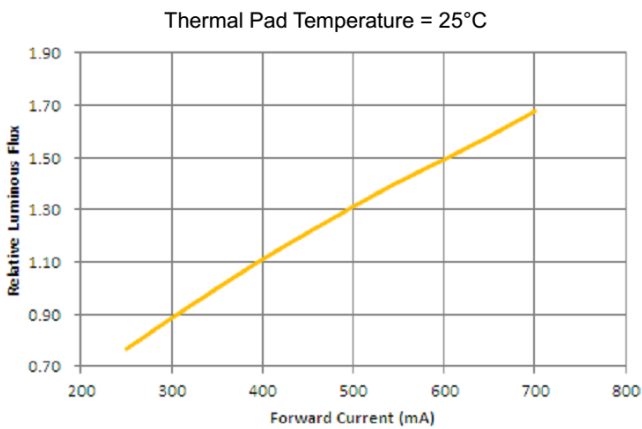
Relative Luminous Flux vs. Thermal Pad Temperature



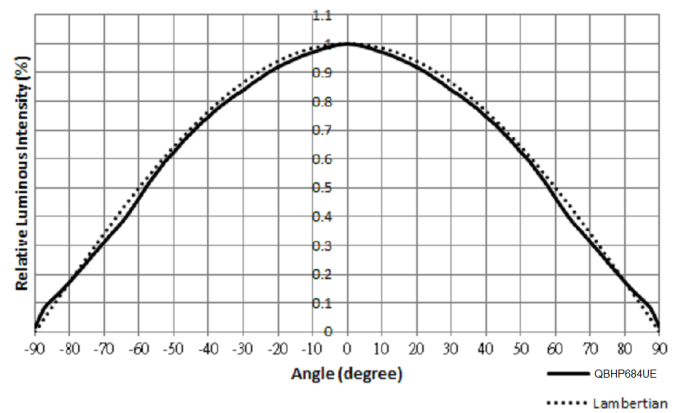
Typical Forward Current Characteristics



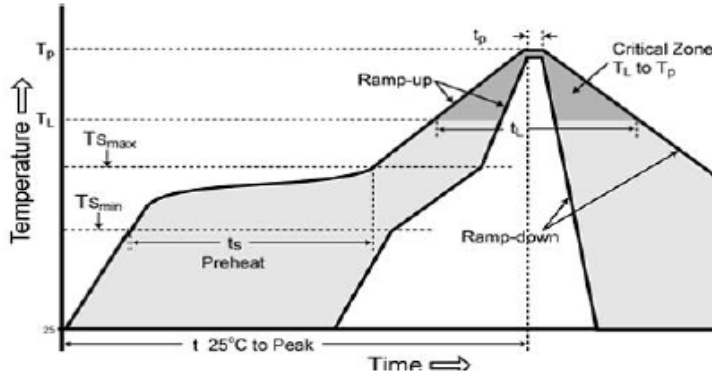
Typical Relative Luminous Flux vs. Forward Current



Typical Radiation Patterns

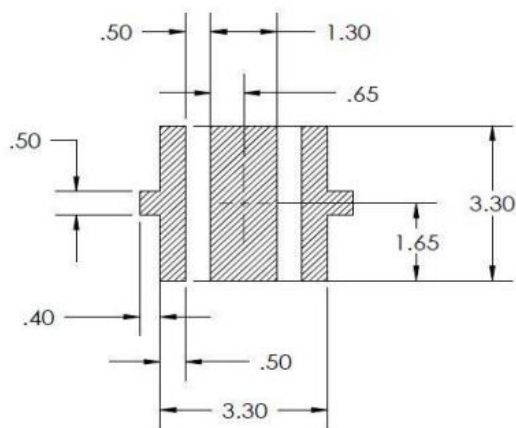


IR Reflow Soldering Profile

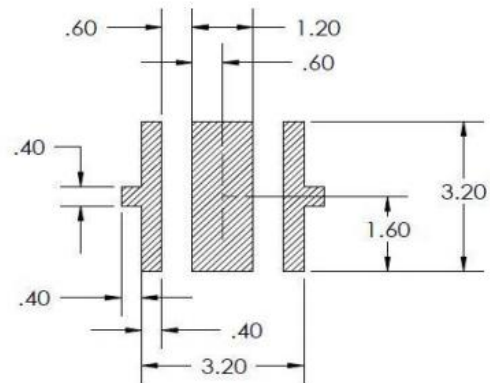


| Profile Feature | Pb-Free Assembly |
|---|------------------|
| Average ramp-up rate (TL to TP) | 3°C/second max. |
| Preheat | |
| Temperature Min (T _{smin}) | 150°C |
| Temperature Max (T _{smax}) | 200°C |
| Time (min to max) (ts) | 60-180 seconds |
| Time maintained above: | |
| Temperature (TL) | 217°C |
| Time (tL) | 60-150 seconds |
| Peak/Classification Temperature (Tp) | 240°C |
| Time within 5°C of actual Peak Temperature (tp) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

Recommended Soldering Pad:



RECOMMENDED PCB SOLDER PAD

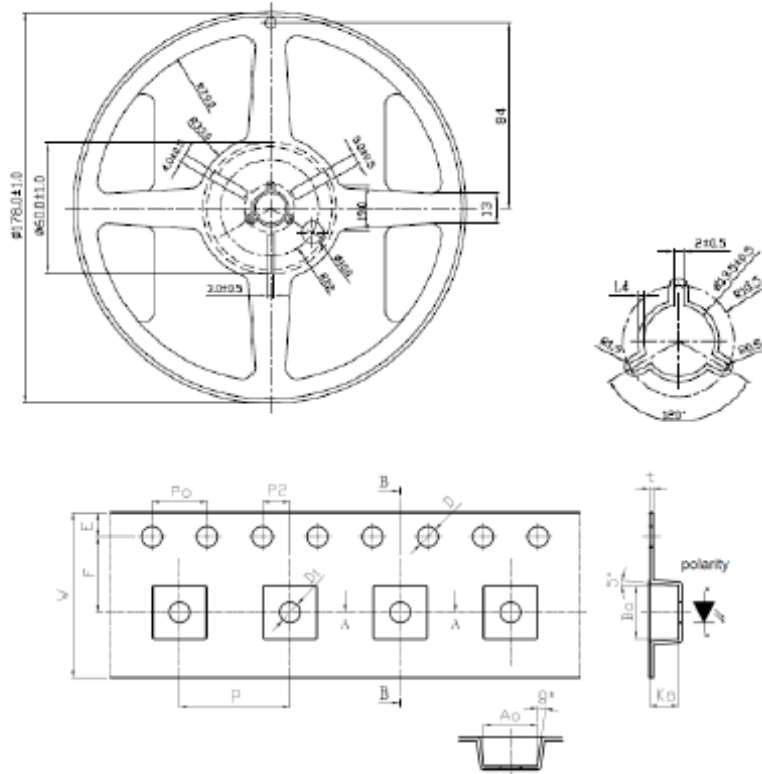


RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

Unit: mm

Packing

Tape and Reel:



Notes: Dimensions are in millimeters.

| Symbol | Dimension |
|--------|----------------------------|
| W | 12.00 ± 0.10 |
| P | 8.00 ± 0.10 |
| E | 1.75 ± 0.10 |
| F | 5.50 ± 0.05 |
| P2 | 2.00 ± 0.05 |
| D | 1.50 + 0.10 or 1.50 - 0.00 |
| D1 | 1.50 ± 0.10 |
| P0 | 4.00 ± 0.10 |
| 10P0 | 40.00 ± 0.20 |
| A0 | 3.90 ± 0.10 |
| B0 | 3.90 ± 0.10 |
| K0 | 2.15 ± 0.1 |
| t | 0.26 ± 0.05 |

Unit: mm



QBHP684UE-PCAV

3W High Power LED

Labeling



Part No: _____
 Customer P/N: _____
 Item: _____
 Q'ty: _____
 Vf: _____
 Iv: _____
 Wl: _____
 Date: _____

Made in Taiwan

Ordering Information

| Part # | Orderable Part # | Spec Range | Quantity per reel |
|----------------|------------------|--|-------------------|
| QBHP684UE-PCAV | QBHP684UE-PCAV | $\Phi_v=105\text{lm typ. @ } I_F=700\text{mA}$ | 1000 units |



QBHP684UE-PCAV

3W High Power LED

Revision History

| Description: | Revision # | Revision Date |
|---|------------|---------------|
| New Release of QBHP684UE-PCAV | V1.0 | 09/27/2013 |
| Update Luminous Flux Bin | V1.1 | 04/30/2014 |
| Update package drawing color to reflect ceramic substrate | V2.0 | 08/05/2015 |
| | | |

Disclaimer

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

| | | |
|-------------------------|-----------------------|---------------|
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