

**QT-Brightek Corporation**

**1.2" 5x7 Dot Matrix**

**Part No.: GMZ12XX75\_series**

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## Introduction

**Feature:**

- Low power consumption
- Packed in foam
- AllInGaP technology for R/S/Y/O/AG
- InGaN technology for IG/IB
- Z=C: Anode Row, Cathode column or A: Anode Column, Cathode Row
- XX= Color

**Description:**

These 1.2" 5x7 dot matrix displays are made with white dots and a grey surface.

**Application:**

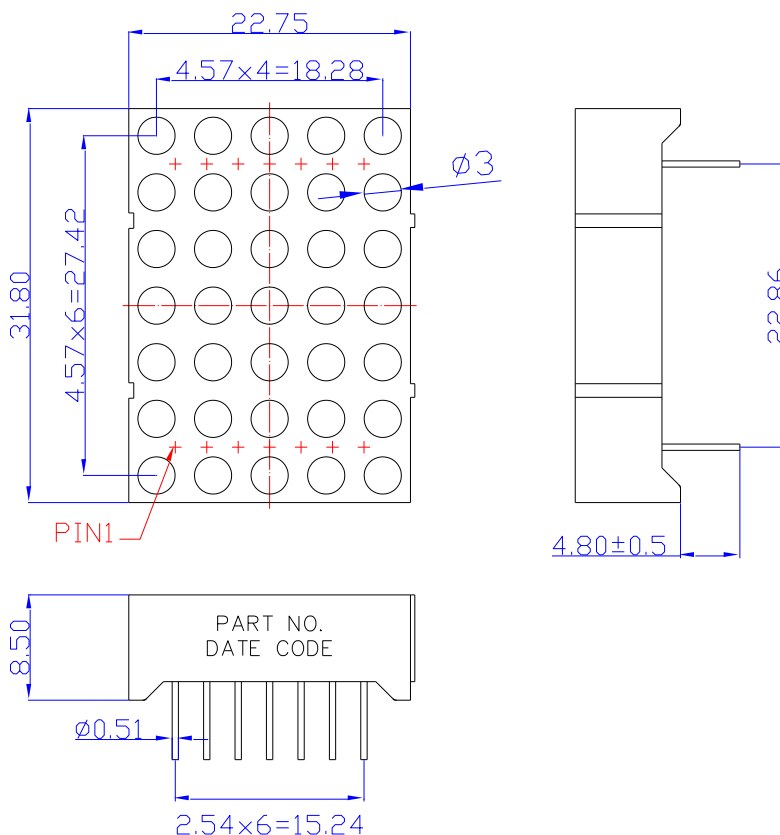
- Instrument panels
- Indoor/Outdoor display board
- Audio equipment

**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)
Anode Row, Cathode Column	Anode Column, Cathode Row				Typ.	Max.	Min.	Typ.	Max.	Typ.
GMC12R75	GMA12R75	AllnGaP	Red	20	2.0	2.6	619	624	629	60
GMC12S75	GMA12S75	AllnGaP	Deep Red	20	2.0	2.6	636	639	647	35
GMC12Y75	GMA12Y75	AllnGaP	Yellow	20	2.0	2.6	585	590	595	130
GMC12O75	GMA12O75	AllnGaP	Orange	20	2.0	2.6	601	606	611	60
GMC12AG75	GMA12AG75	AllnGaP	Yellow Green	20	2.1	2.6	566	571	574	25
GMC12IG75	GMA12IG75	InGaN	True Green	20	3.2	4.0	500	525	535	200
GMC12IB75	GMA12IB75	InGaN	Blue	20	3.0	4.0	460	465	470	160

**Absolute Maximum Rating**

Material	P <sub>d</sub> (mW)	Derating liner from 25 °C per dice (mA/°C)	I <sub>F</sub> (mA)	I <sub>FP</sub> (mA)*	V <sub>R</sub> (V)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)
AllnGaP	70	0.33	25	90	5	-25 to +85	-25 to +85
InGaN	120	0.4	30	100	5	-25 to +85	-25 to +85

\*Duty 1/10 @ 1KHz

**Luminous Intensity I<sub>V</sub> for Red @ I<sub>F</sub>=20mA**

Bin	Min.	Max.	Unit
P	30	50	mcd
Q	50	70	
R	70	90	

**Luminous Intensity I<sub>V</sub> for Deep Red @ I<sub>F</sub>=20mA**

Bin	Min.	Max.	Unit
F	10	30	mcd
G	30	50	
H	50	70	

**Luminous Intensity  $I_V$  for Yellow @  $I_F=20\text{mA}$** 

Bin	Min.	Max.	Unit
J	100	130	mcd
K	130	150	
L	150	170	

**Luminous Intensity  $I_V$  for Orange @  $I_F=20\text{mA}$** 

Bin	Min.	Max.	Unit
G	30	50	mcd
H	50	70	
I	70	90	

**Luminous Intensity  $I_V$  for Yellow Green @  $I_F =20\text{mA}$** 

Bin	Min.	Max.	Unit
F	10	30	mcd
G	30	50	
H	50	70	

**Luminous Intensity  $I_V$  for True Green @  $I_F =20\text{mA}$** 

Bin	Min.	Max.	Unit
M	160	200	mcd
N	200	350	

**Luminous Intensity  $I_V$  for Blue @  $I_F=20\text{mA}$** 

Bin	Min.	Max.	Unit
K	130	150	mcd
L	150	170	
M	170	200	

**Dominant Wavelength  $\lambda_D$  for Red @  $I_F =20\text{mA}$** 

Bin	Min.	Max.	Unit
1	619	623	nm
2	623	629	

**Dominant Wavelength  $\lambda_D$  for Deep Red @  $I_F =20\text{mA}$** 

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

**Dominant Wavelength  $\lambda_D$  for Yellow @  $I_F = 20\text{mA}$** 

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

**Dominant Wavelength  $\lambda_D$  for Orange @  $I_F = 20\text{mA}$** 

Bin	Min.	Max.	Unit
1	601	605	nm
2	605	611	

**Dominant Wavelength  $\lambda_D$  for Yellow Green @  $I_F = 20\text{mA}$** 

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

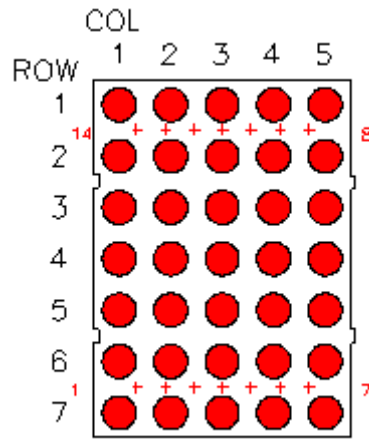
**Dominant Wavelength  $\lambda_D$  for True Green @  $I_F = 20\text{mA}$** 

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

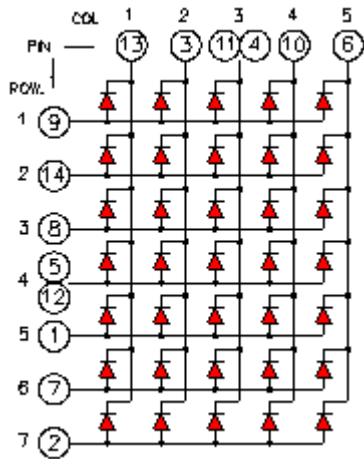
**Dominant Wavelength  $\lambda_D$  for Blue @  $I_F = 20\text{mA}$** 

Bin	Min.	Max.	Unit
1	460	462	nm
2	462	465	
3	465	470	

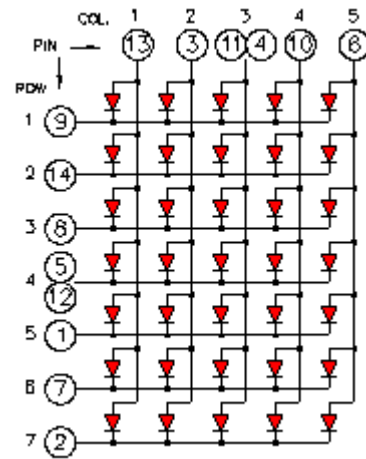
**Pin Configuration**



**Anode Row, Cathode Column**

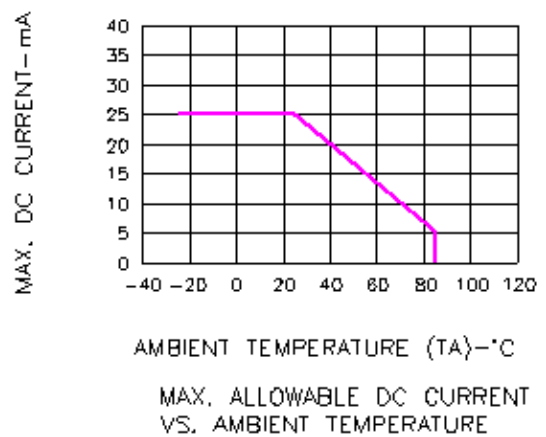
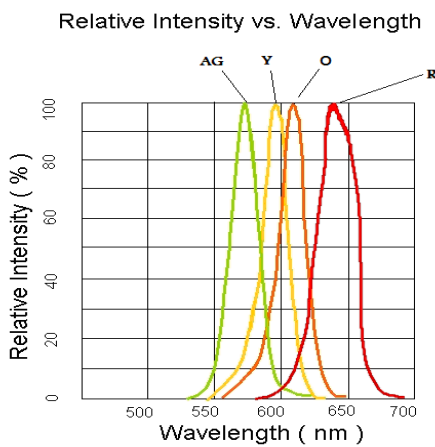
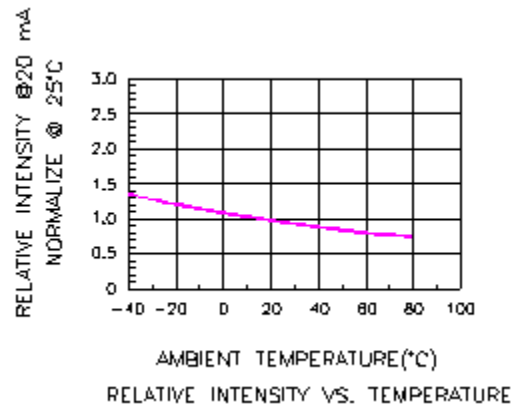
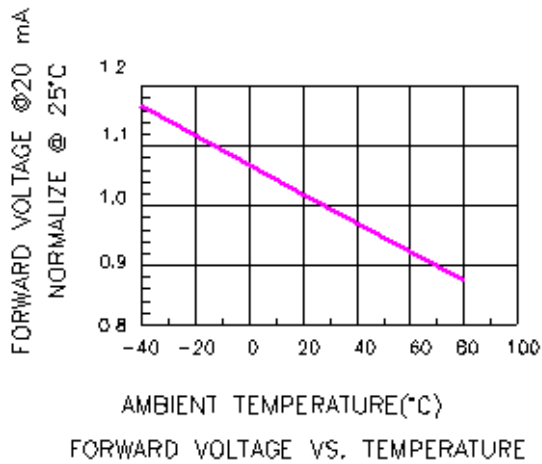
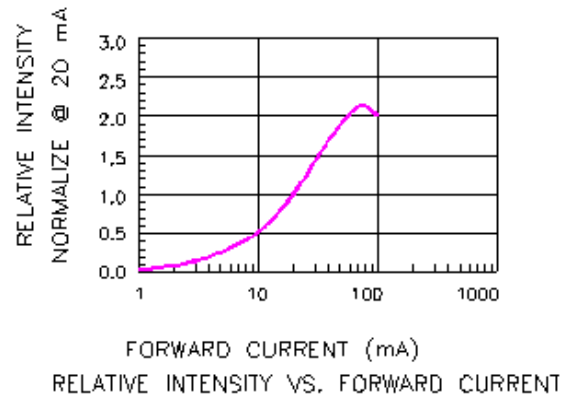
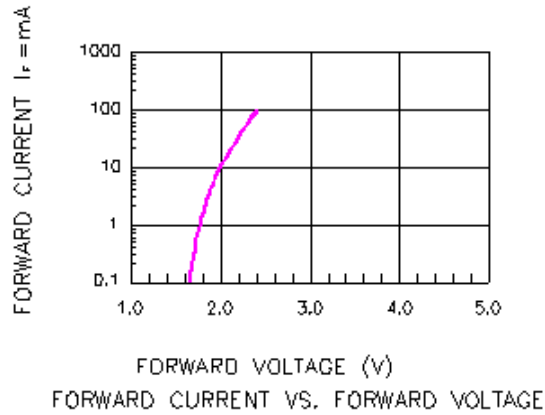


**Anode Column, Cathode Row**



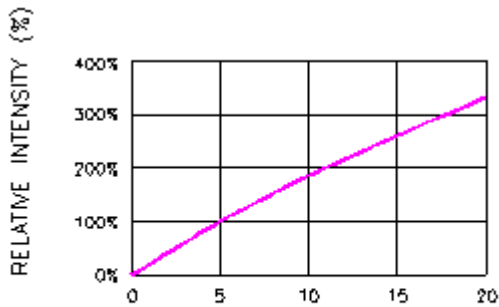
## Characteristic Curves

AllnGaP

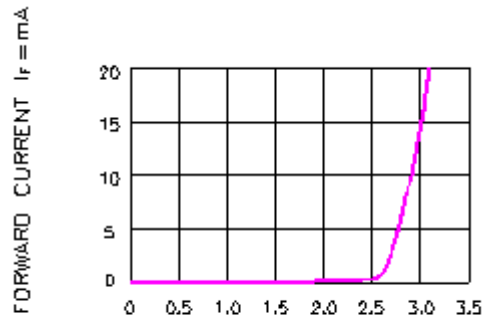




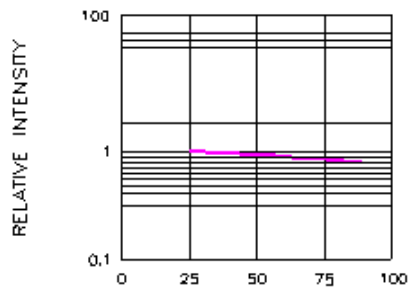
InGaN



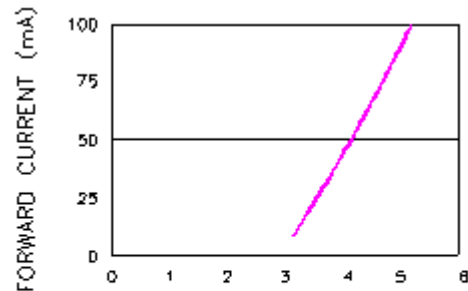
$I_r @ 20mA$  (mA)  
RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT  $I_f = mA$   
FORWARD VOLTAGE (V)  
FORWARD CURRENT VS. FORWARD VOLTAGE

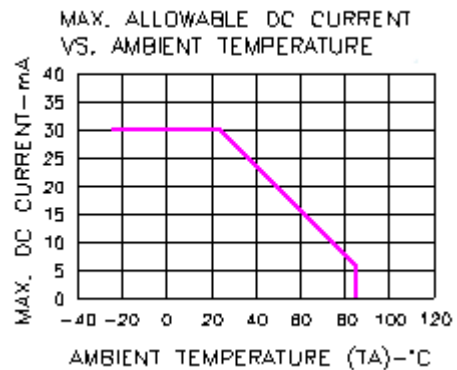
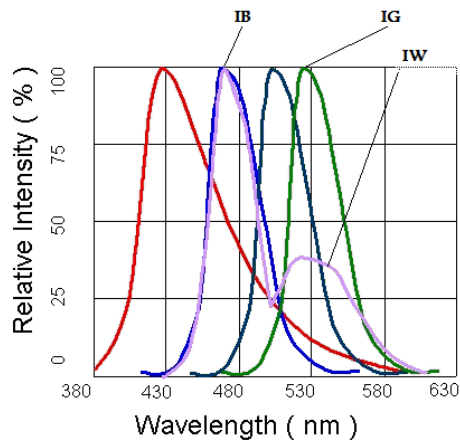


RELATIVE INTENSITY  
LEAD TEMPERATURE(°C)  
RELATIVE INTENSITY VS.LEAD TEMPERATURE  
(PULSED 20 mA; 300us  
PULSE,10ms PERIOD)



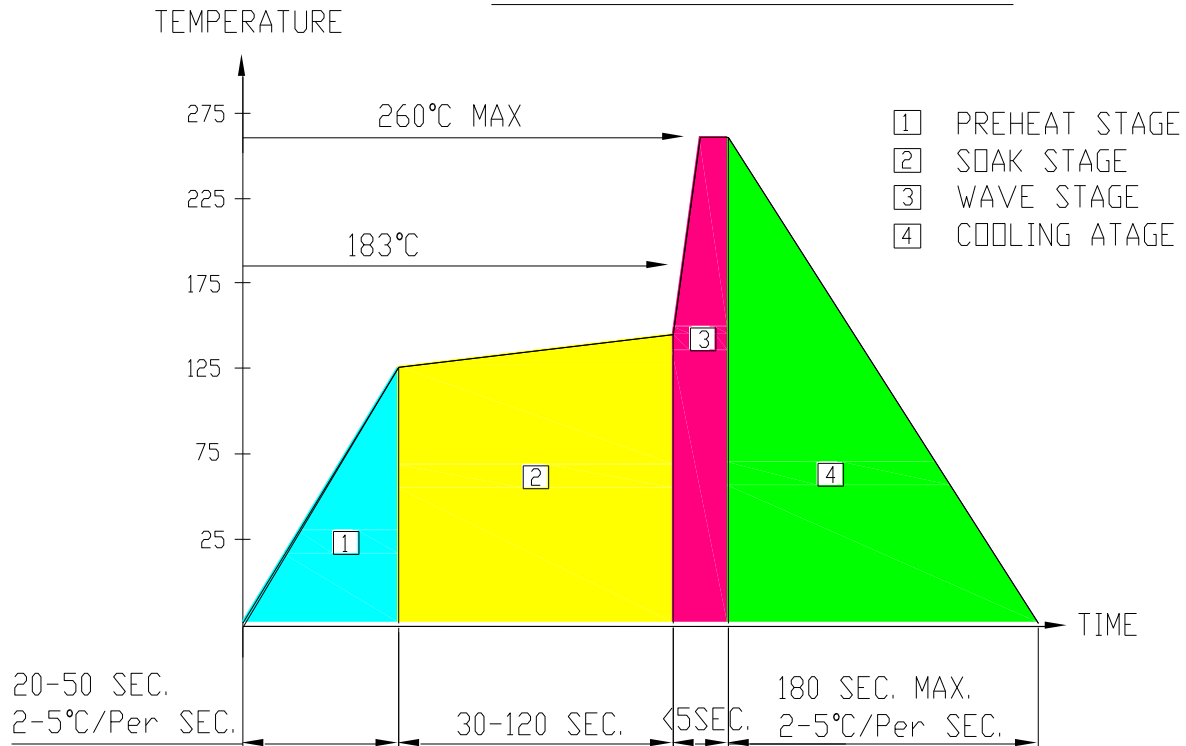
FORWARD CURRENT (mA)  
FORWARD VOLTAGE(V)  
PEAK FORWARD VOLTAGE  
VS.FORWARD(100us TEST PULSE,  
1% DUTY CYCLE)

Relative Intensity vs. Wavelength



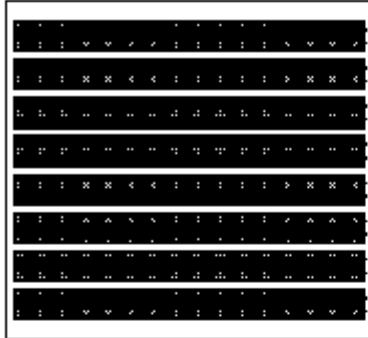
**Solder Profile**

WAVE SOLDER PROFILE



## Package Dimensions

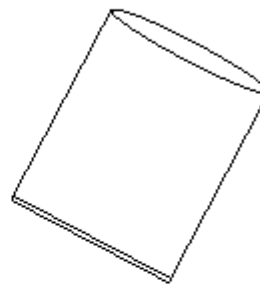
128 PCS / 1 White Polyform ( 16 X 8 PCS )



5 White Polyform / 1 BAG

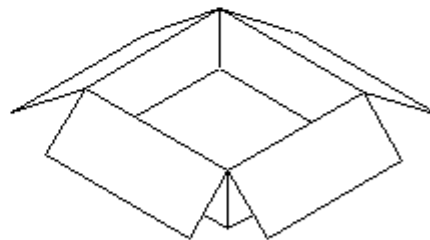


A reference for packing within bag.



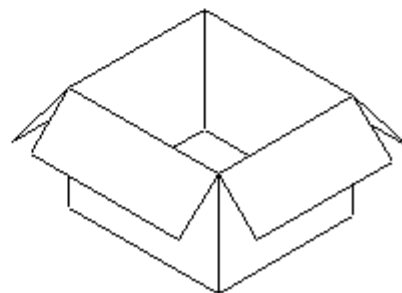
BAG SIZE : 450X410X560

640 PCS / 1 Inner Carton



INNER BOX SIZE : 394 x 370 x 138 mm

1280 PCS / 2 Inner Carton / 1 Outer Carton



OUTER BOX SIZE : 430 x 390 x 300 mm

**Ordering Information**

Product		Orderable Part#		Spec Range	Quantity per foam
Anode Row, Cathode Column	Anode Column, Cathode Row	Anode Row, Cathode Column	Anode Column, Cathode Row		
GMC12R75	GMA12R75	GMC12R75	GMA12R75	I <sub>v</sub> =60mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =619nm to 629nm	128pcs
GMC12S75	GMA12S75	GMC12S75	GMA12S75	I <sub>v</sub> =35mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =636nm to 647nm	128pcs
GMC12Y75	GMA12Y75	GMC12Y75	GMA12Y75	I <sub>v</sub> =130mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =585nm to 595nm	128pcs
GMC12O75	GMA12O75	GMC12O75	GMA12O75	I <sub>v</sub> =60mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =601nm to 611nm	128pcs
GMC12AG75	GMA12AG75	GMC12AG75	GMA12AG75	I <sub>v</sub> =25mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =566nm to 574nm	128pcs
GMC12IG75	GMA12IG75	GMC12IG75	GMA12IG75	I <sub>v</sub> =200mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =500nm to 535nm	128pcs
GMC12IB75	GMA12IB75	GMC12IB75	GMA12IB75	I <sub>v</sub> =160mcd typ. @ I <sub>F</sub> =20mA, λ <sub>d</sub> =460nm to 470nm	128pcs

## Revision History

Description:	Revision #	Revision Date
New Release of GMZ12XX75_series	V1.0	05/26/2011
Add Color Blue/ Green Spec.	V1.1	07/13/2011
Amend dimension	V1.2	07/28/2011
Added binning	V1.3	02/14/2012
Updated binning and packing specs	V1.4	03/08/2012
Update spec and binning	V1.5	06/22/2015

## 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.