# BRIGHT LED ELECTRONICS CORP.

LED DOT MATRIX DISPLAY SPECIFICATION



●COMMODITY：2.00" High $\phi$5.0

●DEVICE NUMBER：BM-20657MD VERSION：1.0 / 1999/01/07

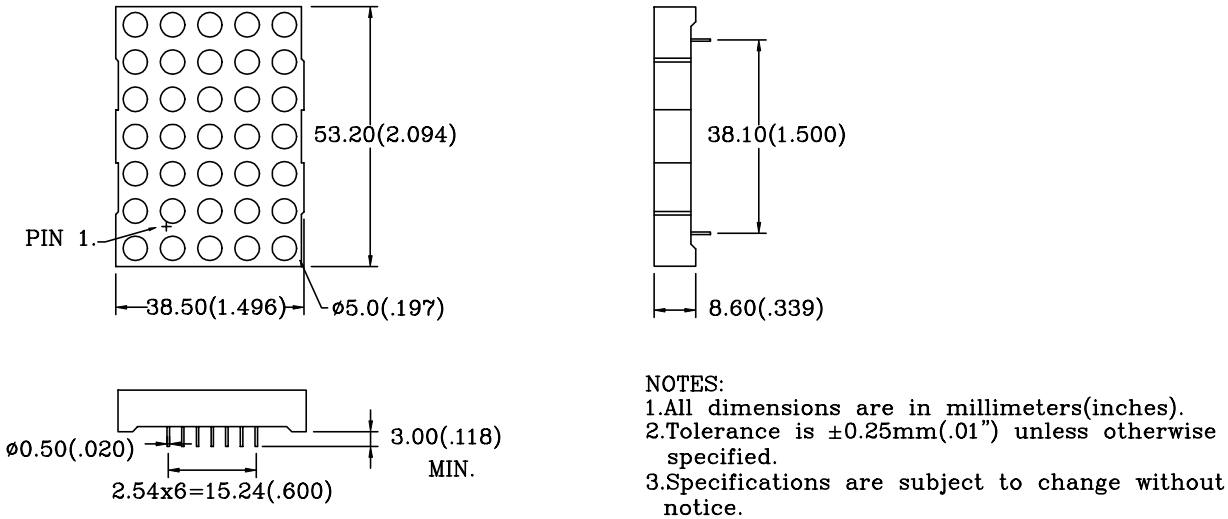
●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25℃)

| Chip | | Absolute Maximun Rating | | | | Electro-optical Data (At 10mA) | | | Surface Color | Segment Color |
|---|---|---|---|---|---|---|---|---|---|---|
| Emitted Color | Peak Wave Length λP(nm) | Δλ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) Typ. | Vf(V) Max. | Iv Typ. (mcd) | | |
| Super Red | 660 | 20 | 60 | 30 | 150 | 1.7 | 2.5 | 15.0 | Black | White |

●ABSOLUTE MAXIMUN RATINGS (Ta=25℃)

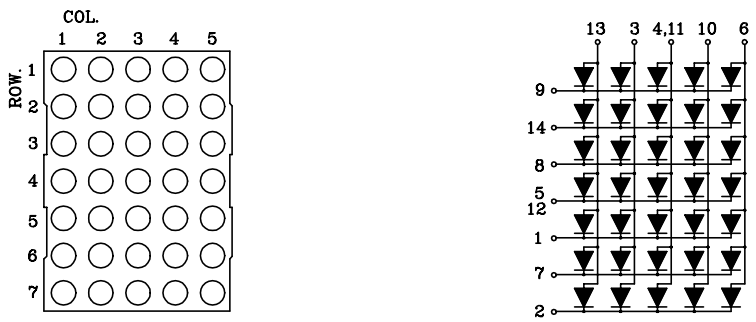
Reverse Voltage ..... 5V
Reverse Current (-Vr=5V) ..... 50μA
Operating Temperature Range ..... -40℃ ～ 85℃
Storage Temperature Range ..... -40℃ ～ 100℃
Lead Soldering Temperature (1/16" From Body)..... 260℃ For 5 Seconds

PACKAGE DIMENSIONS:




NOTES:
1.All dimensions are in millimeters(inches).
2.Tolerance is ±0.25mm(.01") unless otherwise specified.
3.Specifications are subject to change without notice.

PIN FUNCTIONS:




RELEASED: 曾 2000.07.20 志宏

ENGINEER: 余 2000.07.20 芳芳

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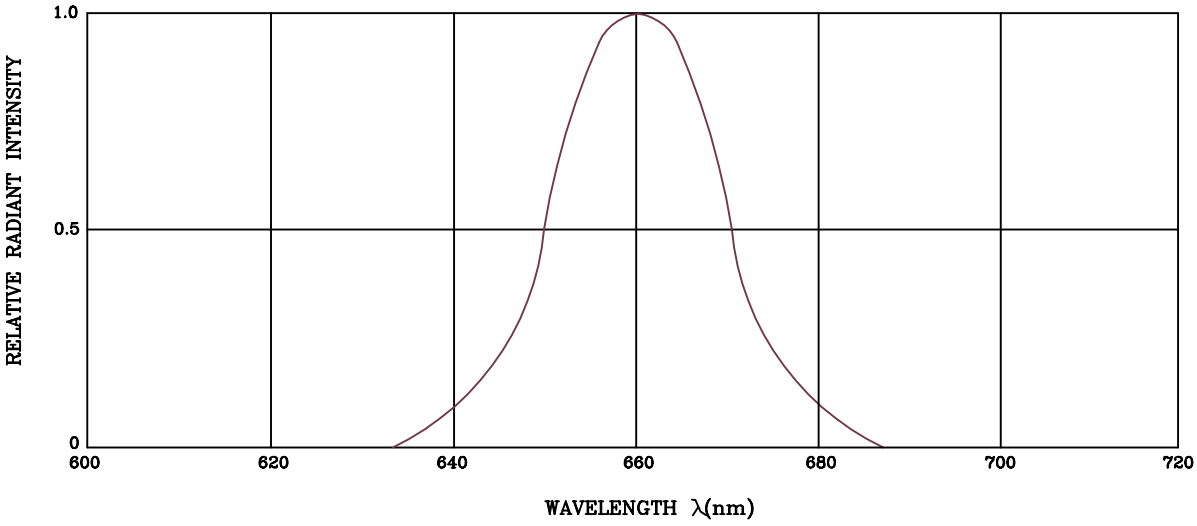
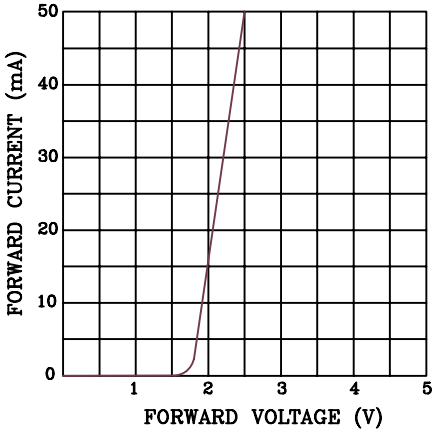
## TYPICAL CHARACTERISTICS

## DEVICE NUMBER: BM-20657MD

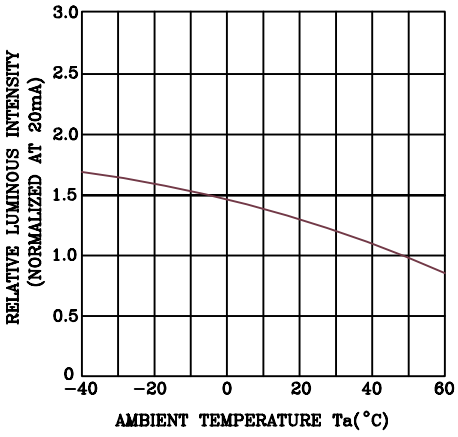
SPECTRAL DISTRIBUTION



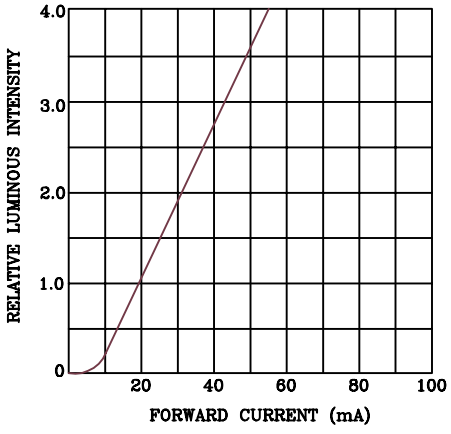

FORWARD CURRENT VS. FORWARD VOLTAGE



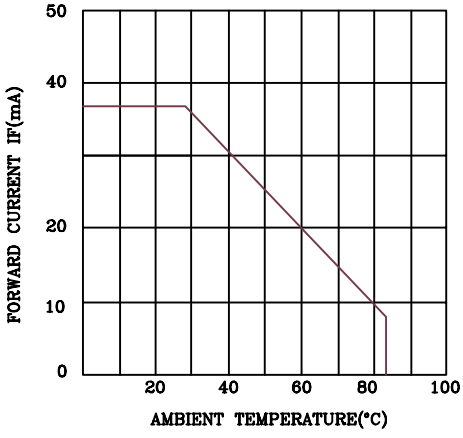

RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE




RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT




FORWARD CURRENT DERATING CURVE



# RELIABILITY TEST

**DEVICE NO.:BM-20657MD**

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|---|---|---|---|---|
| Endurance Test | Operation Life | MIL-STD-750:1026<br>MIL-STD-883:1005<br>JIS C 7021 :B-1 | Connect with a power If=25mA<br>Ta=Under room temperature<br>Test time=1,000hrs(-24hrs,+72hrs) | 0/10 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B<br>JIS C 7021 :B-11 | Ta=65℃±5℃<br>RH=90%-95%<br>Test time=240hrs±2hrs | 0/10 |
| | High Temperature High Humidity Reverse Bias | | Ta=65℃±5℃<br>RH=90%-95%<br>Test time=500hrs(-24hrs,+48hrs) | 0/10 |
| | High Temperature Storage | MIL-STD-883:1008<br>JIS C 7021 :B-10 | High Ta=85℃±5℃<br>Test time=1,000hrs(-24hrs,+72hrs) | 0/10 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low Ta=-35℃±5℃<br>Test time=1,000hrs(-24hrs,+72hrs) | 0/10 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D<br>MIL-STD-750:1051<br>MIL-STD-883:1010<br>JIS C 7021 :A-4 | -35℃ ~25℃ ~85℃ ~25℃<br>30min 5min 30min 5min<br>Test Time=10cycle | 0/10 |
| | Thermal Shock | MIL-STD-202:107D<br>MIL-STD-750:1051<br>MIL-STD-883:1011 | 85℃±5℃ ~-35℃±5℃<br>10min 10min<br>Test Time=10cycle | 0/10 |
| | Solder Resistance | MIL-STD-202:201A<br>MIL-STD-750:2031<br>JIS C 7021 :A-1 | T.sol=260±5℃<br>Dwell Time=10±1sec. | 0/10 |
| | Solderability | MIL-STD-202:208D<br>MIL-STD-750:2026<br>MIL-STD-883:2003<br>JIS C 7021 :A-2 | T.sol=230±5℃<br>Dwell Time=5±1sec. | 0/10 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|---|---|---|---|
| Forward voltage | VF | IF=20mA | Over Ux1.2 |
| Reverse current | IR | VR=5V | Over Ux2 |
| Luminous intensity | IV | IF=20mA | Below Sx0.5 |

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.