

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:

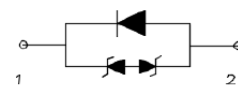
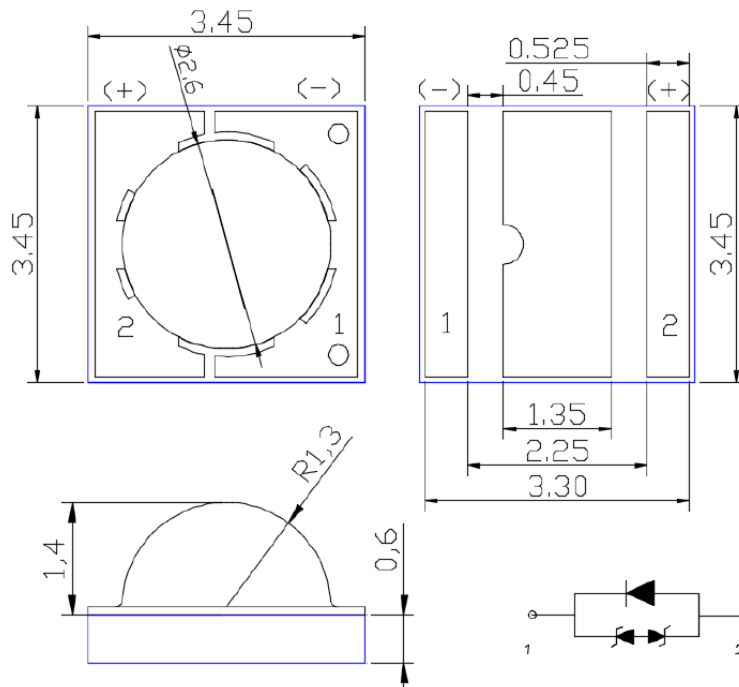
- Infrared Sensor
- Photoelectric Sensors
- Optical Encoders

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Outline Dimensions:



Units: mm / tolerance = +/-0.1mm

Electrical / Optical Characteristic (Ta=25 °C)

Product Number	Color	I _F (mA)	V _F (V)			λ _p (nm)			P _O (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 _{FP} (mA)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)
1500	-40 to +85	-40 to +100	260

*D=0.01s duty 1/10

Radiometric Power P_O @ I_F=1200mA

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

Forward Voltage V_F @ I_F=1200mA

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

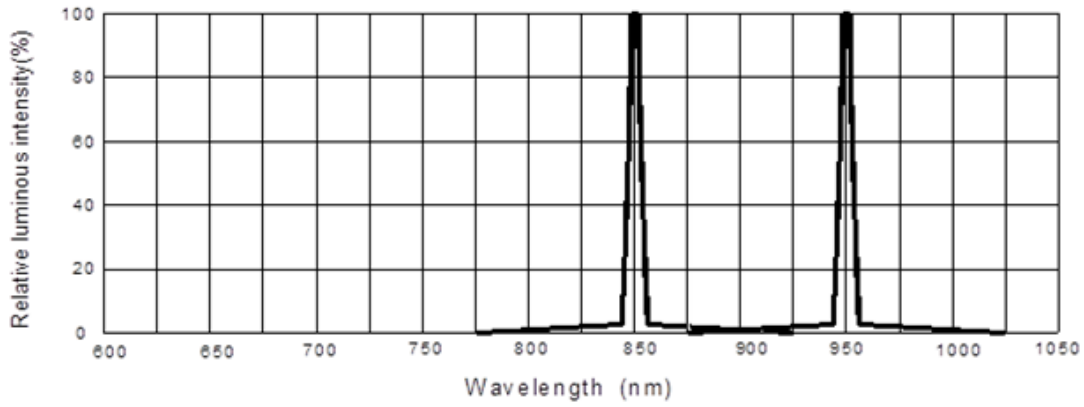
Tolerance of measurement of forward voltage: ±0.1V

Tolerance of measurement of Radiometric Power: ±15%

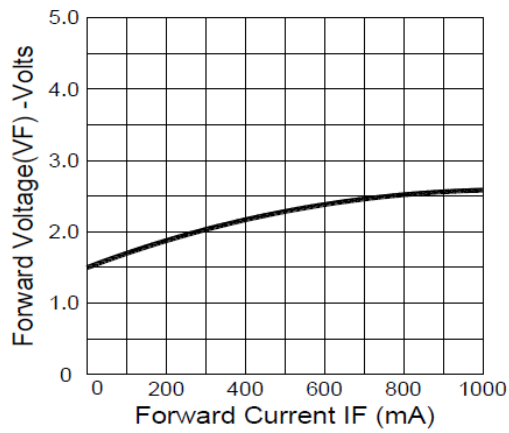
Tolerance of measurement of Peak wavelength: ±2nm

Characteristic Curves

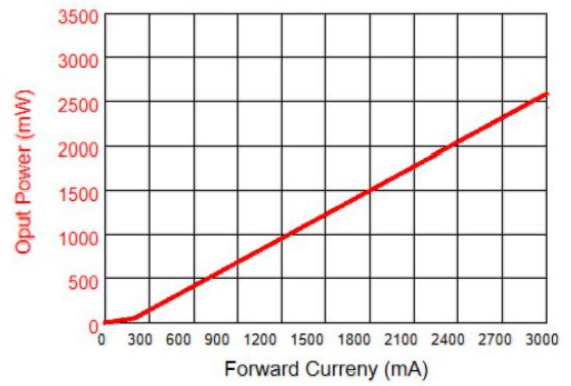
Spectrum Distribution



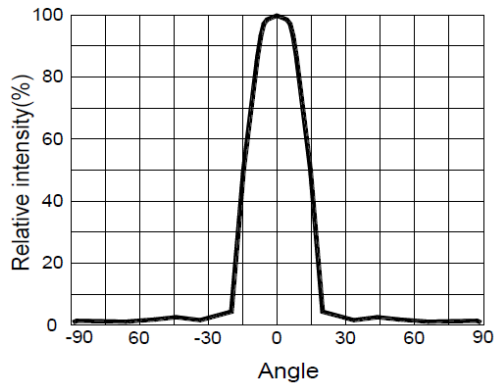
Forward Current VS. Forward Voltage



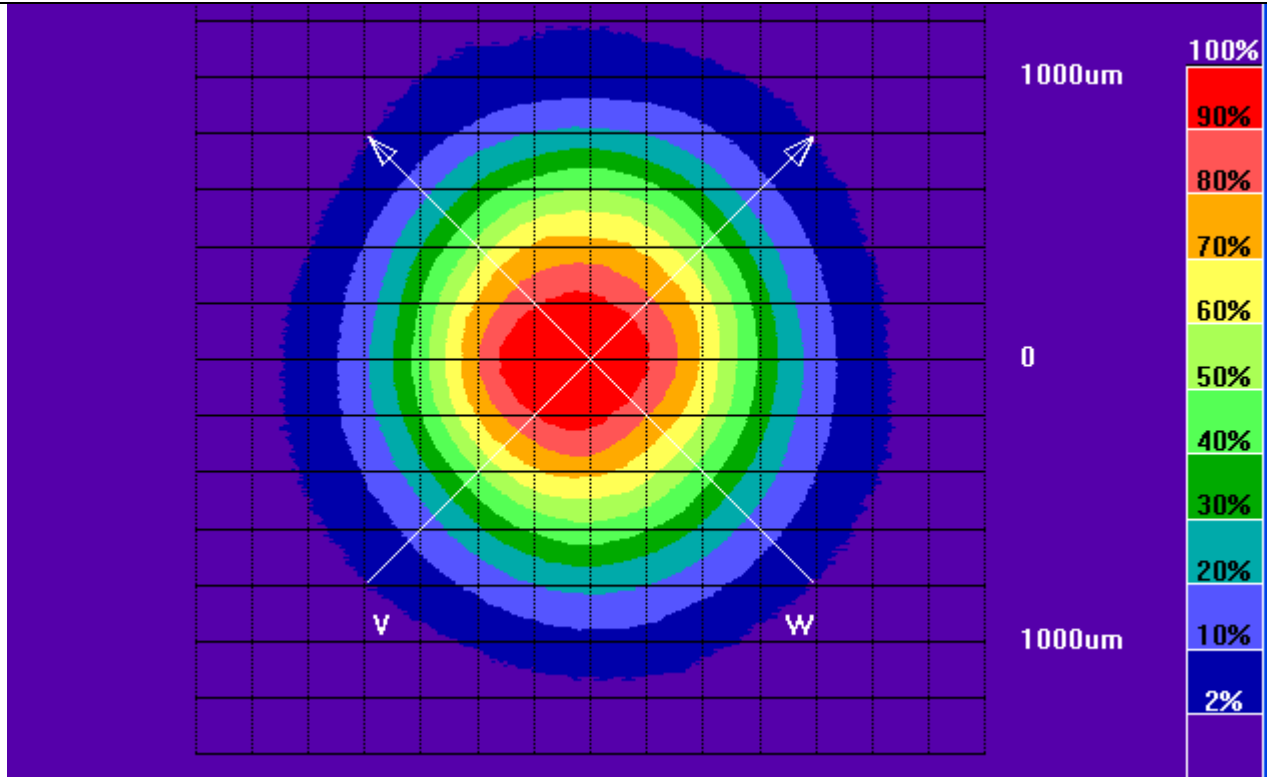
Intensity VS. Forward Current



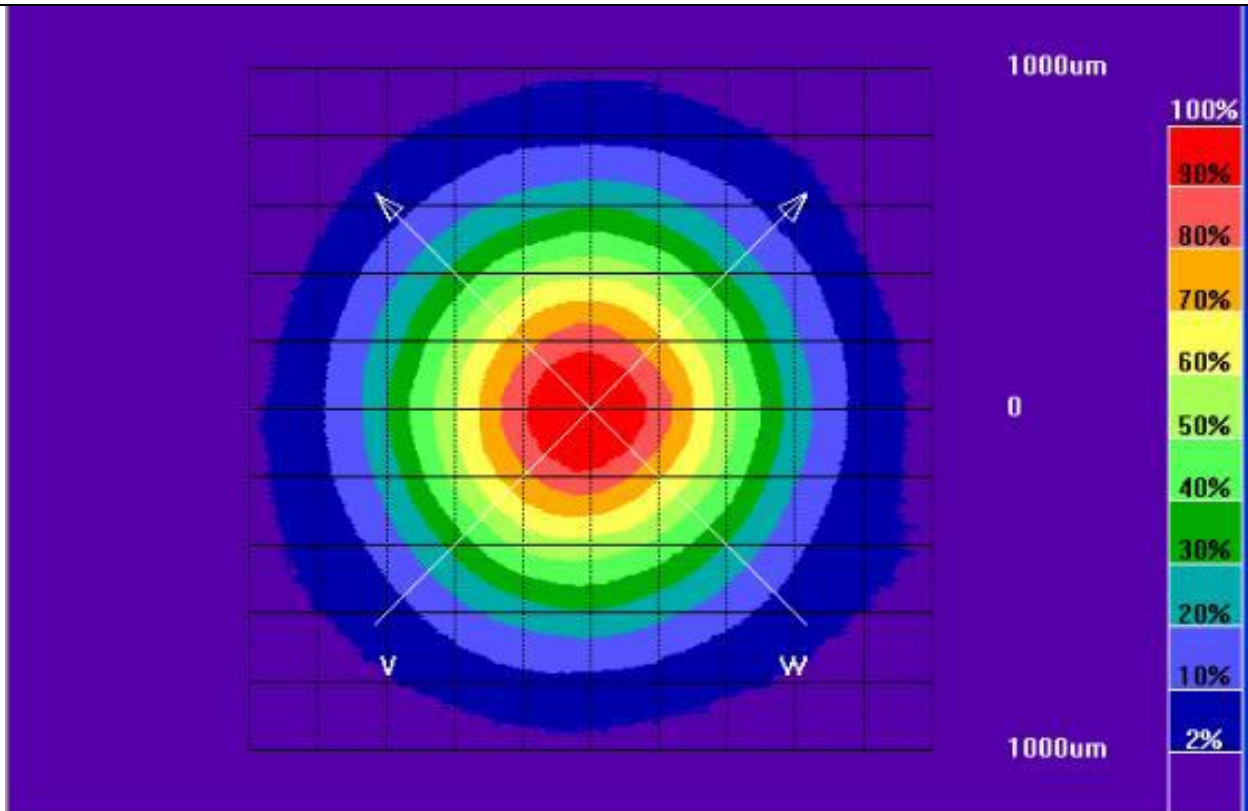
Beam Angle 30D



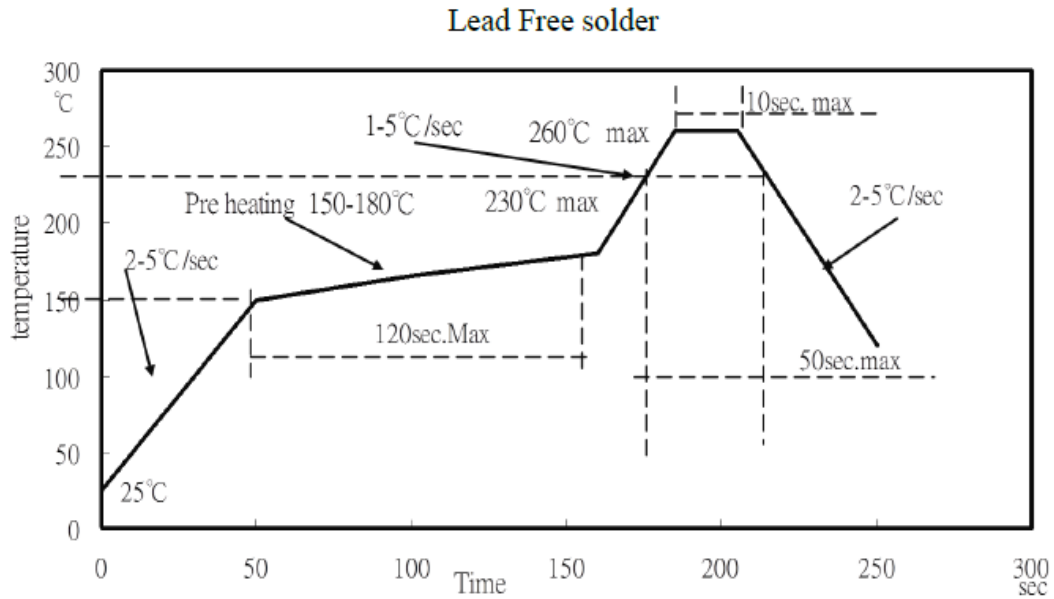
Beam Divergence for 940nm



Beam Divergence for 850nm

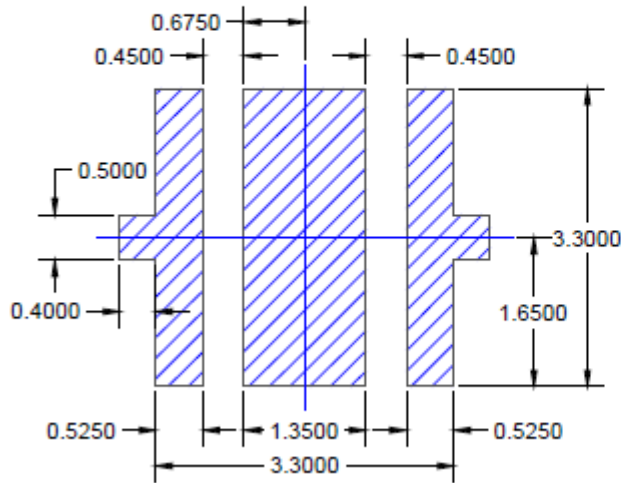


IR Reflow Soldering Profile

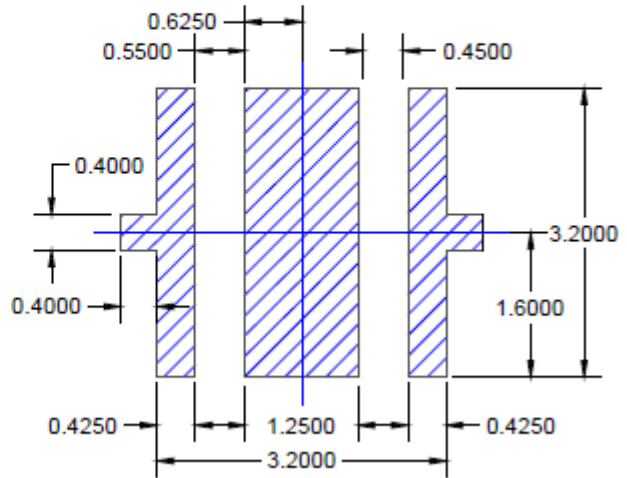


Recommended Soldering Pad:

RECOMMENDED PCB SOLDER PAD



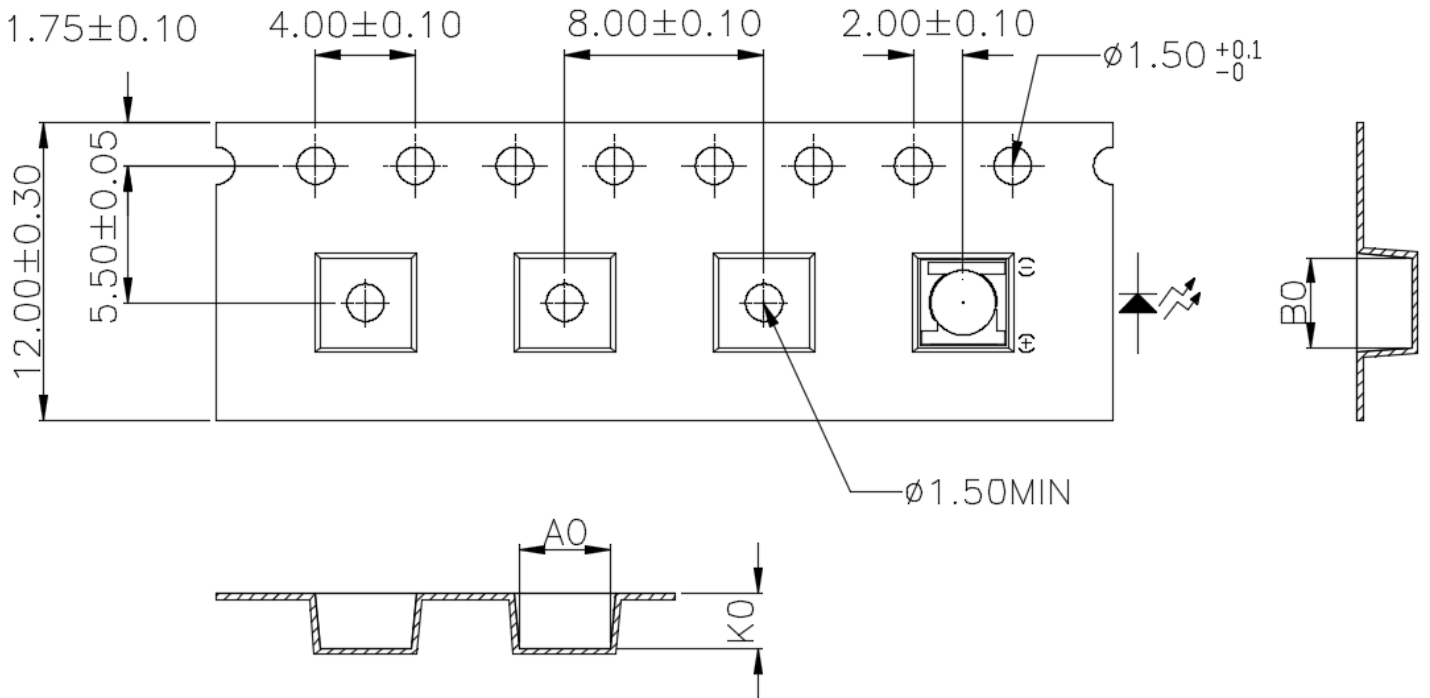
RECOMMENDED STENCIL PATTERN (HATCHED AREA IS OPENING)



Unit: mm

Packing

Tape and Reel:



1. 10 sprocket hole pitch cumulative tolerance ± 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 ± 0.05 mm.

T	0.30 ± 0.05
A0	3.80 ± 0.1
B0	3.80 ± 0.1
K0	2.20 ± 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., λ _P =940nm typ. @ I _F =1200mA	1000
QBHP684E-V850Y2	QBHP684E-V850Y2	Po=1000mW typ., λ _P =850nm typ. @ I _F =1200mA	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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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.