

# QT-Brighttek SMD Display Series

## 0.56" Dual Digit SMD Display

**Part No.: QBDS56ZXX**

**XX= Color**

**Z= 1: Common Cathode**

**Z = 0: Common Anode**

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**Table of Contents:**

Introduction .....	3
Electrical / Optical Characteristic: (Ta=25 °C) .....	4
Absolute Maximum Rating .....	4
Pin Configuration .....	5
Characteristic Curves.....	6
Solder Profile & Footprint.....	8
Packing & Labeling .....	9
Ordering Information .....	10
Revision History .....	11
Disclaimer .....	11

Product: QBDS56ZXX	Date: October 07, 2015	Page 2 of 11
	Version# 1.2	

**Introduction**

**Feature:**

- 0.56" dual digit seven segments display
- Low power consumption
- Packed in reel
- White segment and grey surface
- Z = 0 (common anode) or 1 (common cathode)
- XX = color code

**Description:**

These 0.56" dual digit seven segments SMD displays are made with white segment and grey surface. The viewing distance is up to seven meters.

**Application:**

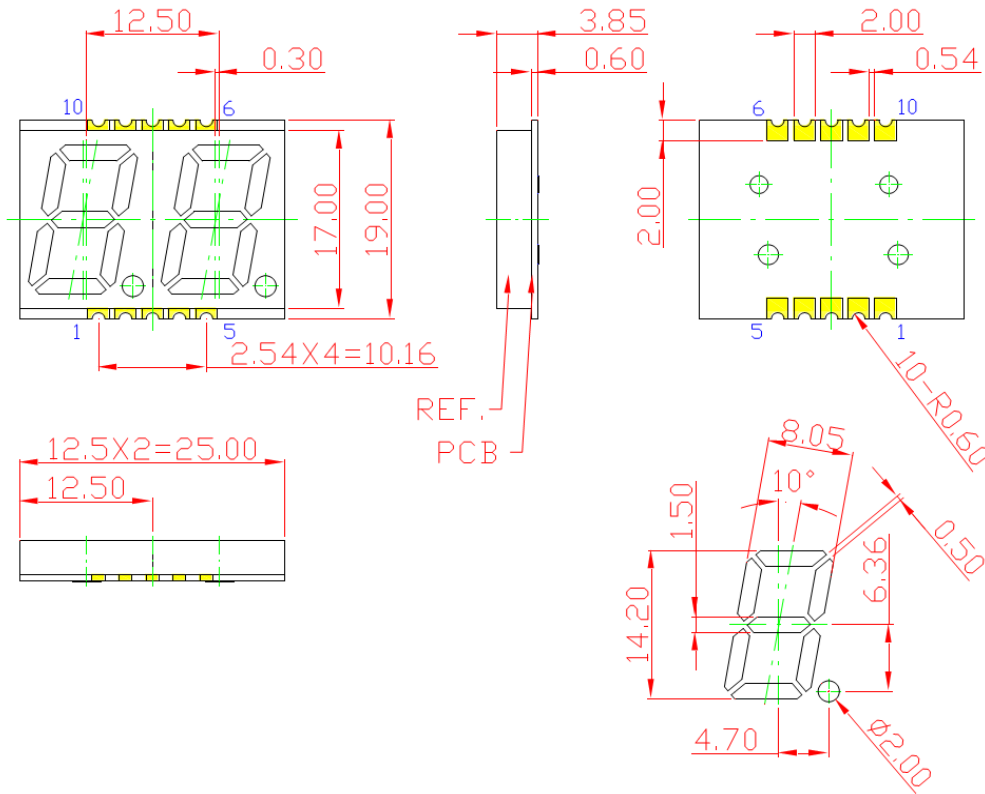
- Instrument panels
- Indoor/Outdoor display board
- Audio equipment

**Certification & Compliance:**

- TS16949
- ISO9001
- RoHS Compliant



**Dimension:**



Units: mm / tolerance = +/-0.25mm

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

Product		Material	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		λ <sub>d</sub> (nm)			I <sub>V</sub> (mcd)
CC	CA				Typ.	Max.	Min.	Typ.	Max.	Typ.
QBDS561R	QBDS560R	AllnGaP	Red	20	2.0	2.6	--	625	--	40
QBDS561S	QBDS560S	AllnGaP	Deep Red	20	2.0	2.6	--	640	--	10
QBDS561Y	QBDS560Y	AllnGaP	Yellow	20	2.0	2.6	--	590	--	40
QBDS561O	QBDS560O	AllnGaP	Orange	20	2.0	2.6	--	610	--	40
QBDS561AG	QBDS560AG	AllnGaP	Yellow Green	20	2.0	2.6	--	570	--	15
QBDS561IG	QBDS560IG	InGaN	Green	20	3.0	4.0	--	525	--	200
QBDS561IB	QBDS560IB	InGaN	Blue	20	3.2	4.0	--	470	--	60

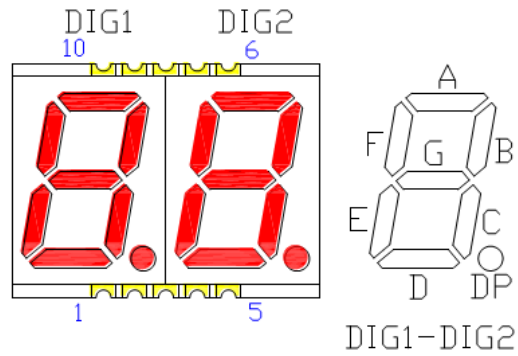
**Absolute Maximum Rating**

Material	P <sub>d</sub> (mW)	Derating linear from 25°C per dice (mA/°C)	I <sub>F</sub> (mA)	I <sub>PF</sub> (mA)	V <sub>R</sub> (V)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)	T <sub>SO<sub>L</sub></sub> (°C)**
AllnGaP	70	0.28	25	90	5	-40 to +105	-40 to +105	260
InGaN	120	0.3	30	100	5	-40 to +105	-40 to +105	260

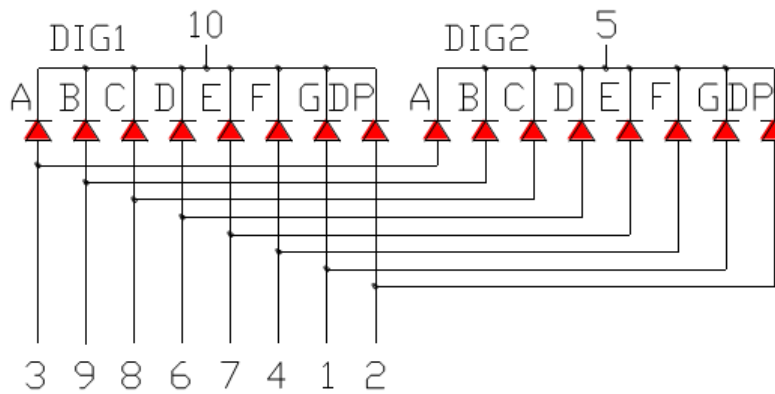
\*Duty 1/10 @ 1KHz

\*\*IR Reflow for no more than 5 sec @ 260 °C

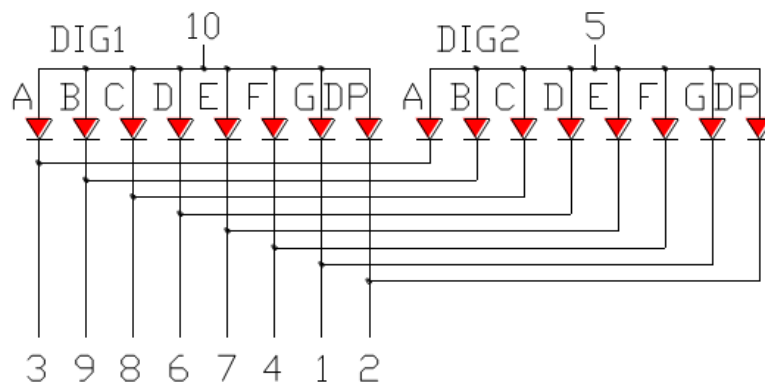
**Pin Configuration**



**CC**

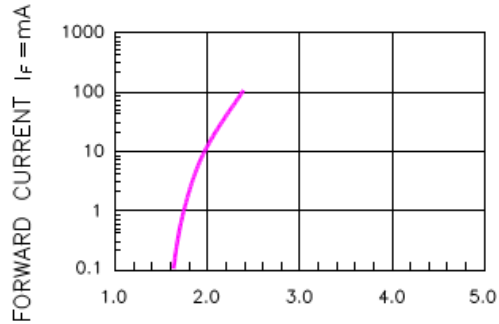


**CA**

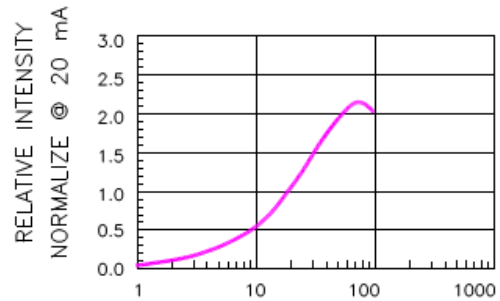


**Characteristic Curves**

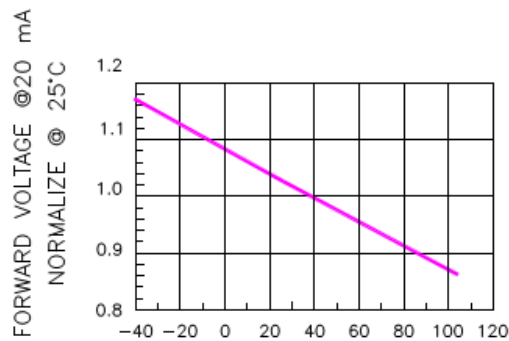
AllnGaP



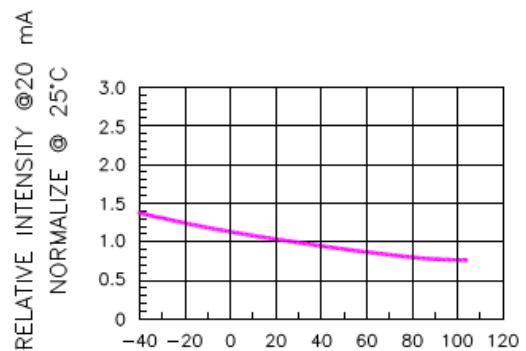
FORWARD CURRENT VS. FORWARD VOLTAGE



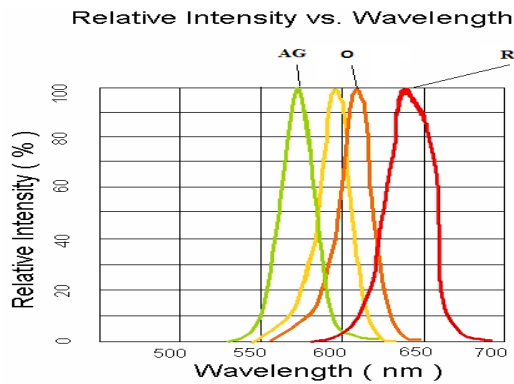
RELATIVE INTENSITY VS. FORWARD CURRENT



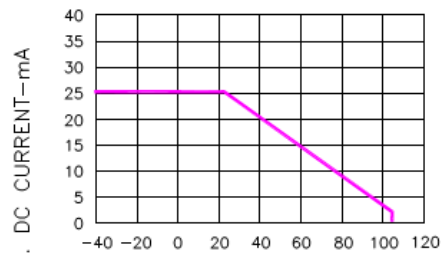
FORWARD VOLTAGE VS. TEMPERATURE



RELATIVE INTENSITY VS. TEMPERATURE

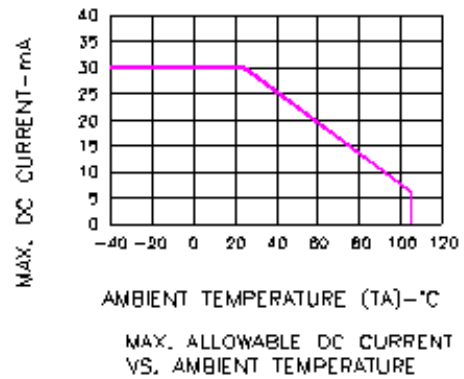
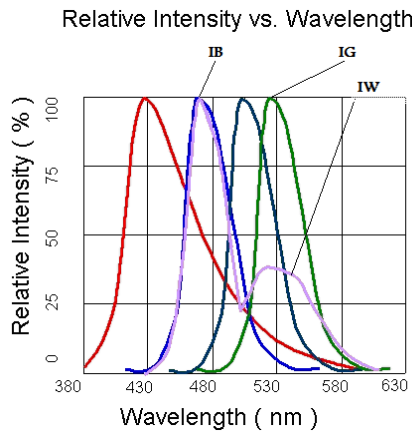
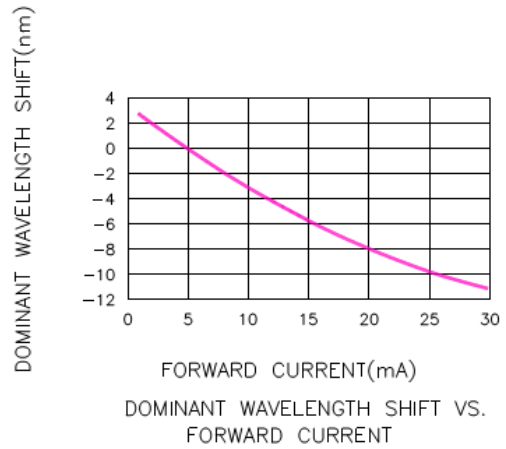
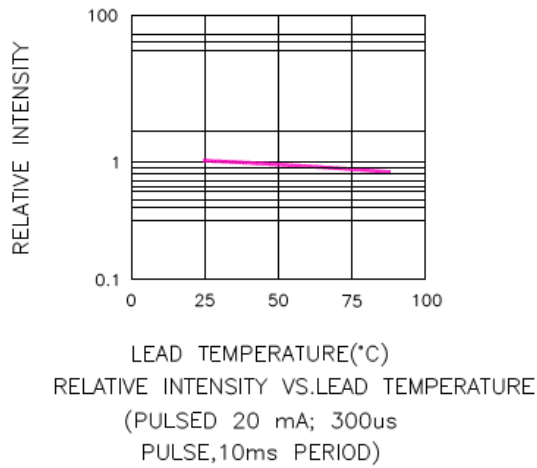
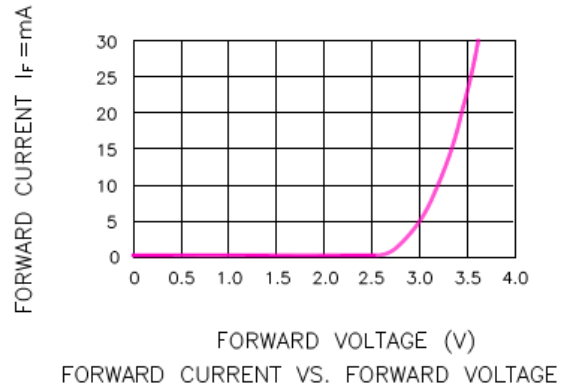
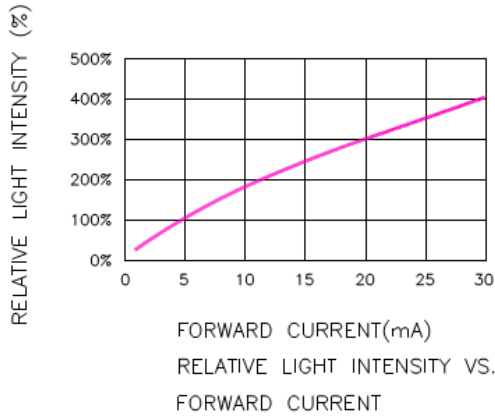


Relative Intensity vs. Wavelength



MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

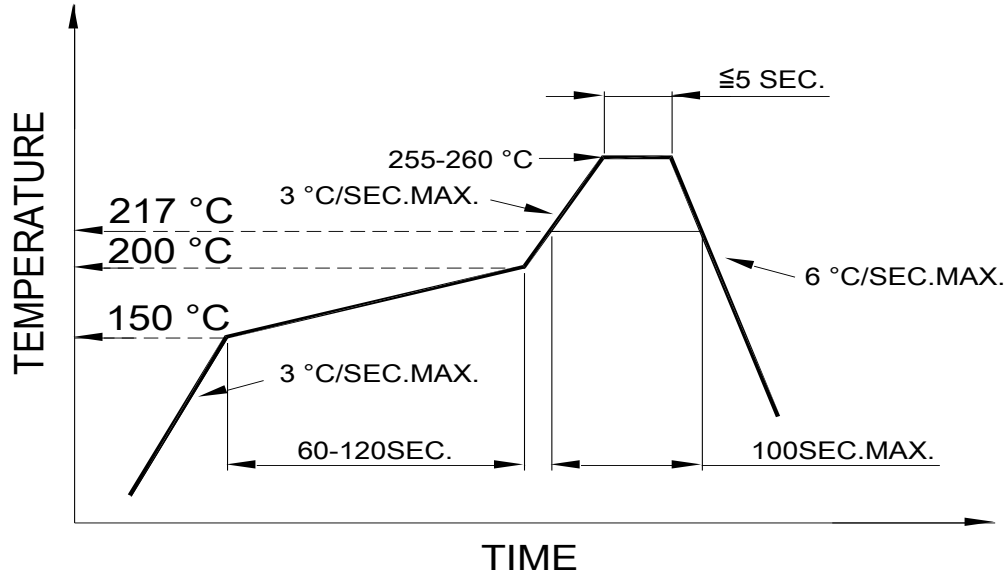
InGaN



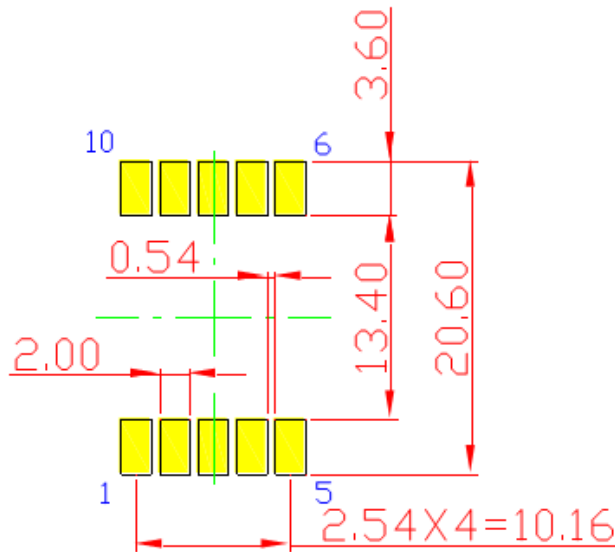
## Solder Profile & Footprint

### Recommended Lead-free Solder Profile:

Pb free reflow soldering Profile



### Recommended Pad Layout



Units: mm

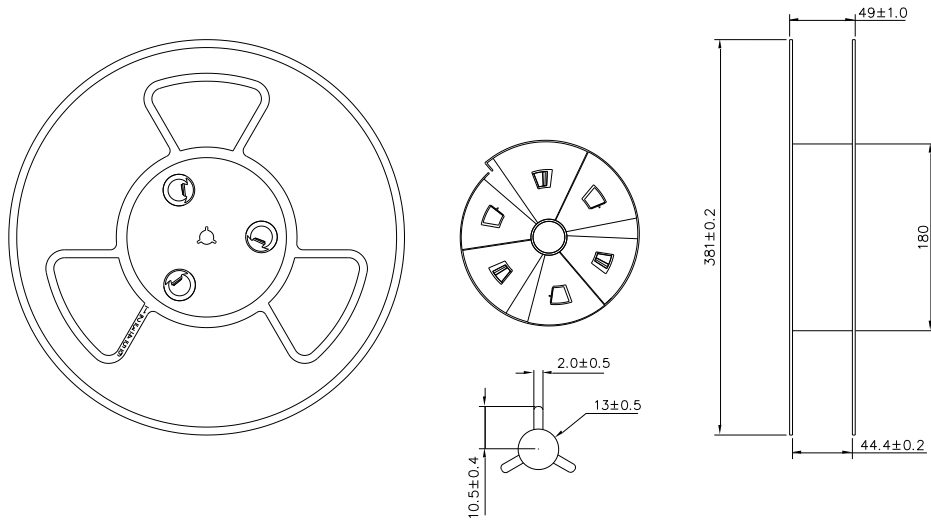
Tolerance:  $\pm 0.25$ mm

Product: QBDS56ZXX	Date: October 07, 2015	Page 8 of 11
	Version# 1.2	



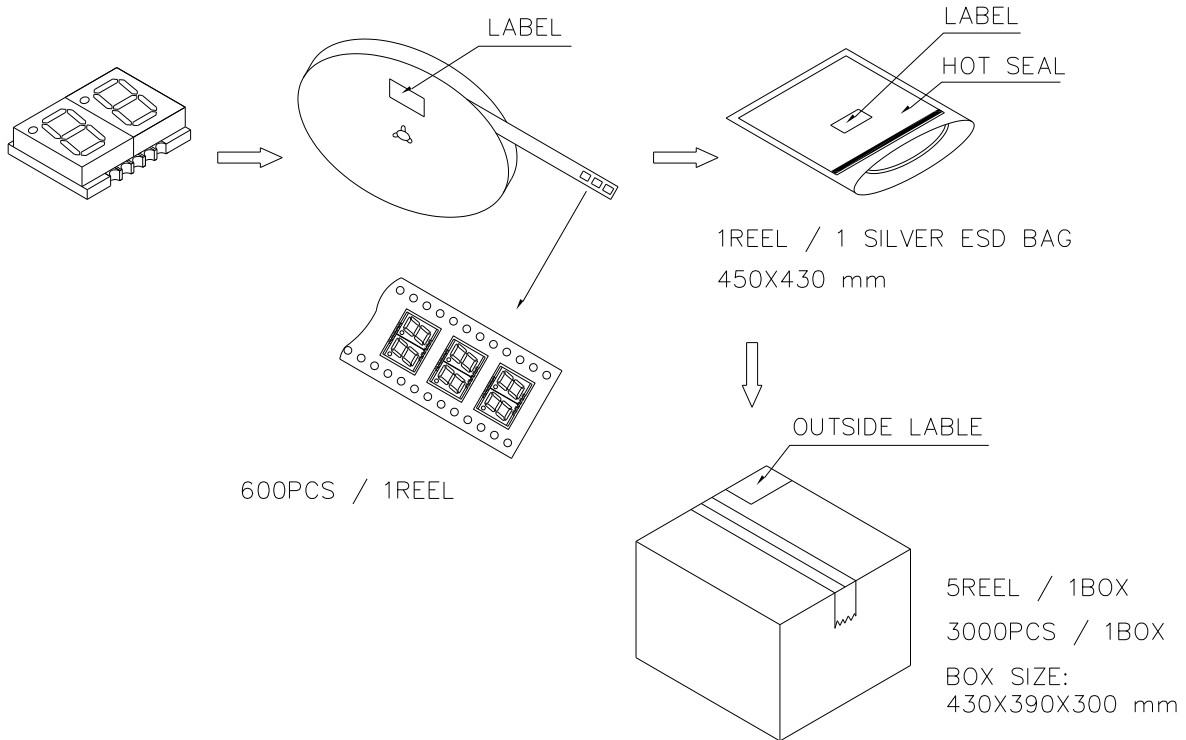
## Packing & Labeling

Reel Dimension:



Unit: mm

Packing:



Product: QBDS56ZXX	Date: October 07, 2015	Page 9 of 11
	Version# 1.2	

**Ordering Information**

Product		Orderable Part #		Spec Range	Quantity per Reel
CC	CA	CC	CA		
QBDS561R	QBDS560R	QBDS561R	QBDS560R	Iv=40mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :625nm typ.	600
QBDS561S	QBDS560S	QBDS561S	QBDS560S	Iv=10mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :640nm typ.	600
QBDS561Y	QBDS560Y	QBDS561Y	QBDS560Y	Iv=40mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :590nm typ.	600
QBDS561O	QBDS560O	QBDS561O	QBDS560O	Iv=40mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :610nm typ.	600
QBDS561AG	QBDS560AG	QBDS561AG	QBDS560AG	Iv=15mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :570nm typ.	600
QBDS561IG	QBDS560IG	QBDS561IG	QBDS560IG	Iv=200mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :525nm typ.	600
QBDS561IB	QBDS560IB	QBDS561IB	QBDS560IB	Iv=60mcd typ. @ I <sub>F</sub> =20mA / λ <sub>D</sub> :470nm typ.	600

## Revision History

Description:	Revision #	Revision Date
New Release of QBDS56ZXX	V1.0	06/24/2011
Amend format and optical spec/ add packing spec	V1.1	03/24/2014
Update typical brightness / Minor spec update	V1.2	10/07/2015

## 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.