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QT-Brightek Display Series

0.56" Single Digit Display

Part No.: QBS56XXZ

XX= Color

Z= 1: Common Cathode

Z = 0: Common Anode

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Introduction

Feature:

- 0.56" Single digit seven segments display
- Low power consumption
- Packed in foam
- AllInGaP Technology R/S/Y/AG/O
- InGaN Technology IB/IG
- Z= 1: Common Cathode or 0:Common Anode
- XX= color

Description:

These 0.56" Single-digit, seven-segment displays are made with white segments and a grey surface. The viewing distance is up to seven meters.

Application:

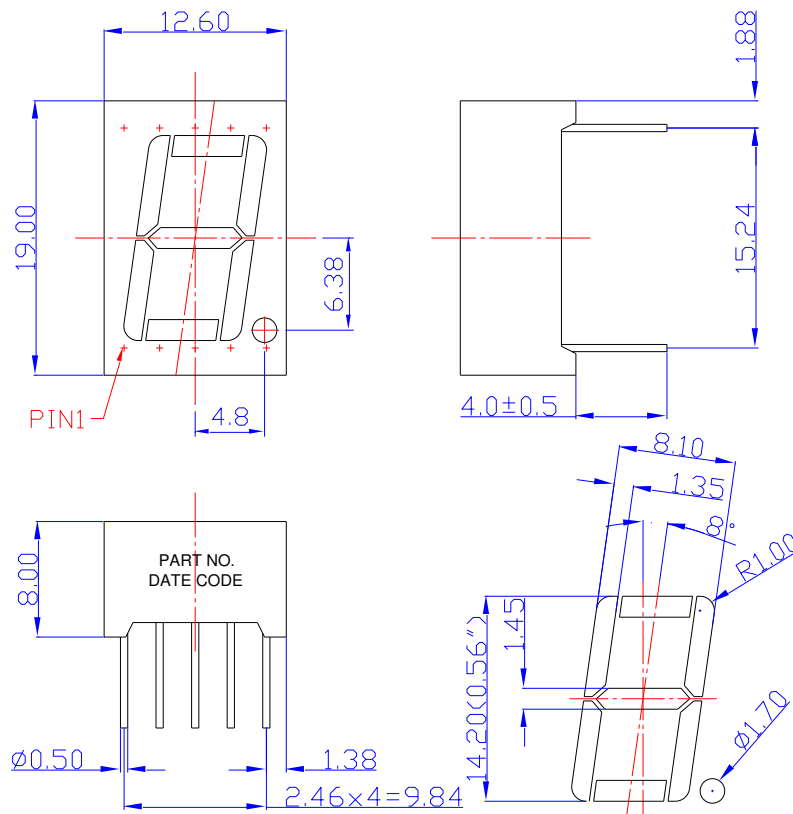
- Instrument panels
- Indoor/Outdoor display board
- Audio equipment

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Dimension:



Units: mm / tolerance = +/-0.25mm

Electrical / Optical Characteristic (Ta=25 °C)

Product		Material	Color	I _F (mA)	V _F (V)		λ _D (nm)			I _V (mcd)
CC	CA				Typ.	Max.	Min.	Typ.	Max.	Typ.
QBS56R1	QBS56R0	AllnGaP	Red	20	2.0	2.6	619	625	629	60
QBS56S1	QBS56S0	AllnGaP	Deep Red	20	2.0	2.6	636	639	647	30
QBS56Y1	QBS56Y0	AllnGaP	Yellow	20	2.0	2.6	585	590	595	60
QBS56O1	QBS56O0	AllnGaP	Orange	20	2.0	2.6	601	606	611	60
QBS56AG1	QBS56AG0	AllnGaP	Yellow Green	20	2.0	2.6	566	571	574	25
QBS56IG1	QBS56IG0	InGaN	True Green	20	3.2	4.0	500	525	535	200
QBS56IB1	QBS56IB0	InGaN	Blue	20	3.2	3.6	460	465	475	60

Absolute Maximum Rating

Material	P _d (mW)	Derating liner from 25 °C per dice (mA/°C)	I _F (mA)	I _{PF} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)
AllnGaP	70	0.33	25	90	5	-25 to +85	-25 to +85
InGaN	120	0.4	30	120	5	-25 to +85	-25 to +85

*Duty 1/10 @ 1KHz

Luminous Intensity I_V for Red @ I_F=20mA

Bin	Min	Max	Unit
N	30	50	mcd
O	50	70	
P	70	90	

Luminous Intensity I_V for Deep Red @ I_F=20mA

Bin	Min	Max	Unit
M	10	30	mcd
N	30	50	
O	50	70	

Luminous Intensity I_V for Yellow @ $I_F=20mA$

Bin	Min.	Max.	Unit
N	30	50	mcd
O	50	70	
P	70	90	

Luminous Intensity I_V for Orange @ $I_F=20mA$

Bin	Min	Max	Unit
N	30	50	mcd
O	50	70	
P	70	90	

Luminous Intensity I_V for Yellow Green @ $I_F=20mA$

Bin	Min.	Max.	Unit
M	10	30	mcd
N	30	50	
O	50	70	

Luminous Intensity I_V for True Green @ $I_F=20mA$

Bin	Min	Max	Unit
R	160	200	mcd
S	200	350	

Luminous Intensity I_V for Blue @ $I_F=20mA$

Bin	Min	Max	Unit
N	30	50	mcd
O	50	70	
P	70	90	

Dominant Wavelength λ_D Red @ $I_F=20mA$

Bin	Min	Max	Unit
1	619	624	nm
2	624	629	

Dominant Wavelength λ_D Deep Red @ $I_F=20mA$

Bin	Min	Max	Unit
1	636	640	nm
2	640	643	
3	643	647	

Dominant Wavelength λ_D for Yellow @ $I_F=20mA$

Bin	Min	Max	Unit
1	585	588	nm
2	588	592	
3	592	595	

Dominant Wavelength λ_D for Orange @ $I_F=20mA$

Bin	Min	Max	Unit
1	601	606	nm
2	606	611	

Dominant Wavelength λ_D for Yellow Green @ $I_F=20mA$

Bin	Min	Max	Unit
1	566	569	nm
2	569	571	
3	571	574	

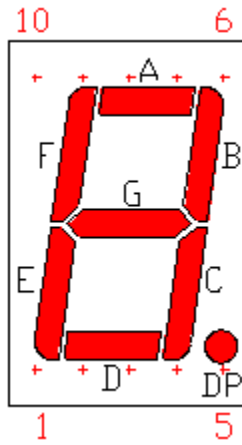
Dominant Wavelength λ_D for True Green @ $I_F=20mA$

Bin	Min	Max	Unit
1	500	525	nm
2	525	530	
3	530	535	

Dominant Wavelength λ_D for Blue @ $I_F=20mA$

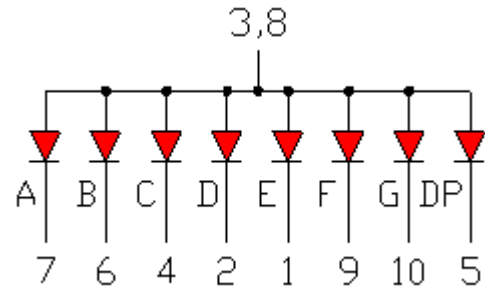
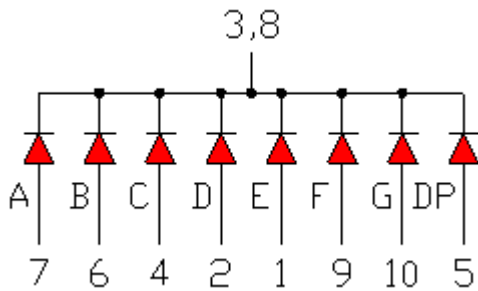
Bin	Min	Max	Unit
1	460	464	nm
2	464	468	
3	468	472	
4	472	475	

Pin Configuration



CC

CA



Characteristic Curves

AllnGaP

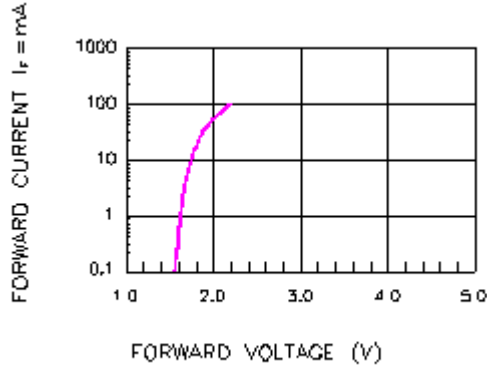


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

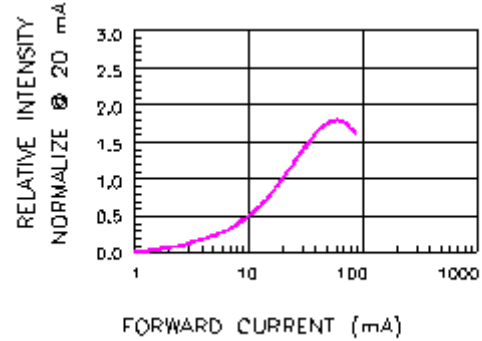


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

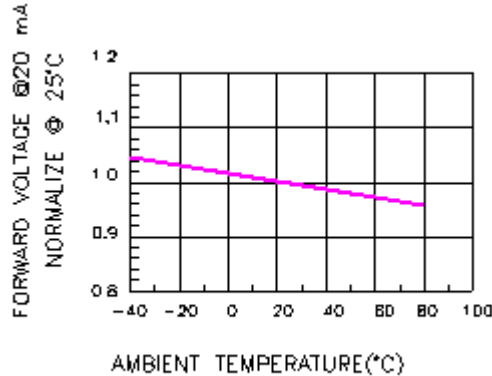


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

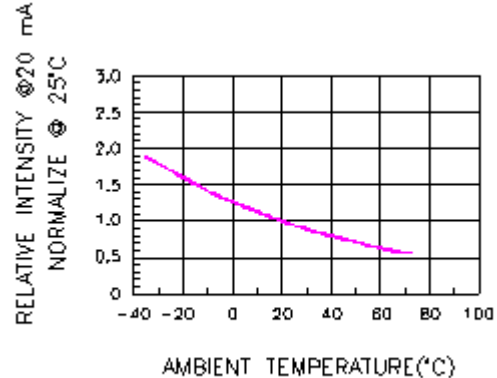
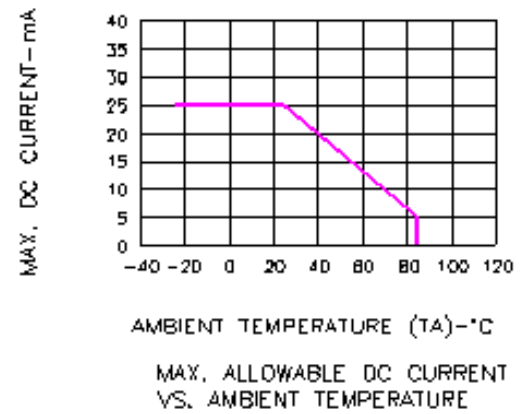
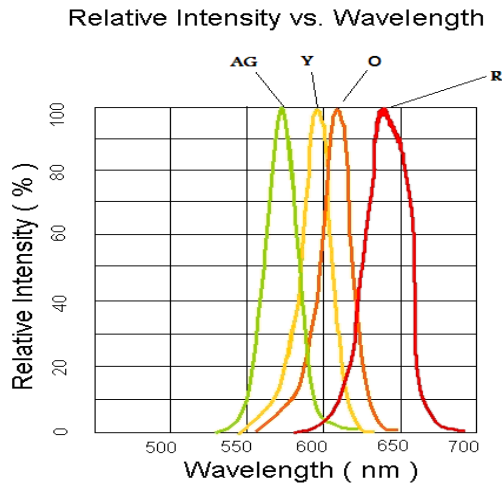


Fig.4 RELATIVE INTENSITY VS TEMPERATURE



InGaN

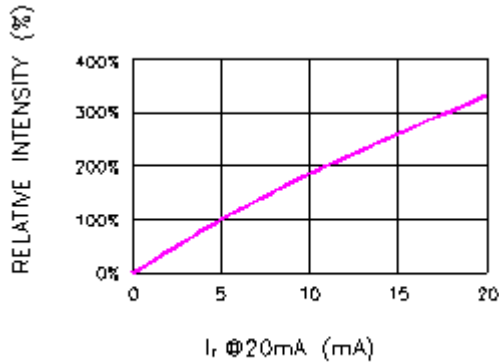


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

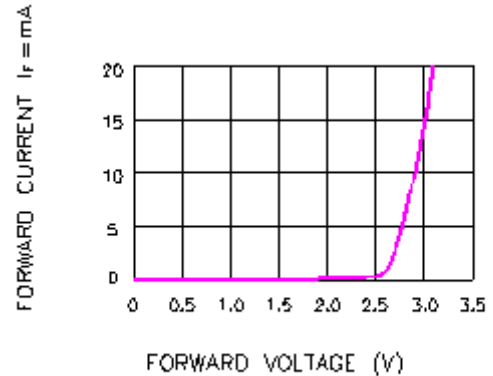


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

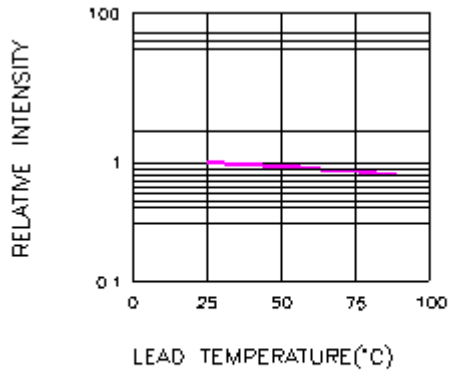


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

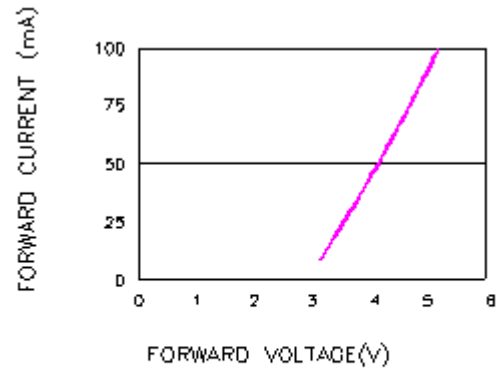


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

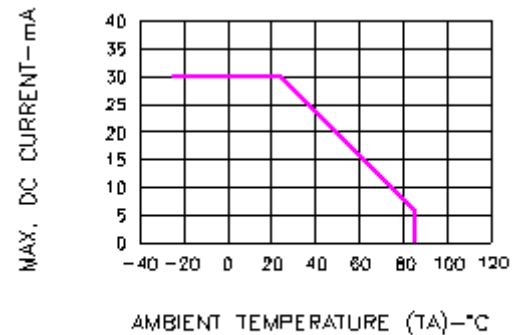
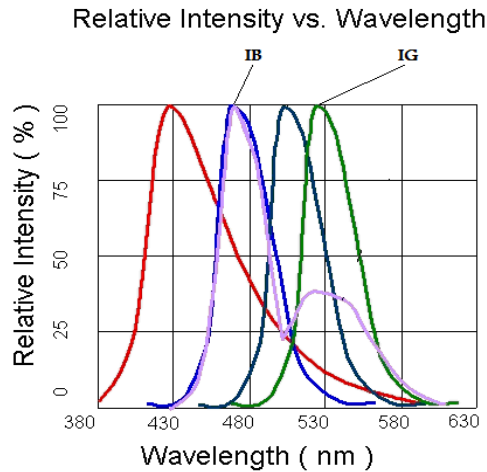
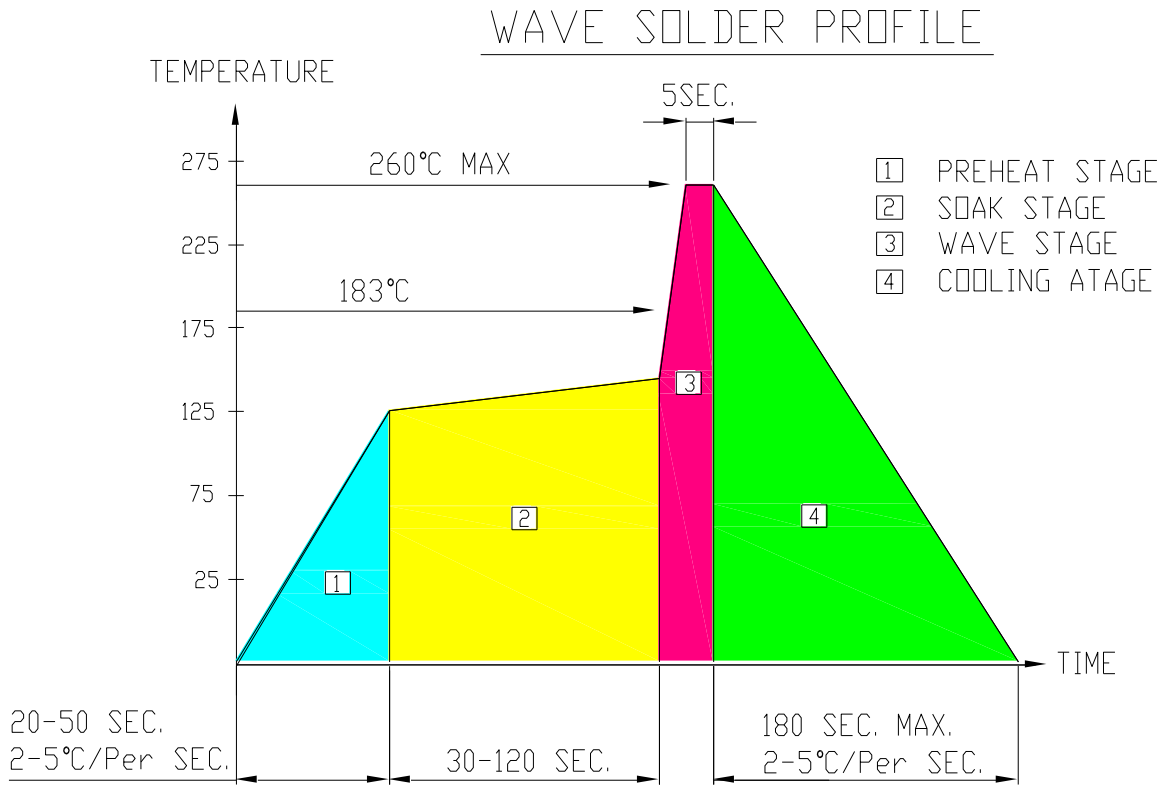


Fig.8 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

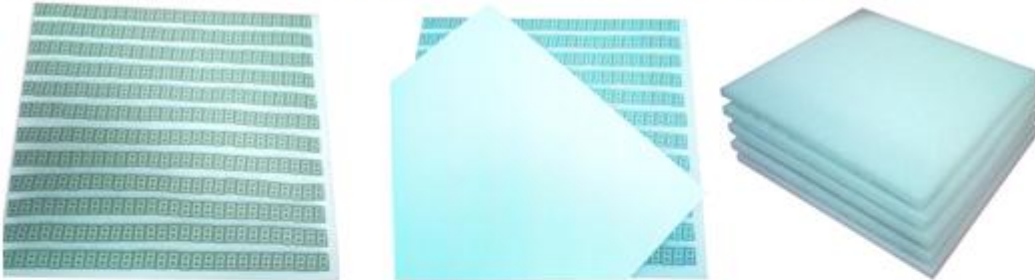
Solder Profile

Recommended Solder Profile



Packing

336 PCS (28 x 12 PCS) / 1 ANTISTATIC E. PE. FOAM SHEET

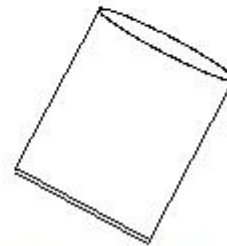


6 ANTISTATIC E. PE. FOAM SHEET / 1 PINK ESD BAG

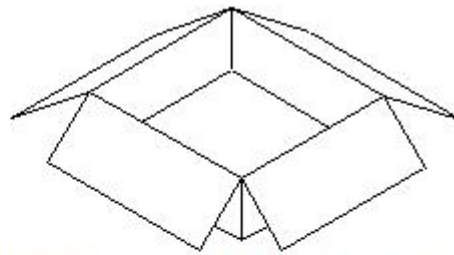


A reference for packing within bag.

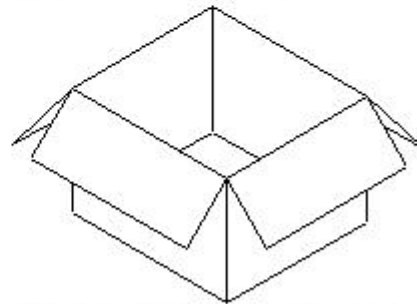
2016 PCS / 1 Inner Carton



ESD BAG SIZE : 650 x 550 mm



INNER BOX SIZE : 394 x 370 x 138 mm



OUTER BOX SIZE : 430 x 390 x 300 mm

Ordering Information

Product		Orderable Part #		Spec Range	Quantity per foam
CC	CA	CC	CA		
QBS56R1	QBS56R0	QBS56R1	QBS56R0	I _v =60mcd typ. @ I _F =20mA, λ _D =625nm typ.	336pcs
QBS56S1	QBS56S0	QBS56S1	QBS56S0	I _v =30mcd typ. @ I _F =20mA, λ _D =639nm typ.	336pcs
QBS56Y1	QBS56Y0	QBS56Y1	QBS56Y0	I _v =60mcd typ. @ I _F =20mA, λ _D =590nm typ.	336pcs
QBS56O1	QBS56O0	QBS56O1	QBS56O0	I _v =60mcd typ. @ I _F =20mA, λ _D =606nm typ.	336pcs
QBS56AG1	QBS56AG0	QBS56AG1	QBS56AG0	I _v =25mcd typ. @ I _F =20mA, λ _D =571nm typ.	336pcs
QBS56IG1	QBS56IG0	QBS56IG1	QBS56IG0	I _v =200mcd typ. @ I _F =20mA, λ _D =525nm typ.	336pcs
QBS56IB1	QBS56IB0	QBS56IB1	QBS56IB0	I _v =60mcd typ. @ I _F =20mA, λ _D =465nm typ.	336pcs

Revision History

Description:	Revision #	Revision Date
New Release of QBS56XXZ_series	V1.0	06/24/2011
Amend Pin Configuration	V1.1	12/19/2011
Add Orange Color spec	V1.2	02/13/2012
Updated binning and packing specs	V1.3	03/06/2012
Update format	V1.4	05/29/2012
Add more color option, update spec	V1.5	04/17/2015

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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.