

QT-Brightek SMD Super Thin Display Series

0.56" Dual Digit Display

Part No.: QBDST56ZXX-R

XX= Color

Z= 1: Common Cathode

Z = 0: Common Anode

-R= Reverse Mount

Table of Contents:

Introduction	3
Electrical / Optical Characteristic: (Ta=25 °C)	4
Absolute Maximum Rating	4
Correlated Color Temperature Chart	5
Pin Configuration	6
Characteristic Curves.....	8
Solder Profile & Footprint.....	11
Packing & Labeling	12
Ordering Information	13
Revision History	14
Disclaimer	14

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

Product		Material	Color	I _F (mA)	V _F (V)		λ _d (nm)			I _V (mcd) @I _F =5mA
CC	CA				Typ.	Max.	Min.	Typ.	Max.	Typ.
QBDST561R-R	QBDST560R-R	AlInGaP	Red	20	2.0	2.8	--	625	--	5
QBDST561S-R	QBDST560S-R	AlInGaP	Deep Red	20	2.0	2.8	--	645	--	4
QBDST561Y-R	QBDST560Y-R	AlInGaP	Yellow	20	2.0	2.8	--	590	--	12
QBDST561O-R	QBDST560O-R	AlInGaP	Orange	20	2.0	2.8	--	605	--	14
QBDST561AG-R	QBDST560AG-R	AlInGaP	Yellow Green	20	2.1	2.8	--	570	--	2
QBDST561IG-R	QBDST560IG-R	InGaN	True Green	20	3.2	4.0	--	525	--	50
QBDST561IB-R	QBDST560IB-R	InGaN	Blue	20	3.2	4.0	--	470	--	8
							Chromaticity Coordinate			
QBDST561IW-R	QBDST560IW-R	InGaN	Blue	20	3.2	4.0	--	X:0.27 Y:0.25	--	40

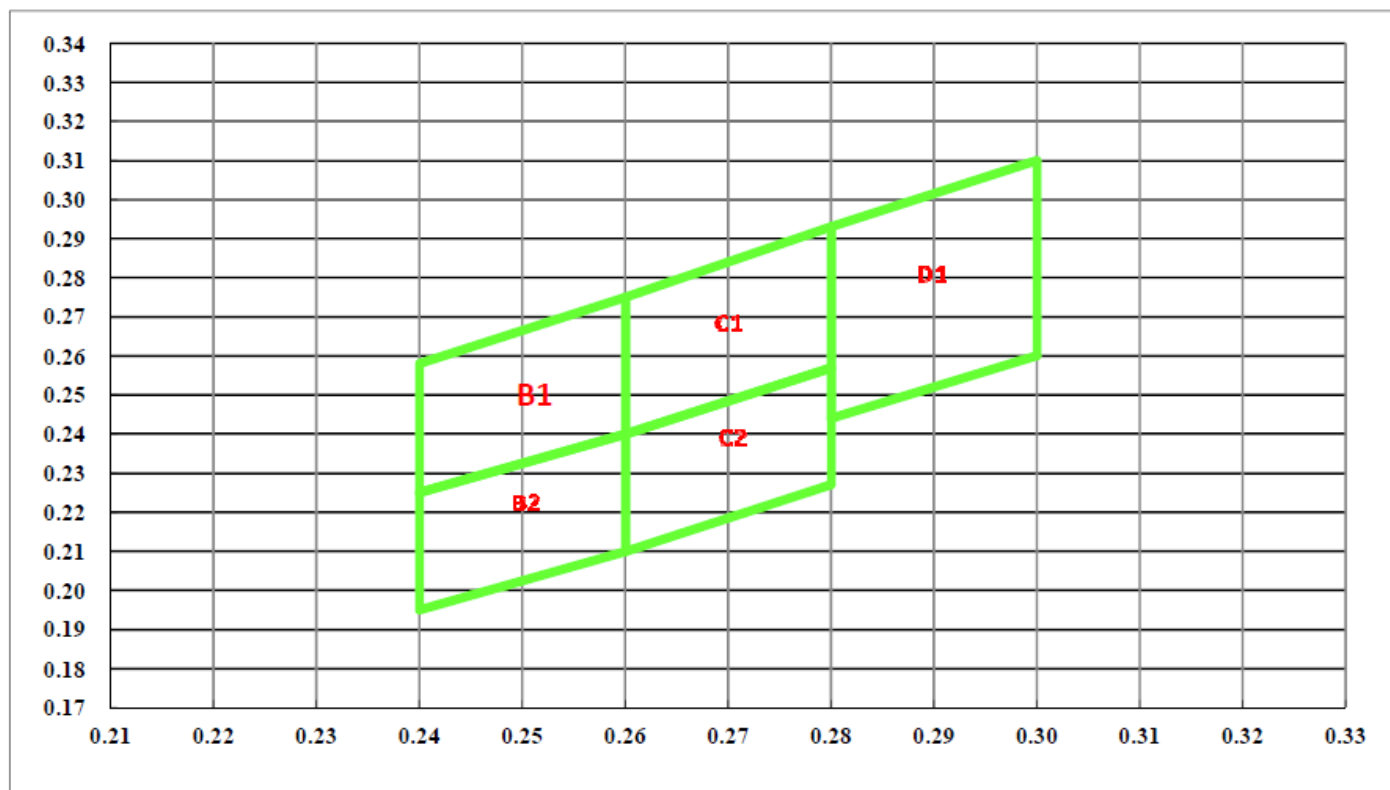
Absolute Maximum Rating

Material	P _d (mW)	Derating linear from 25°C per dice (mW/°C)	I _F (mA)	I _{PF} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOI} (°C)**
AlInGaP	70	0.33	25	90	5	-40 to +105	-40 to +105	260
InGaN	114	0.4	30	100	5	-40 to +105	-40 to +105	260

*Duty 1/10 @ 1KHz

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

Correlated Color Temperature Chart



B1				
X	0.240	0.240	0.260	0.260
Y	0.225	0.258	0.275	0.240

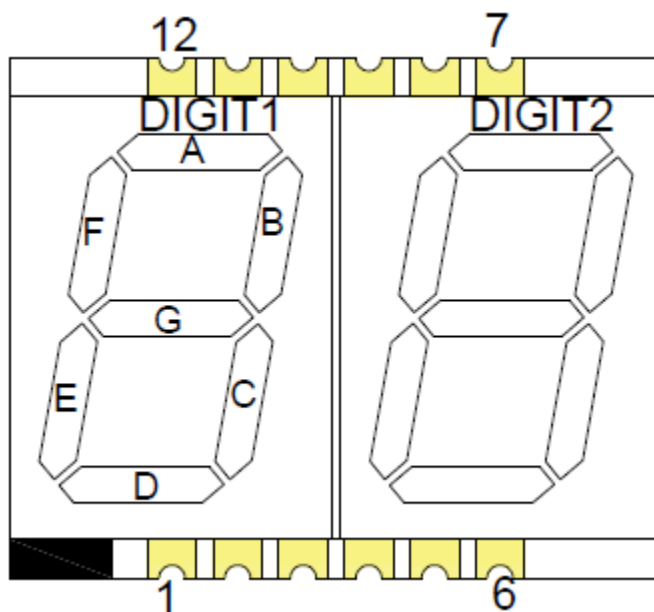
B2				
X	0.240	0.240	0.260	0.260
Y	0.195	0.225	0.240	0.210

C1				
X	0.260	0.260	0.280	0.280
Y	0.240	0.275	0.293	0.257

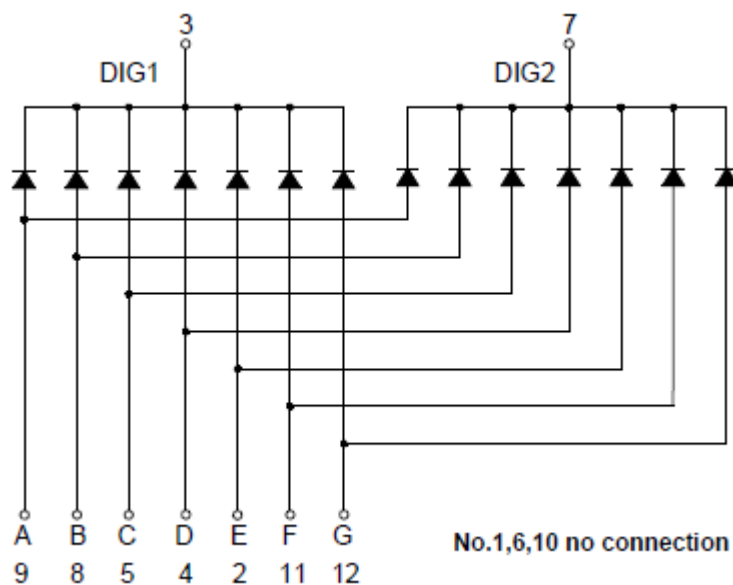
C2				
X	0.260	0.260	0.280	0.280
Y	0.210	0.240	0.257	0.227

D1				
X	0.280	0.280	0.300	0.300
Y	0.244	0.293	0.310	0.260

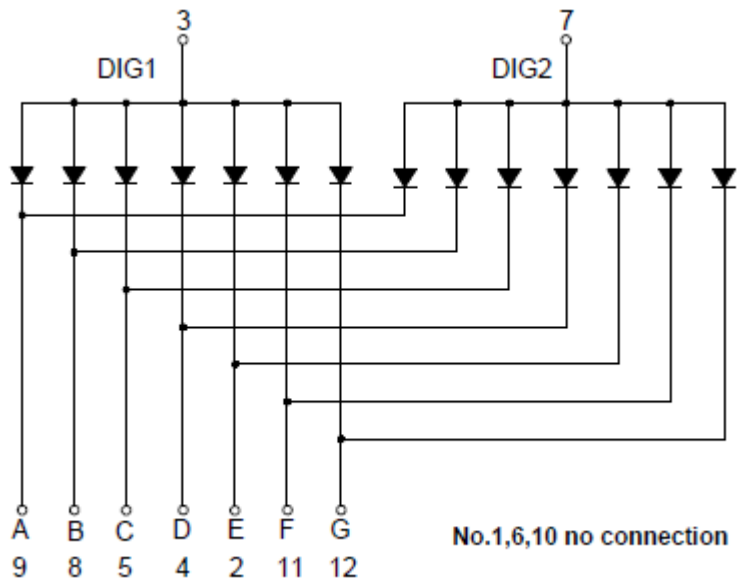
Pin Configuration



CC



CA



Characteristic Curves

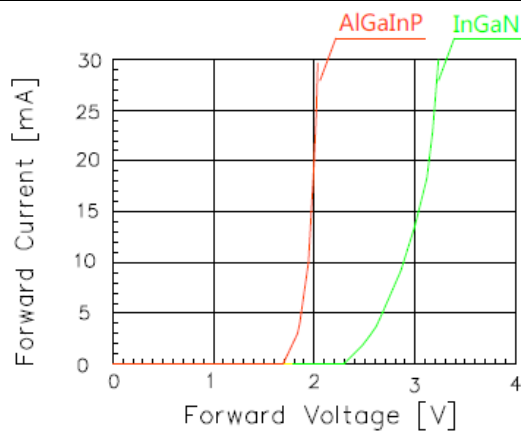


Fig 1. Forward Current vs. Forward Voltage

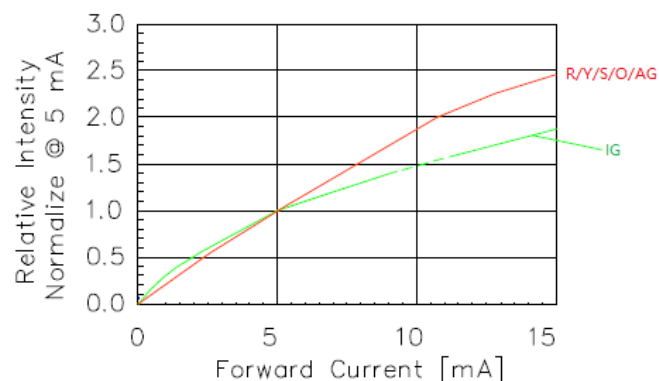


Fig 2. Relative Intensity vs. Forward Current

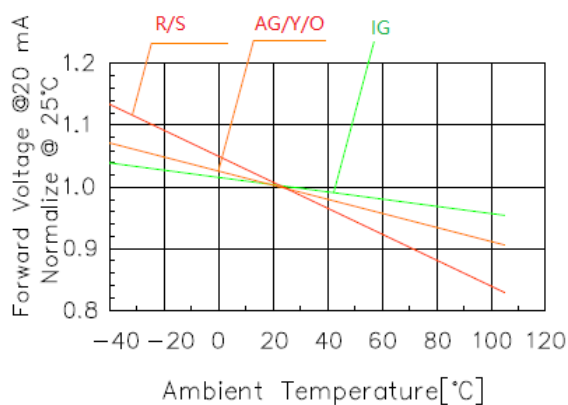


Fig 3. Forward Voltage vs. Temperature

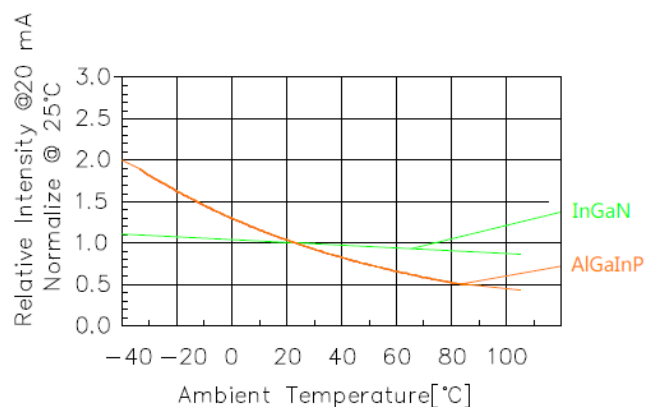


Fig 4. Relative Intensity vs. Temperature

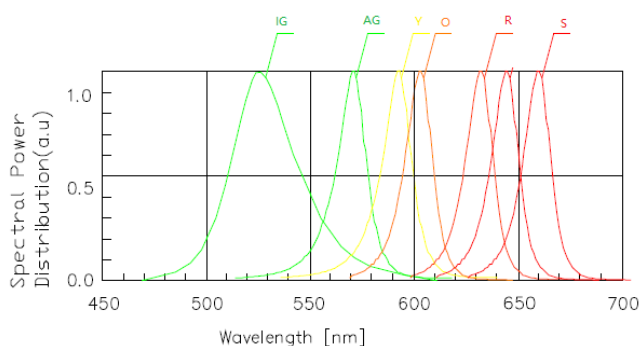


Fig 5. Spectral Power Distribution vs. Wavelength

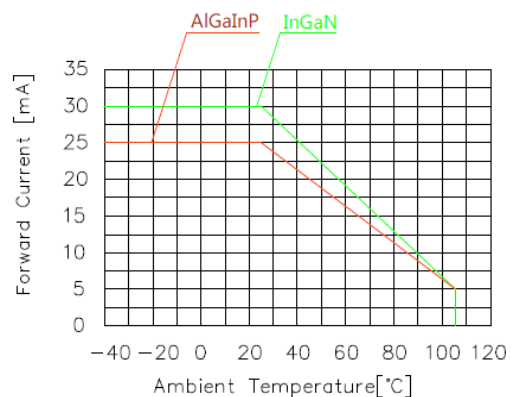


Fig 6. Forward current vs. Temperature

InGaN Blue

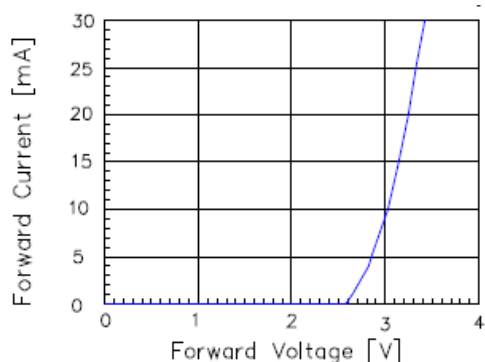


Fig 1. Forward Current vs. Forward Voltage

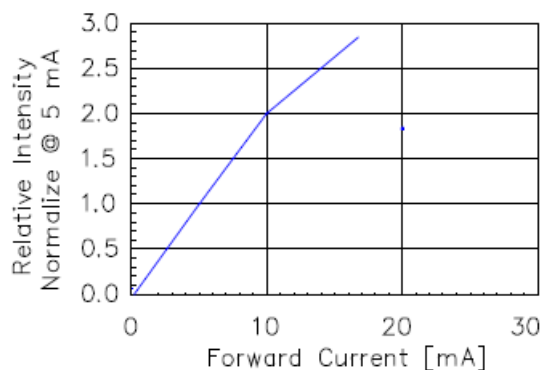


Fig 2. Relative Intensity vs. Forward Current

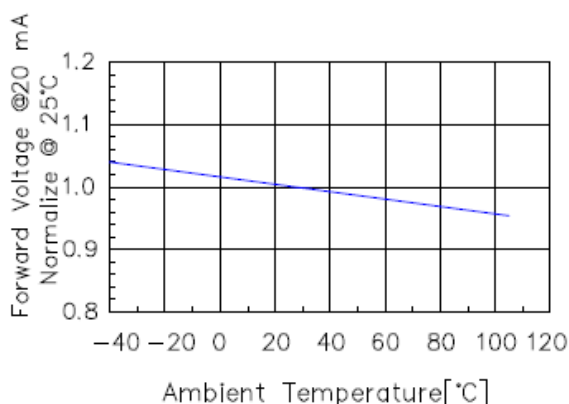


Fig 3. Forward Voltage vs. Temperature

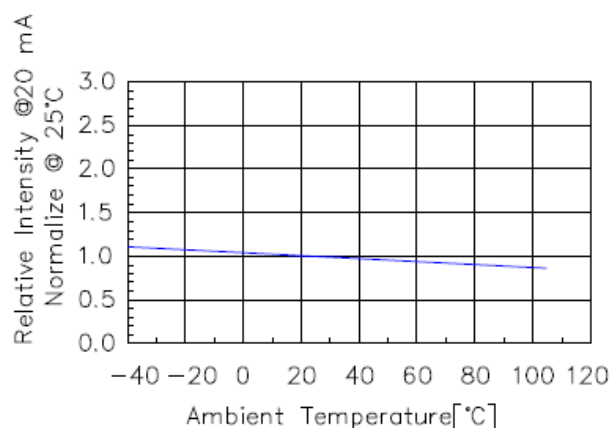


Fig 4. Relative Intensity vs. Temperature

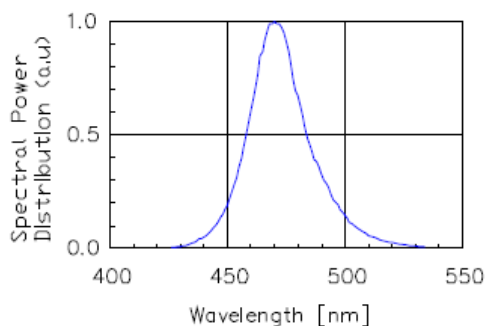


Fig 5. Spectral Power Distribution vs. Wavelength

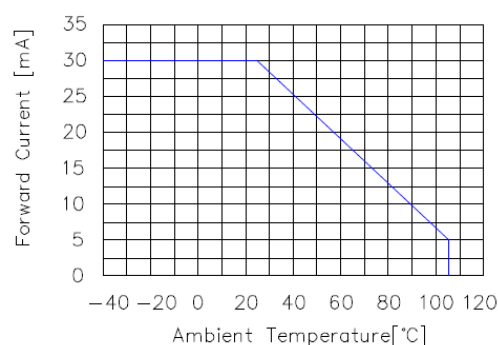


Fig 6. Forward current vs. Temperature

InGaN White

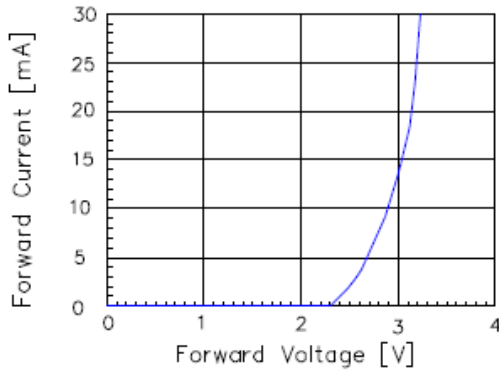


Fig 1. Forward Current vs. Forward Voltage

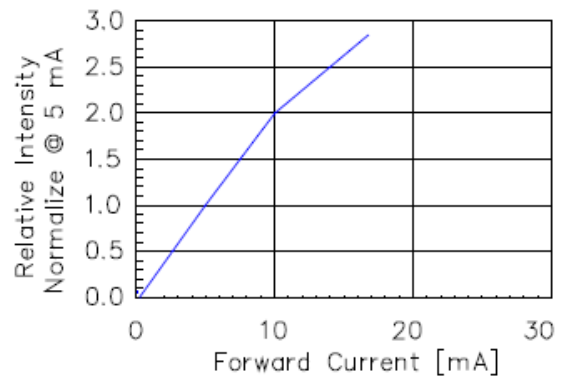


Fig 2. Relative Intensity vs. Forward Current

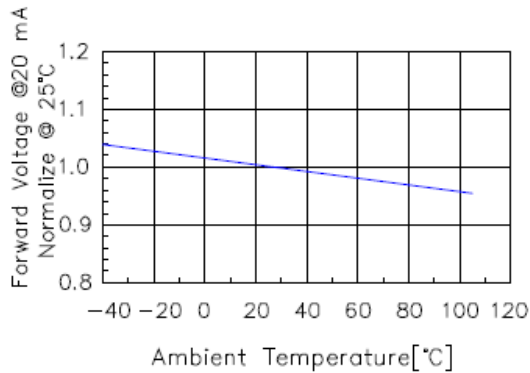


Fig 3. Forward Voltage vs. Temperature

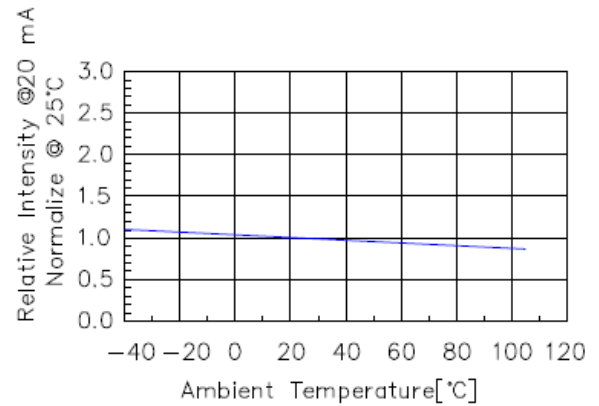


Fig 4. Relative Intensity vs. Temperature

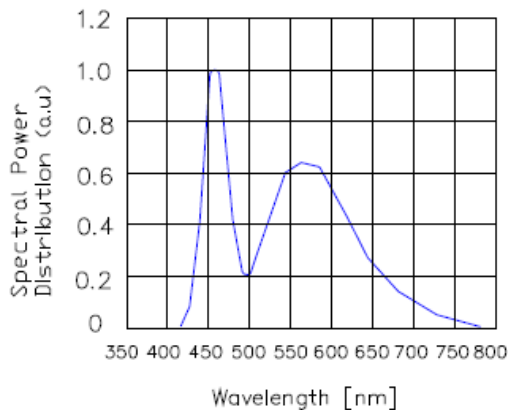


Fig 5. Spectral Power Distribution vs. Wavelength

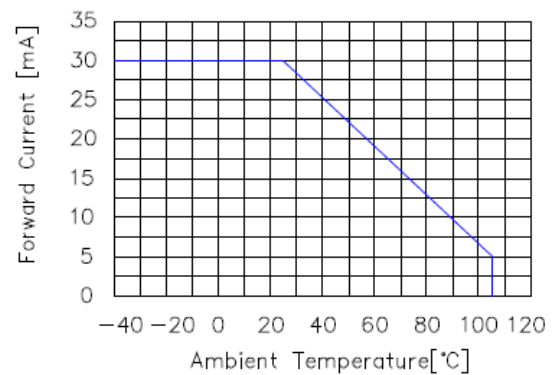
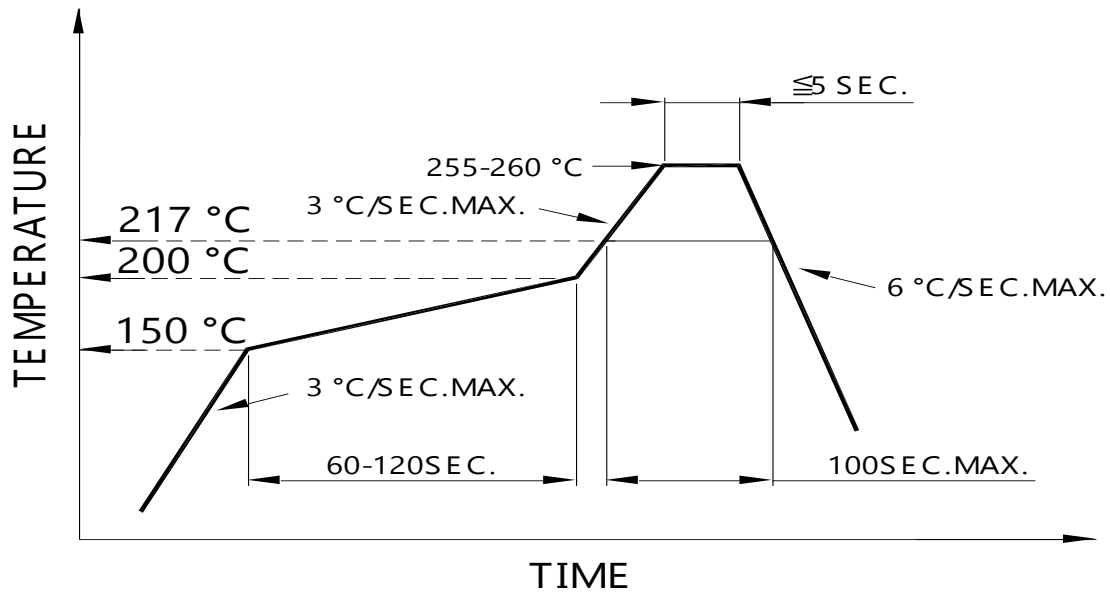


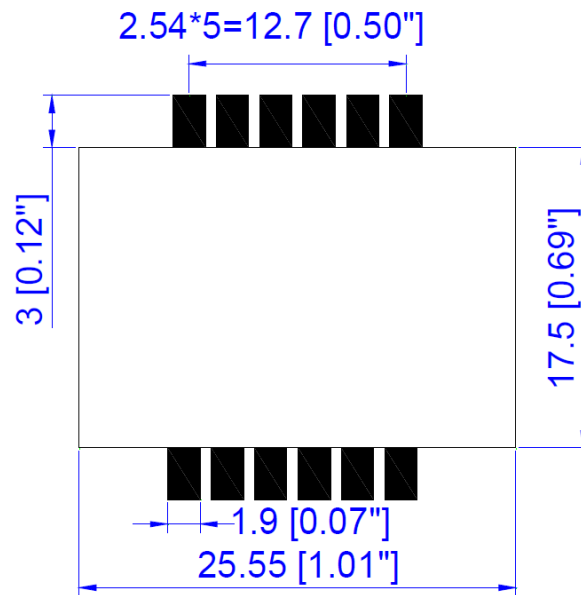
Fig 6. Forward current vs. Temperature

Solder Profile & Footprint

Pb free reflow soldering Profile



Recommended Pad Layout



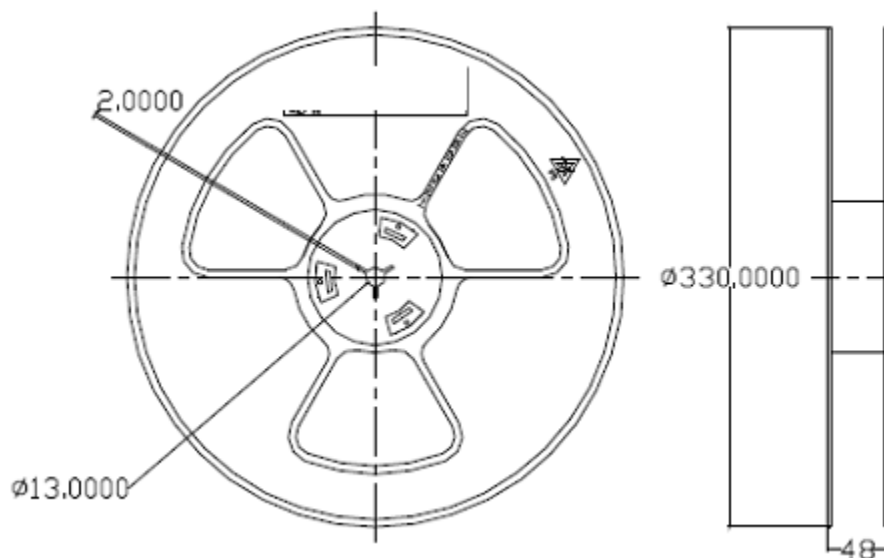
Reverse Mount

Units: mm

Tolerance: $\pm 0.25\text{mm}$

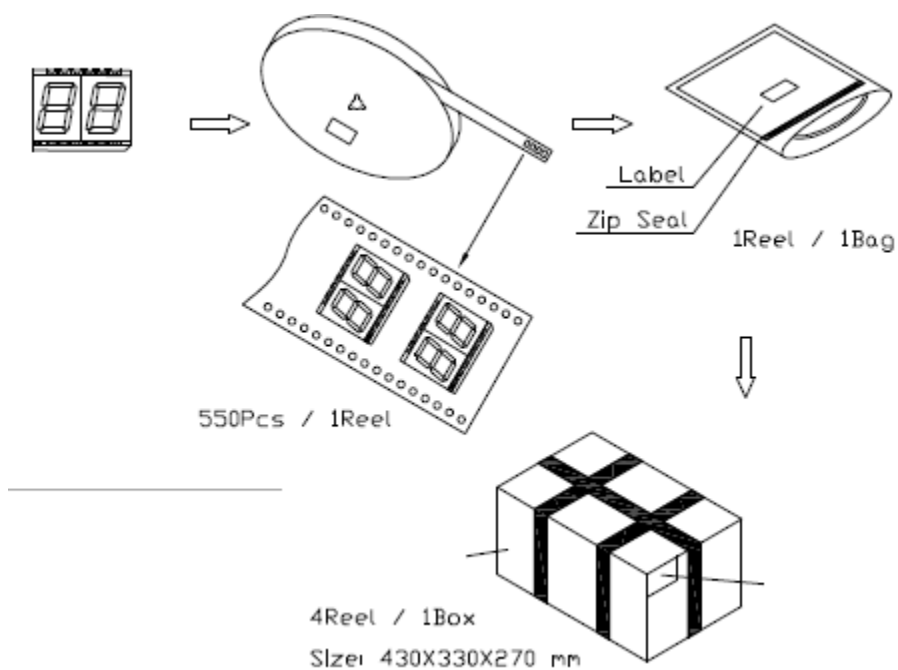
Packing & Labeling

Reel Dimensions:



Unit: mm

Packing Method:



Ordering Information

Product		Orderable Part #		Spec Range	Quantity per Reel
CC	CA	CC	CA		
QBDST561R-R	QBDST560R-R	QBDST561R-R	QBDST560R-R	Iv=5mcd typ. @ I _F =5mA / λ _D :625nm typ.	550
QBDST561S-R	QBDST560S-R	QBDST561S-R	QBDST560S-R	Iv=4mcd typ. @ I _F =5mA / λ _D :645nm typ.	550
QBDST561Y-R	QBDST560Y-R	QBDST561Y-R	QBDST560Y-R	Iv=12mcd typ. @ I _F =5mA / λ _D :590nm typ.	550
QBDST561O-R	QBDST560O-R	QBDST561O-R	QBDST560O-R	Iv=14mcd typ. @ I _F =5mA / λ _D :605nm typ.	550
QBDST561AG-R	QBDST560AG-R	QBDST561AG-R	QBDST560AG-R	Iv=2mcd typ. @ I _F =5mA / λ _D :570nm typ.	550
QBDST561IG-R	QBDST560IG-R	QBDST561IG-R	QBDST560IG-R	Iv=50mcd typ. @ I _F =5mA / λ _D :525nm typ.	550
QBDST561IB-R	QBDST560IB-R	QBDST561IB-R	QBDST560IB-R	Iv=8mcd typ. @ I _F =5mA / λ _D :470nm typ.	550
QBDST561IW-R	QBDST560IW-R	QBDST561IW-R	QBDST560IW-R	Iv=40mcd typ. @ I _F =5mA / (X,Y)=(0.27, 0.25)	550

Revision History

Description:	Revision #	Revision Date
New Release of QBDST56ZXX-R	V1.0	01/16/2017

Disclaimer

QT-BRIGHTTEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. QT-BRIGHTTEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

Life Support Policy

QT-BRIGHTTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTTEK. As used herein:

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.