

# QT-Brightek High Power Series

## High Power VCSEL IR LED

**Part No.: QBHP684E-VXXXY2**

**XXX = 850nm or 940nm  
Y2=1200mA**

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## Introduction

**Feature:**

- High Power VCSEL IR LED
- Packed in tape and reel
- High radiant power output
- Viewing Angle 25° typ.
- ESD Protection

**Description:**

This 1W high power IR LED has compact size of 3.5 x 3.5mm. It is ideal for both infrared sensing applications.

**Application:**

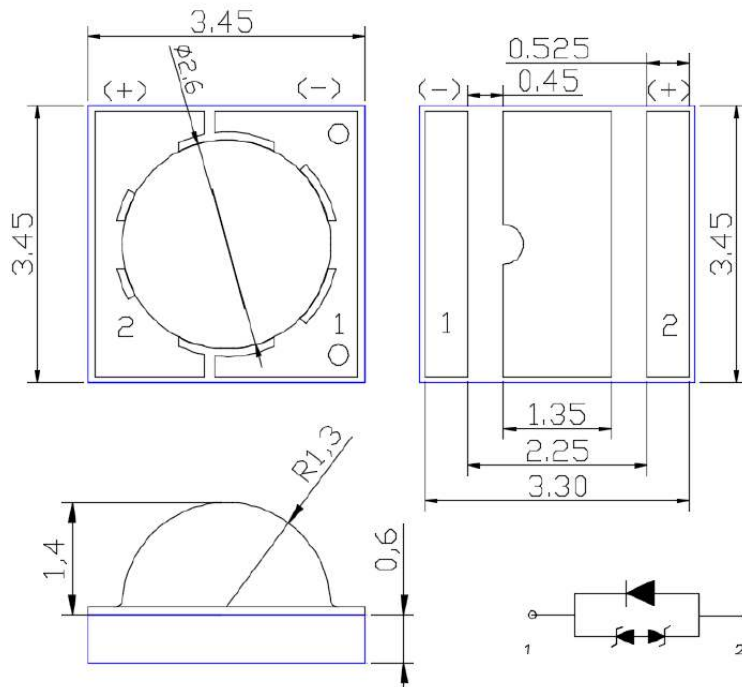
- Infrared Sensor
- Photoelectric Sensors
- Optical Encoders

**Certification & Compliance:**

- TS16949
- ISO9001
- RoHS Compliant



## Outline Dimensions:



Units: mm / tolerance = +/-0.1mm

**Electrical / Optical Characteristic (Ta=25 °C)**

Product Number	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)			λ <sub>p</sub> (nm)			P <sub>O</sub> (mW)	
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP684E-V940Y2	Infrared	1200	1.8	-	2.8	930	940	950	700	1000
QBHP684E-V850Y2						840	850	860		

**Absolute Maximum Rating**

I <sub>FP</sub> (mA)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)	T <sub>SOL</sub> (°C)
1500	-40 to +85	-40 to +100	260

\*D=0.01s duty 1/10

**Radiometric Power P<sub>O</sub> @ I<sub>F</sub>=1200mA**

Bin	Min.	Max.	Unit
P70	700	800	mW
P80	800	900	
P90	900	1000	
P100	1000	1100	

**Forward Voltage V<sub>F</sub> @ I<sub>F</sub>=1200mA**

Bin	Min.	Max.	Unit
V1	1.8	2.2	mW
V2	2.2	2.6	
V3	2.6	2.8	

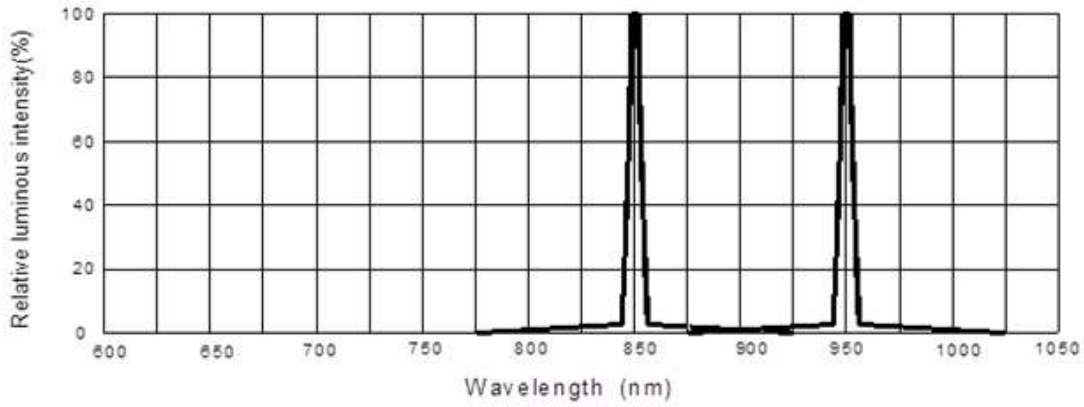
Tolerance of measurement of forward voltage: ±0.1V

Tolerance of measurement of Radiometric Power: ±15%

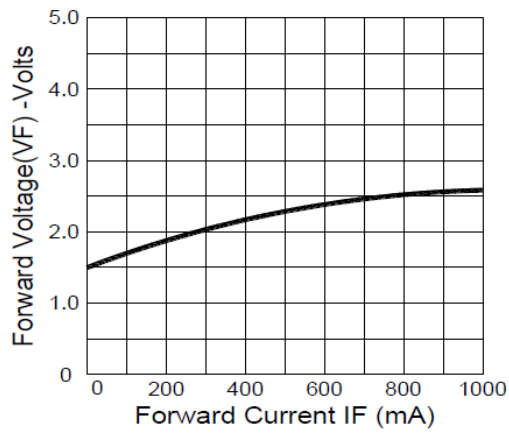
Tolerance of measurement of Peak wavelength: ±2nm

## Characteristic Curves

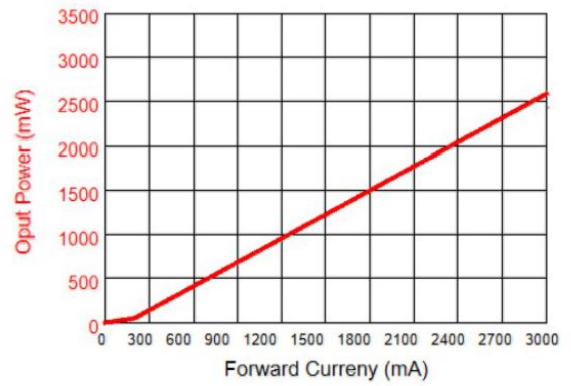
Spectrum Distribution



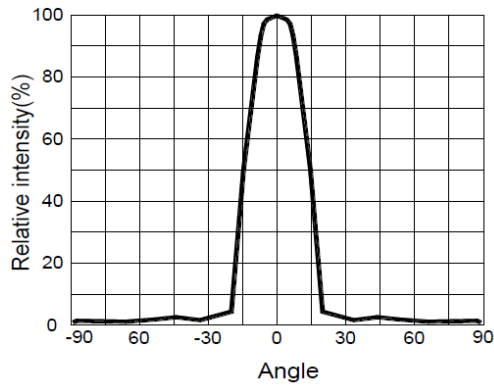
Forward Current VS. Forward Voltage



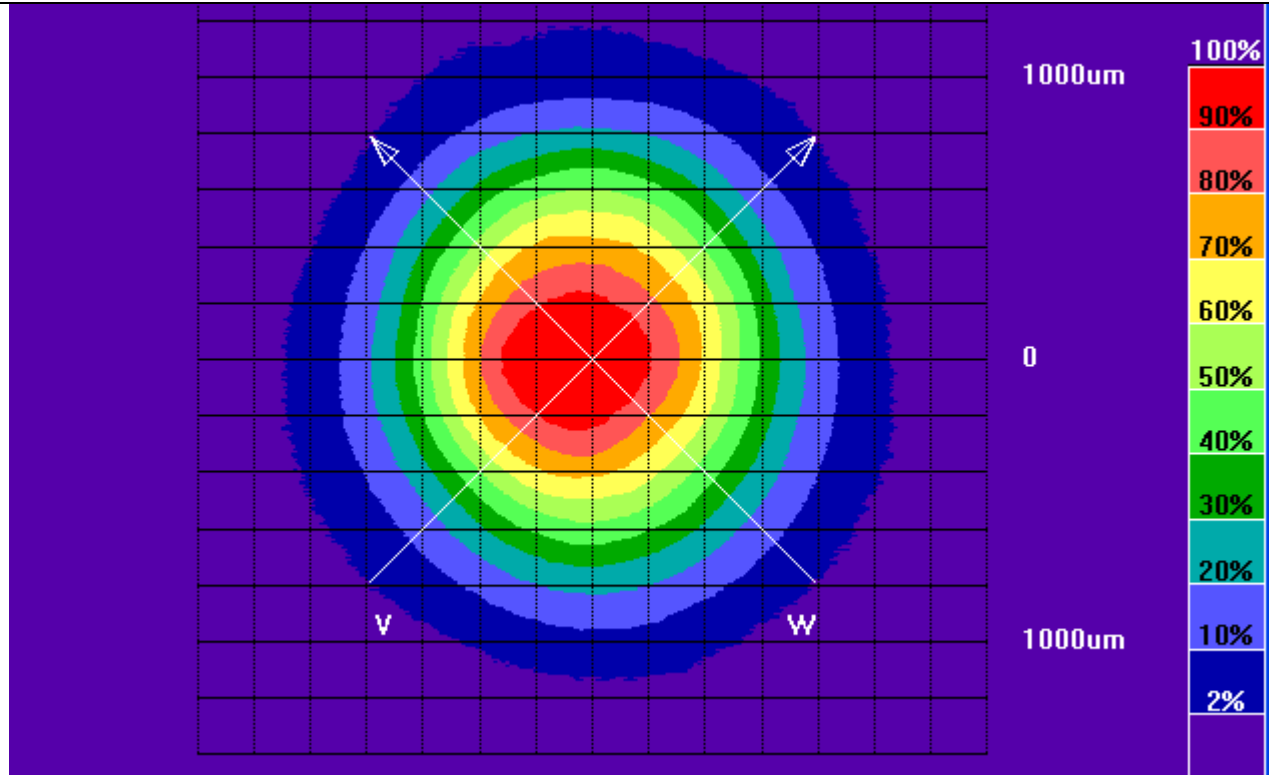
Intensity VS. Forward Current



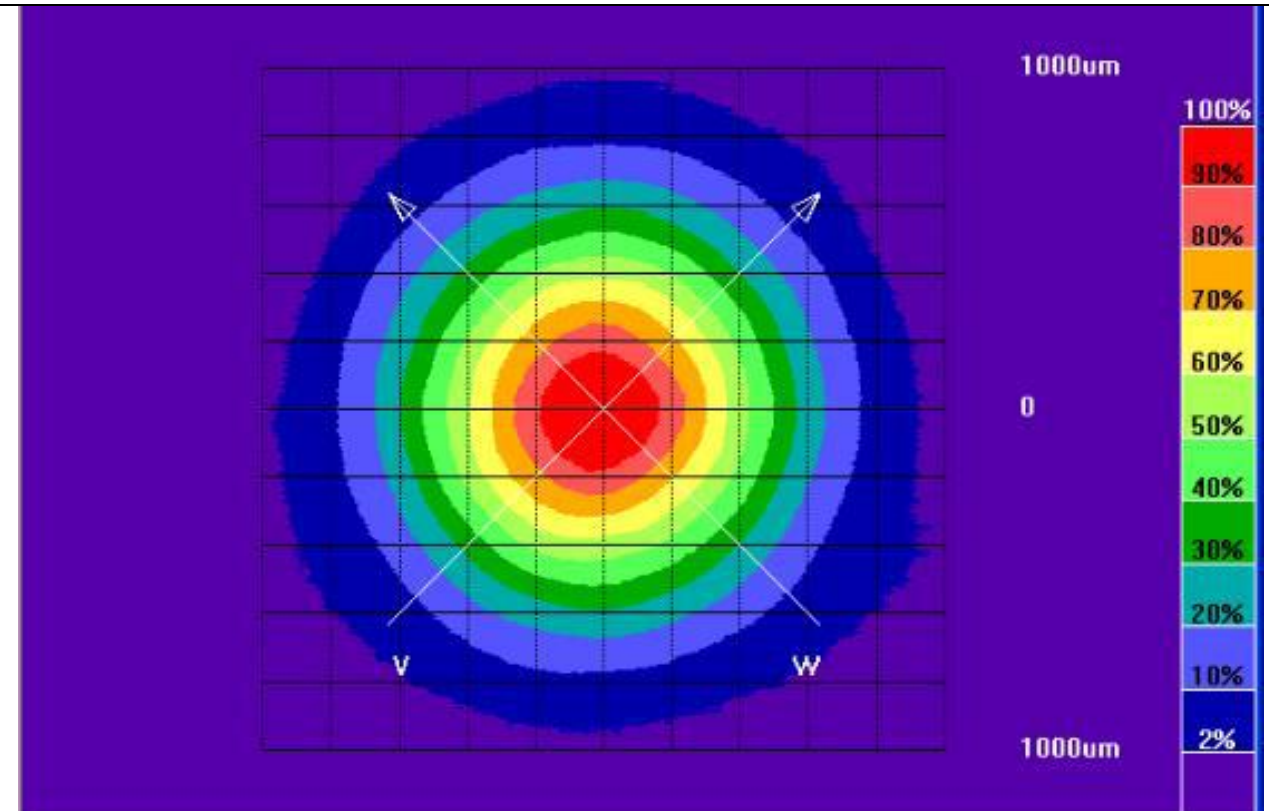
Beam Angle 30D



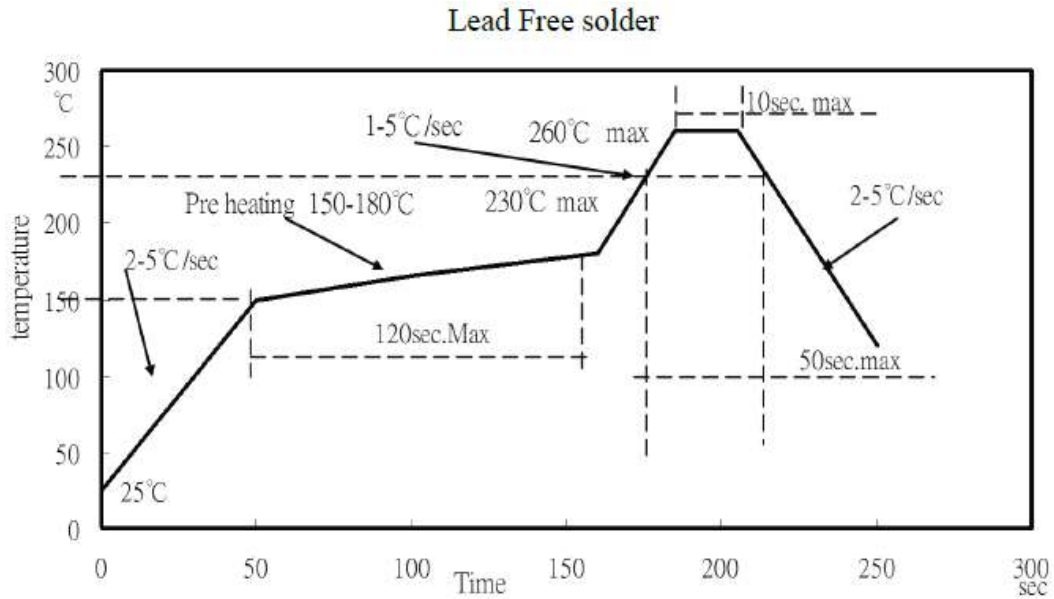
Beam Divergence for 940nm



Beam Divergence for 850nm

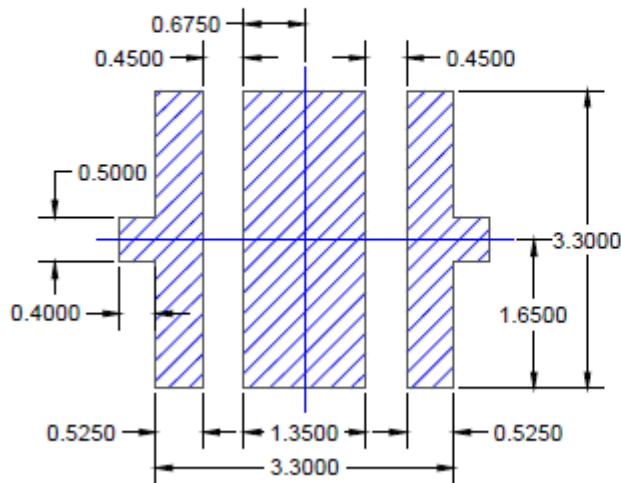


## IR Reflow Soldering Profile

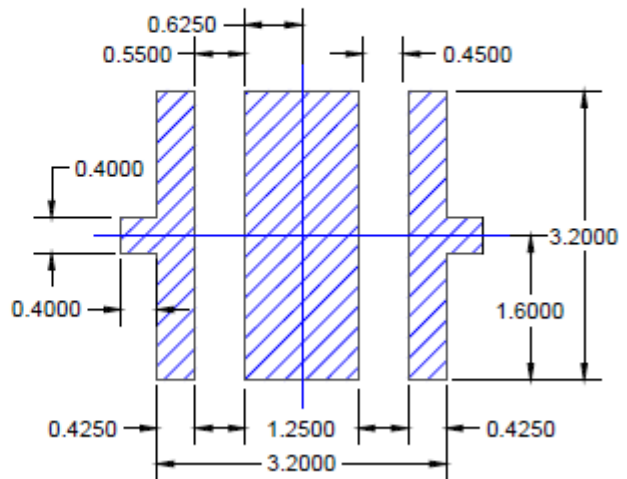


### Recommended Soldering Pad:

RECOMMENDED PCB SOLDER PAD



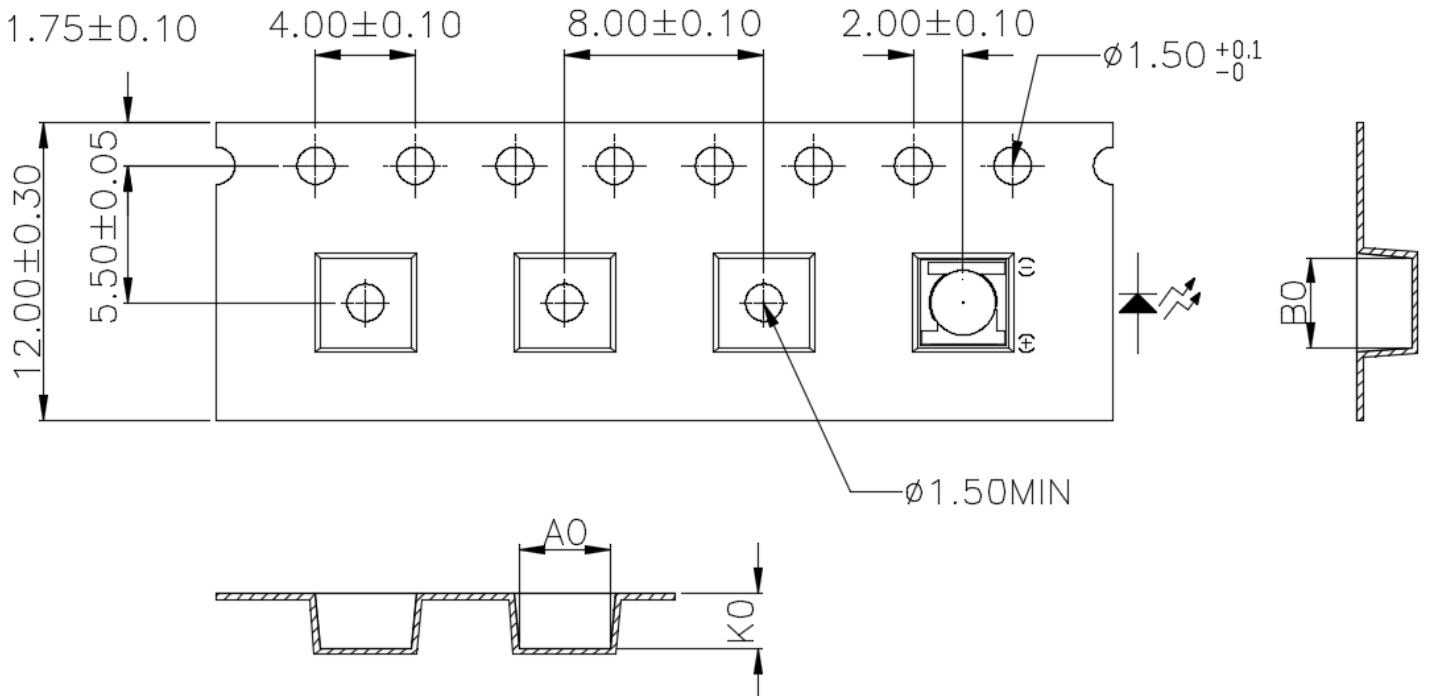
RECOMMENDED STENCIL PATTERN (HATCHED AREA IS OPENING)



Unit: mm

## Packing

### Tape and Reel:



1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.20$ .
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness :  $0.30 \pm 0.05$  mm.

T	$0.30 \pm 0.05$
A0	$3.80 \pm 0.1$
B0	$3.80 \pm 0.1$
K0	$2.20 \pm 0.1$

Unit: mm



**Labeling**

Part No: \_\_\_\_\_

Customer P/N: \_\_\_\_\_

Item: \_\_\_\_\_

Q'ty: \_\_\_\_\_

Vf: \_\_\_\_\_

Iv: \_\_\_\_\_

WI: \_\_\_\_\_

Date: \_\_\_\_\_

**Made in Taiwan****Ordering Information**

Part #	Orderable Part #	Spec Range	Quantity per reel
QBHP684E-V940Y2	QBHP684E-V940Y2	Po=1000mW typ., $\lambda_P=940\text{nm}$ typ. @ $I_F=1200\text{mA}$	1000
QBHP684E-V850Y2	QBHP684E-V850Y2	Po=1000mW typ., $\lambda_P=850\text{nm}$ typ. @ $I_F=1200\text{mA}$	1000

## Revision History

Description:	Revision #	Revision Date
New Release of QBHP684E-VXXXY2	V1.0	08/20/2019
Update characteristic curve	V1.1	01/26/2021

## 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.