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QT-Brightek SMD Display Series

0.20" Dual Digit SMD Display

Part No.: QBDS20ZXX

XX= Color

Z= 1: Common Cathode

Z = 0: Common Anode

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

Product		Material	Color	I _F (mA)	V _F (V)		λ _d (nm)			I _V (mcd)
CC	CA				Typ.	Max.	Min.	Typ.	Max.	Typ.
QBDS201R	QBDS200R	AllnGaP	Red	20	2.0	2.6	-	625	-	23
QBDS201S	QBDS200S	AllnGaP	Deep Red	20	2.0	2.6	-	640	-	8
QBDS201Y	QBDS200Y	AllnGaP	Yellow	20	2.0	2.6	-	590	-	23
QBDS201O	QBDS200O	AllnGaP	Orange	20	2.0	2.6	-	610	-	23
QBDS201AG	QBDS200AG	AllnGaP	Yellow Green	20	2.0	2.5	-	571	-	9
QBDS201IG	QBDS200IG	InGaN	True Green	20	3.2	4.0	-	520	-	90
QBDS201IB	QBDS200IB	InGaN	Blue	20	3.2	4.0	-	470	-	55

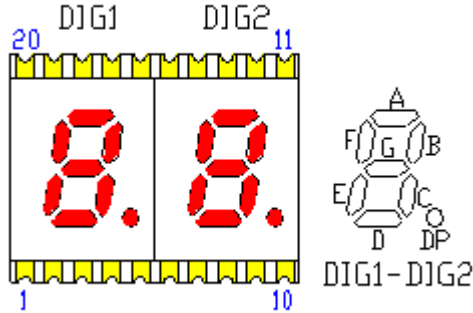
Absolute Maximum Rating

Material	P _d (mW)	Derating linear from 25C per dice (mA/C)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°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

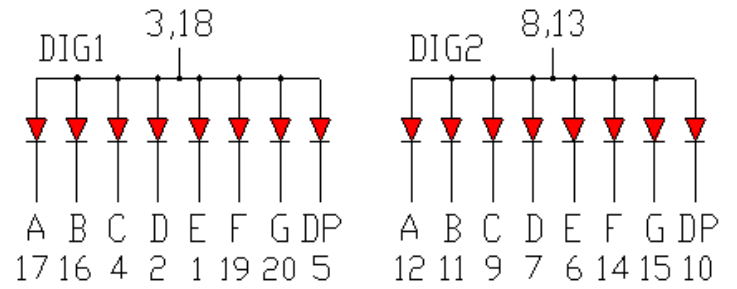
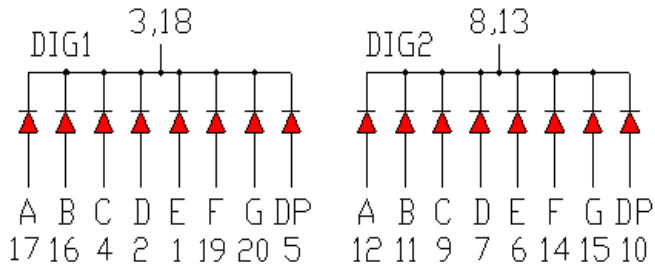
**IR Reflow for no more than 5 sec @ 260 °C

Pin Configuration



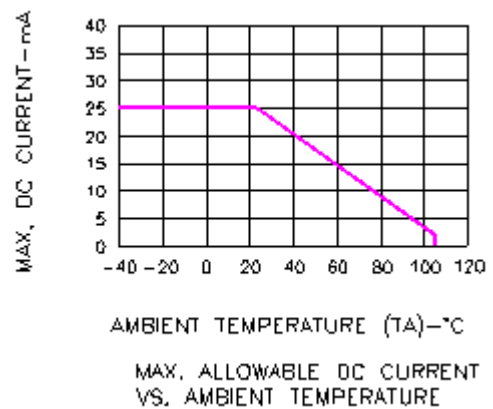
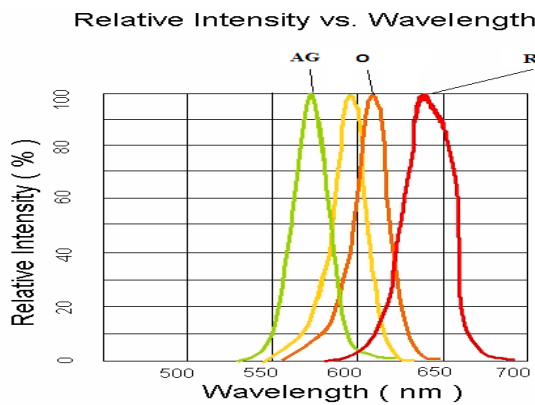
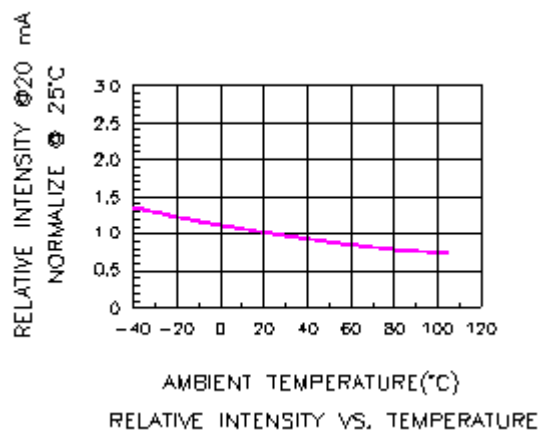
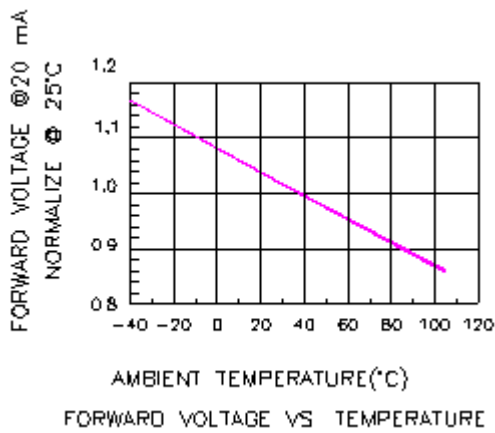
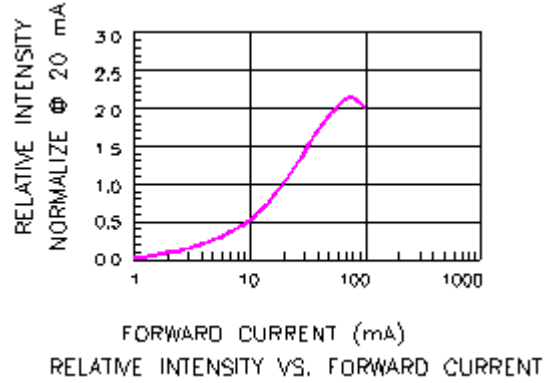
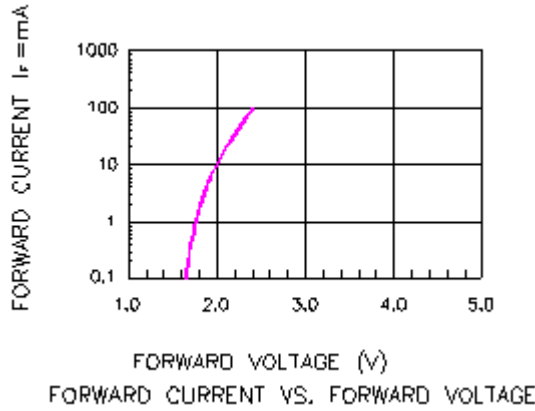
CC

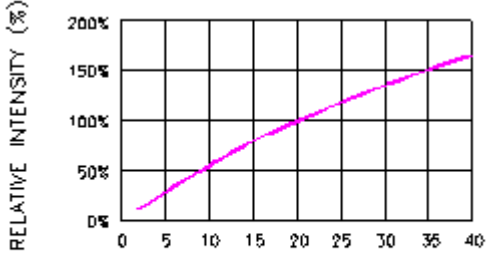
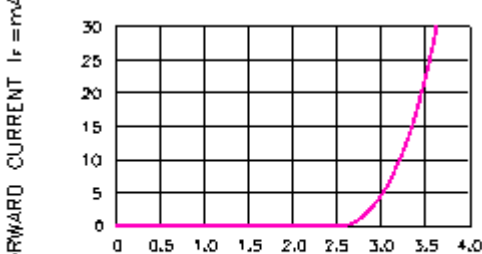
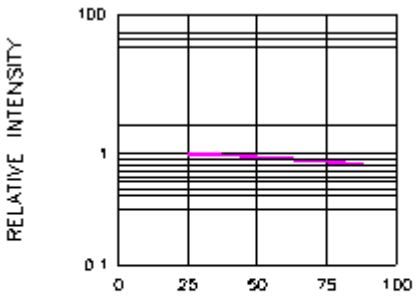
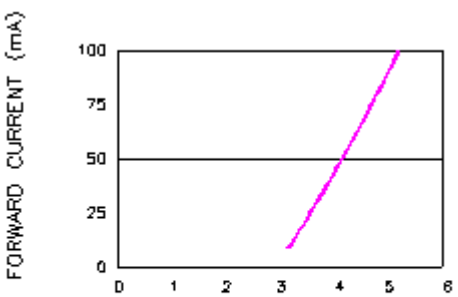
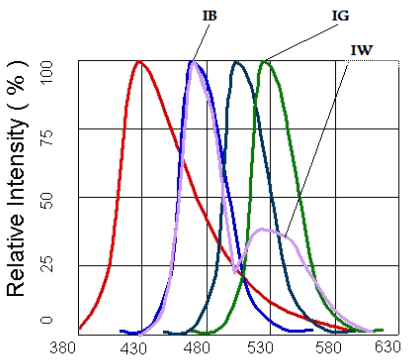
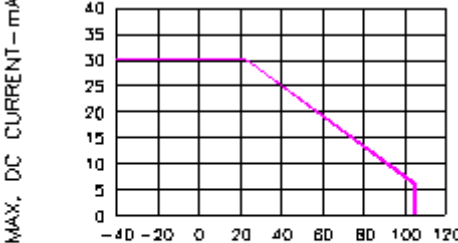
CA



Characteristic Curves

AllnGaP

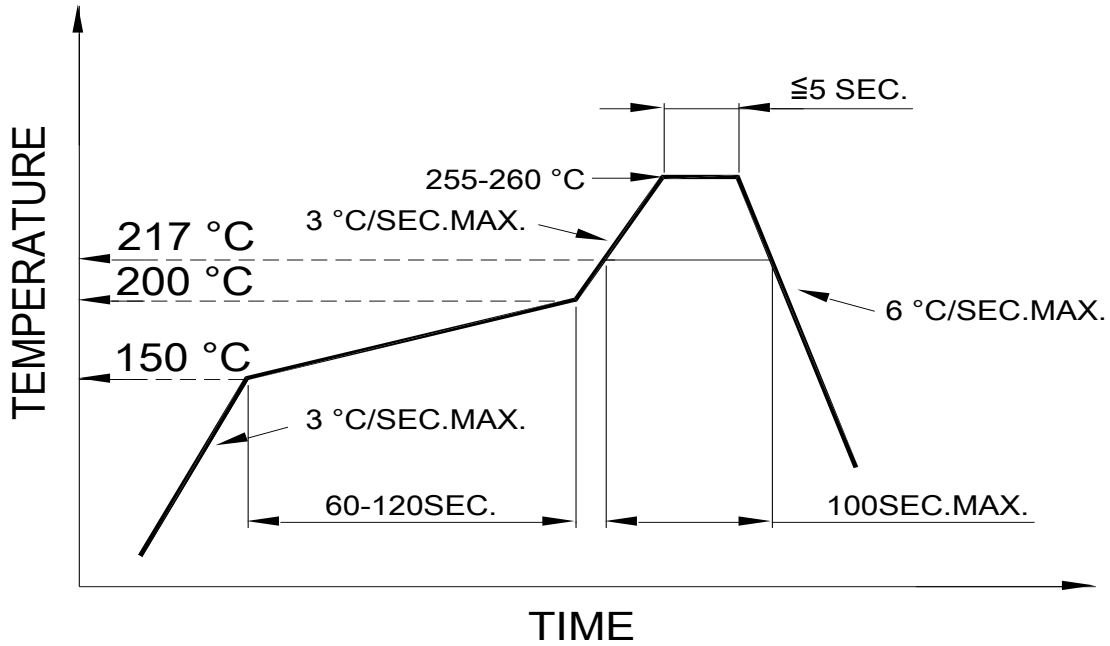


InGaN	
 <p style="text-align: center;">$I_r \Phi 20\text{mA (mA)}$</p> <p style="text-align: center;">RELATIVE INTENSITY VS. FORWARD CURRENT</p>	 <p style="text-align: center;">FORWARD CURRENT VS. FORWARD VOLTAGE</p>
 <p style="text-align: center;">LEAD TEMPERATURE(°C)</p> <p style="text-align: center;">Fig.3 RELATIVE INTENSITY VS.LEAD TEMPERATURE (PULSED 20 mA; 300us PULSE,10ms PERIOD)</p>	 <p style="text-align: center;">FORWARD VOLTAGE(V)</p> <p style="text-align: center;">Fig.4 PEAK FORWARD VOLTAGE VS.FORWARD(100us TEST PULSE, 1% DUTY CYCLE)</p>
<p style="text-align: center;">Relative Intensity vs. Wavelength</p>  <p style="text-align: center;">Wavelength (nm)</p>	 <p style="text-align: center;">MAX. DC CURRENT - mA</p> <p style="text-align: center;">AMBIENT TEMPERATURE (TA)-°C</p> <p style="text-align: center;">MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE</p>

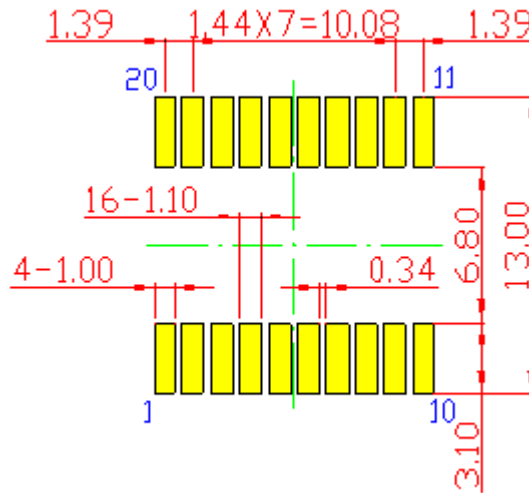
Solder Profile & Footprint

Lead-free Solder Profile:

Pb free reflow soldering Profile



Recommended Pad Layout



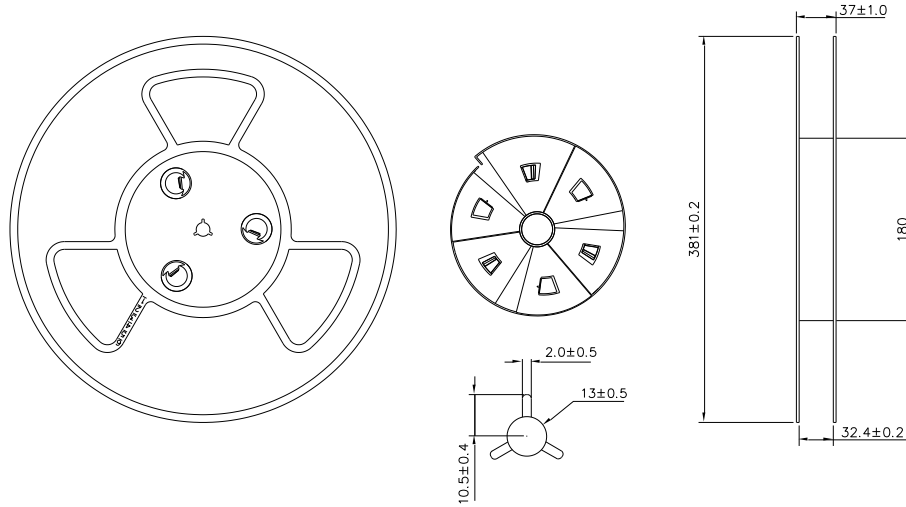
Units: mm

Tolerance: ± 0.25 mm

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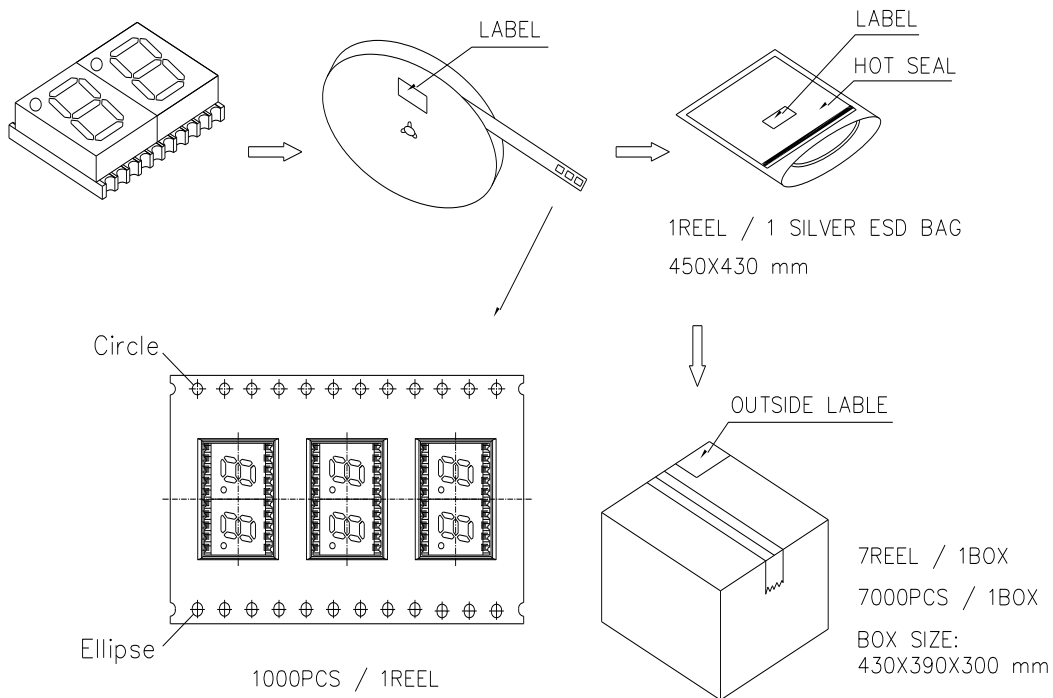
Packing & Labeling

Reel Dimension:



Unit: mm

Packing and Label Specification:



Ordering Information

Product		Orderable Part #		Spec Range	Quantity per Reel
CC	CA	CC	CA		
QBDS201R	QBDS200R	QBDS201R	QBDS200R	I _v =23mcd Typ. @ I _F =20mA, λ _D : 625nm typ.	1000
QBDS201S	QBDS200S	QBDS201S	QBDS200S	I _v =8mcd Typ. @ I _F =20mA, λ _D : 640nm typ.	1000
QBDS201Y	QBDS200Y	QBDS201Y	QBDS200Y	I _v =23mcd Typ. @ I _F =20mA, λ _D : 590nm typ.	1000
QBDS201O	QBDS200O	QBDS201O	QBDS200O	I _v =23mcd Typ. @ I _F =20mA, λ _D : 610nm typ.	1000
QBDS201AG	QBDS200AG	QBDS201AG	QBDS200AG	I _v =9mcd Typ. @ I _F =20mA, λ _D : 571nm typ.	1000
QBDS201IG	QBDS200IG	QBDS201IG	QBDS200IG	I _v =90mcd Typ. @ I _F =20mA, λ _D : 520nm typ.	1000
QBDS201IB	QBDS200IB	QBDS201IB	QBDS200IB	I _v =55mcd Typ. @ I _F =20mA, λ _D : 470nm typ.	1000

Revision History

Description:	Revision #	Revision Date
New Release of QBDS20ZXX	V1.0	04/27/2015
Add more color options / Update mechanical dimension drawing / Fix packing spec error	V1.1	10/27/2015

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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.

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