

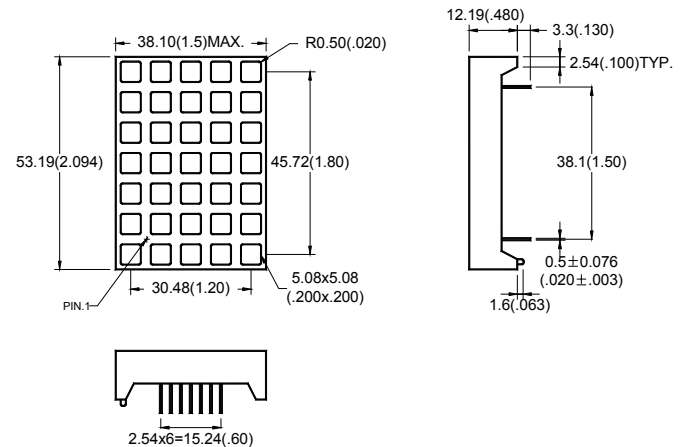
### ● Features :

1. 2.094 inch (53.19mm) matrix height.
2. Square size 6.1×6.1mm.
3. Low power requirement.
4. Excellent characters appearance.
5. Solid state reliability.
6. Multiplex drive , column anode com. and row cathode com.
7. Single color available.
8. Categorized for luminous intensity.
9. Stackable vertically and horizontally.

### ● Description :

1. The BM-21657MD is a 53.19mm (2.094") matrix height 5×7 square matrix display.
2. This product use super red chips, which are made from AlGaAs on GaAs substrate.
3. This product have a black face and white squares.
4. This product doesn't contain restriction substance, comply ROHS standard.

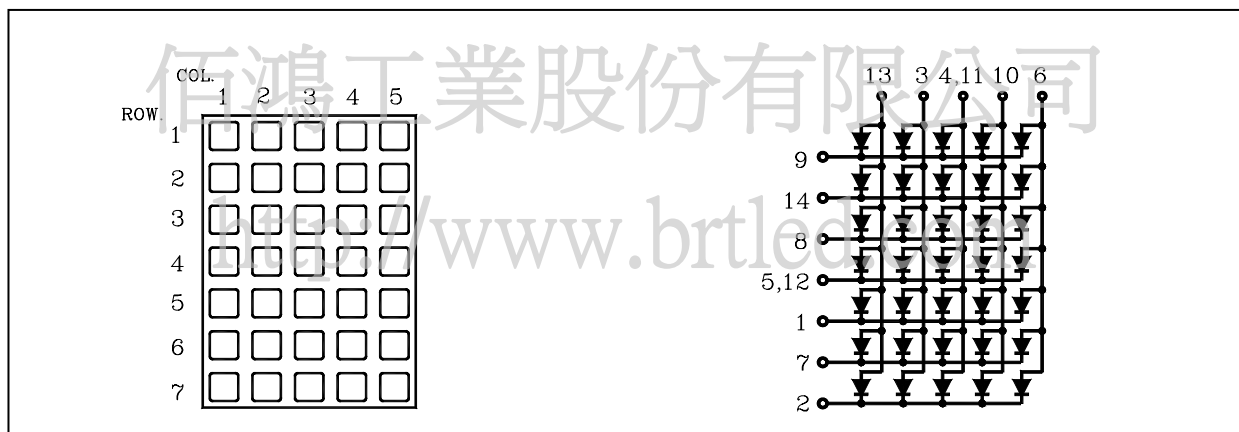
### ● Package Dimensions :



#### Notes:

1. All dimensions are in millimeters(inches).
2. Tolerance is  $\pm 0.25\text{mm}(.01\text{'})$  unless otherwise specified.
3. Specifications are subject to change without notice.

### ● Internal Circuit Diagram :



● **Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Rating	Unit
Power Dissipation Per Square	Pd	80	mW
Forward Current Per Square	I <sub>F</sub>	30	mA
Peak Forward Current Per Square	I <sub>FP</sub> (Duty 1/10, 1KHZ)	150	mA
Reverse Voltage Per Square	V <sub>R</sub>	5	V
Operating Temperature	Topr	-40°C~80°C	-
Storage Temperature	Tstg	-40°C~85°C	-
Soldering Temperature (1/16" From Body)	Tsol	260°C For 5 Seconds	-

● **Electrical And Optical Characteristics(Ta=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Square	V <sub>F</sub>	I <sub>F</sub> =10mA	-	1.7	2.5	V
Luminous Intensity Per Square	I <sub>v</sub>	I <sub>F</sub> =10mA	-	16.0	-	mcd
Reverse Current Per Square	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	660	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	638	-	648	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	20	-	nm

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## ● Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Relative Radiant Intensity VS. Wavelength

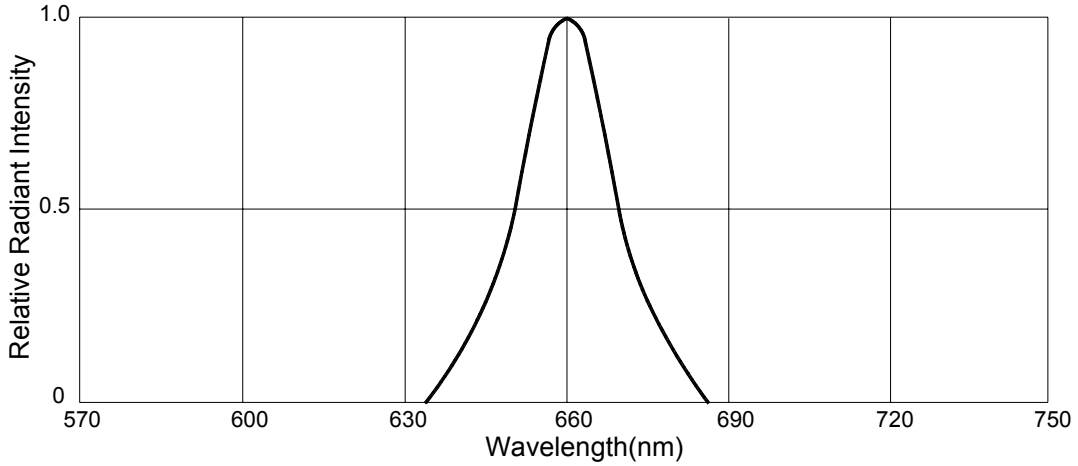


Fig.2 Forward Current VS. Forward Voltage

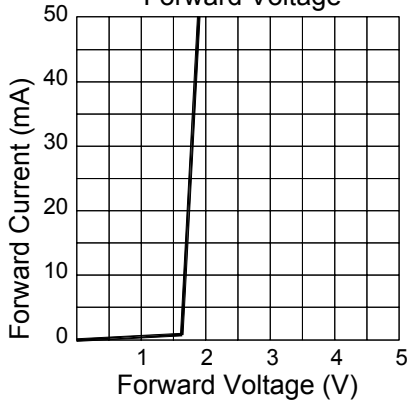


Fig.3 Relative Luminous Intensity VS. Ambient Temperature

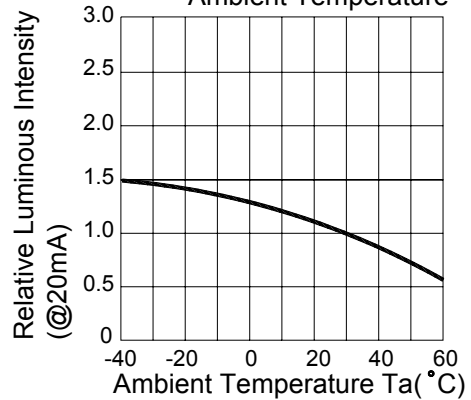


Fig.4 Relative Luminous Intensity VS. Forward Current

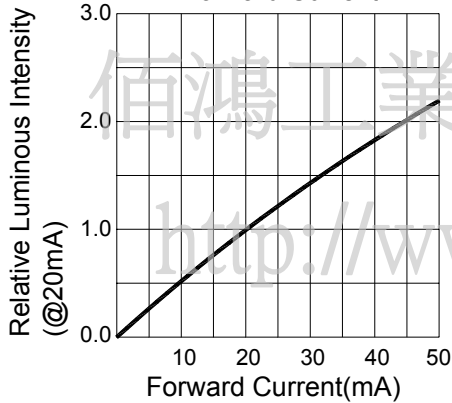


Fig.5 Forward Current Derating Curve VS. Ambient Temperature

