

# BRIGHT LED ELECTRONICS CORP.

## LED DISPLAY SPECIFICATION

● COMMODITY : 0.56"(14.20mm) FOUR DIGIT LED DISPLAY

● DEVICE NUMBER : BQ-N 512RD

VERSION : 1.0 / 2000.06.09

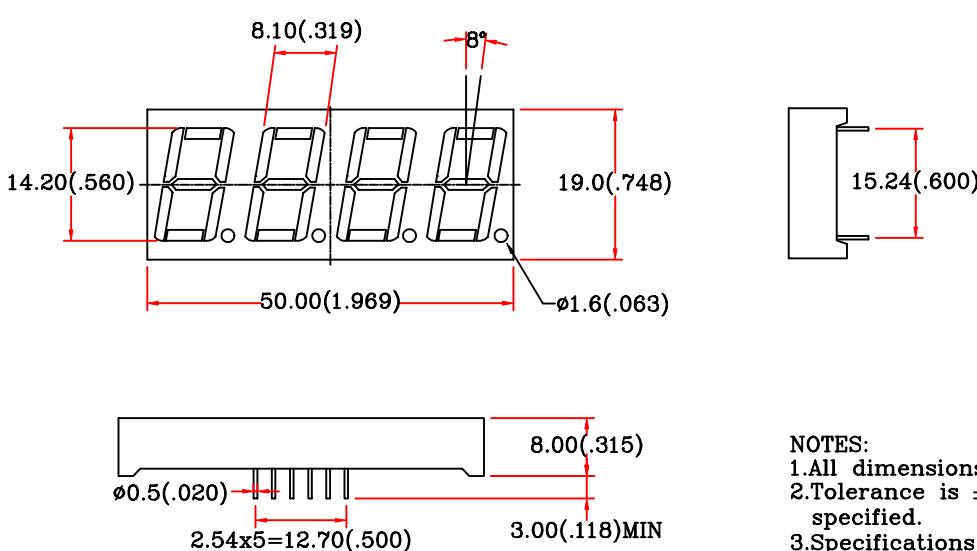
● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

| Chip          |                                  | Absolute Maximum Rating |         |         |             | Electro-optical Data (At 10mA) |               | Surface Color | Segment Color |       |
|---------------|----------------------------------|-------------------------|---------|---------|-------------|--------------------------------|---------------|---------------|---------------|-------|
| Emitted Color | Peak Wave Length $\lambda$ P(nm) | $\Delta \lambda$ (nm)   | Pd (mW) | If (mA) | Peak If(mA) | Vf(V)                          | Iv Typ. (mcd) |               |               |       |
|               |                                  | Typ.                    | Max.    |         |             |                                |               |               |               |       |
| Green         | 568                              | 30                      | 80      | 30      | 150         | 2.2                            | 2.5           | 3.5           | Black         | White |

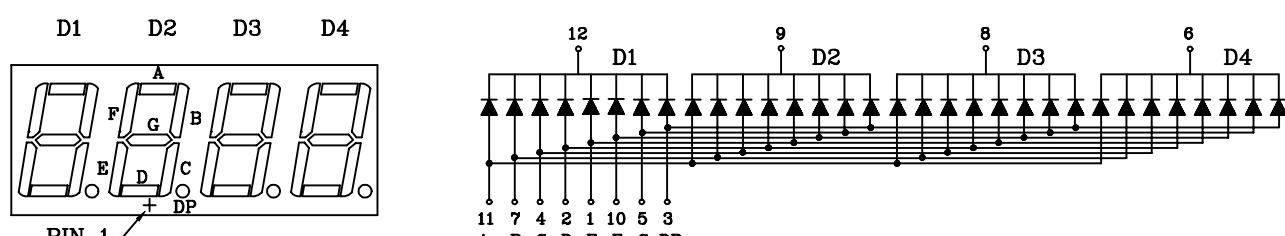
● ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

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

PACKAGE DIMENSIONS:



PIN FUNCTIONS:



RELEASED:

曾志宏  
2002.06.11

ENGINEER:

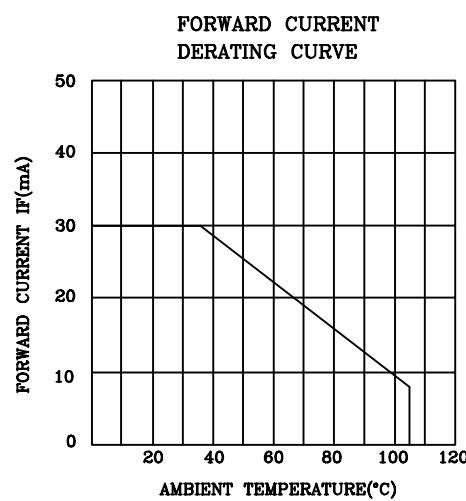
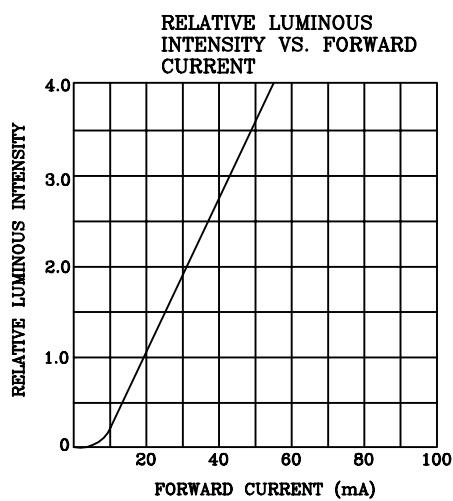
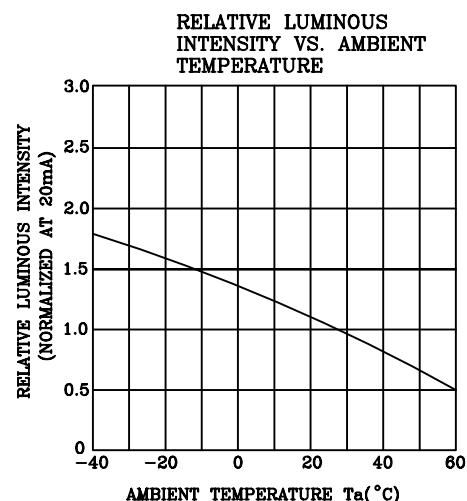
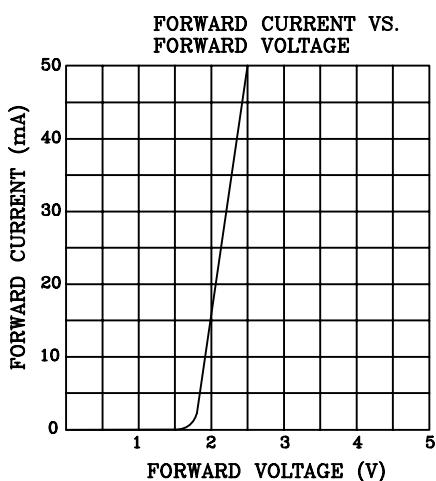
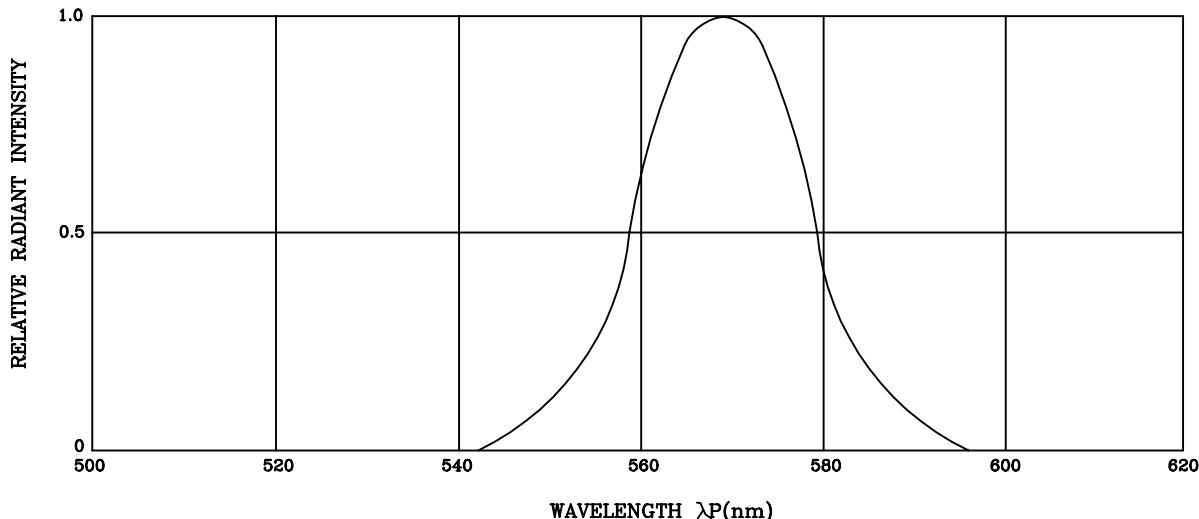
余愛萍  
2002.06.11

# BRIGHT LED ELECTRONICS CORP.

## TYPICAL CHARACTERISTICS

DEVICE NUMBER: BQ-N512RD

SPECTRAL DISTRIBUTION



# RELIABILITY TEST

**DEVICE NO.: BQ-N512RD**

| 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°C±5°C<br>RH=90%-95%<br>Test time=240hrs±2hrs   | 0/10   |
|                    | High Temperature High Humidity Reverse Bias |   | Ta=65°C±5°C<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°C±5°C<br>Test time=1,000hrs(-24hrs,+72hrs)  | 0/10   |
|                    | Low Temperature Storage                     | JIS-C-7021 :B-12  | Low Ta=-35°C±5°C<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°C ~ 25°C ~ 85°C ~ 25°C<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°C±5°C ~ -35°C±5°C<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°C<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°C<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=10mA              | Over Ux1.2                     |
| Reverse current    | IR     | VR=5V                | Over Ux2                       |
| Luminous intensity | IV     | IF=10mA              | 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.