

# High efficiency, two-digit numeric displays

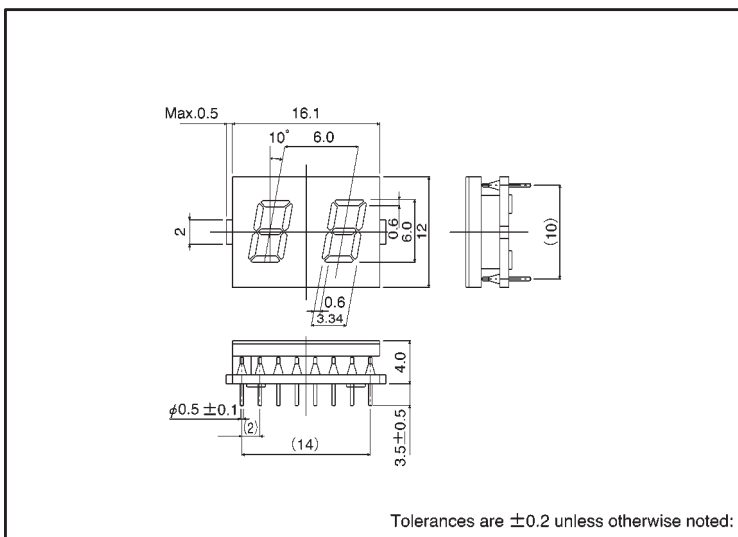
## LB-202 DN Series

The LB-202 DN series were designed to meet the need for multi-digit numeric displays. These two-digit LED numeric displays use GaAsP on GaP for the emitting material (with the exception of green) and have a character height of 6.0 mm.

### ●Features

- 1) Height of character : 6.0 mm.
- 2) Common anode and common cathode configurations are available for each color.
- 3) High-efficiency reflectors are used to achieve a bright, clear display.

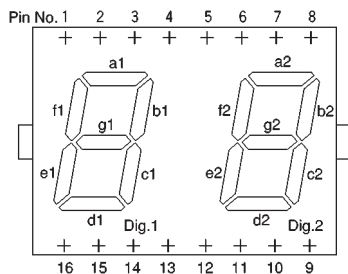
### ●External dimensions (Units: mm)



### ●Selection guide

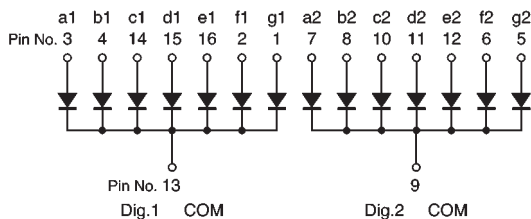
| Emitting color | Red      | Orange   | Yellow   | Green    |
|----------------|----------|----------|----------|----------|
| Common         |          |          |          |          |
| Anode          | LB-202VD | LB-202DD | LB-202YD | LB-202MD |
| Cathode        | LB-202VN | LB-202DN | LB-202YN | LB-202MN |

### ●Pin assignments



| Pin No. | Function     | Pin No. | Function      |
|---------|--------------|---------|---------------|
| 1       | Segment "g1" | 9       | Dig. 2 Common |
| 2       | Segment "f1" | 10      | Segment "c2"  |
| 3       | Segment "a1" | 11      | Segment "d2"  |
| 4       | Segment "b1" | 12      | Segment "e2"  |
| 5       | Segment "g2" | 13      | Dig. 1 Common |
| 6       | Segment "f2" | 14      | Segment "c1"  |
| 7       | Segment "a2" | 15      | Segment "d1"  |
| 8       | Segment "b2" | 16      | Segment "e1"  |

● Internal circuit schematic (example of common cathode)



● Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter             | Symbol             | Red            | Orange        | Yellow        | Green         | Unit             |
|-----------------------|--------------------|----------------|---------------|---------------|---------------|------------------|
|                       |                    | LB-202VD / VN  | LB-202DD / DN | LB-202YD / YN | LB-202MD / MN |                  |
| Power dissipation     | $P_D$              | 784            | 784           | 784           | 784           | mW               |
| Power dissipation     | $P_D / \text{seg}$ | 56             | 56            | 56            | 56            | mW               |
| Forward current       | $I_F$              | 20             | 20            | 20            | 20            | mA               |
| Peak forward current  | $I_{FP}$           | 60*            | 60*           | 60*           | 60*           | mA               |
| Reverse voltage       | $V_R$              | 3              | 3             | 3             | 3             | V                |
| Operating temperature | $T_{opr}$          | $-25 \sim +75$ |               |               |               | $^\circ\text{C}$ |
| Storage temperature   | $T_{stg}$          | $-30 \sim +85$ |               |               |               | $^\circ\text{C}$ |

\* Pulse width 1ms duty 1 / 5

● Electrical and optical characteristics ( $T_a = 25^\circ\text{C}$ )

| Parameter                | Symbol          | Conditions          | Red  |      |      | Orange |      |      | Yellow |      |      | Green |      |      | Unit          |
|--------------------------|-----------------|---------------------|------|------|------|--------|------|------|--------|------|------|-------|------|------|---------------|
|                          |                 |                     | Min. | Typ. | Max. | Min.   | Typ. | Max. | Min.   | Typ. | Max. | Min.  | Typ. | Max. |               |
| Forward voltage          | $V_F$           | $I_F = 10\text{mA}$ | —    | 2.1  | 2.8  | —      | 2.1  | 2.8  | —      | 2.1  | 2.8  | —     | 2.1  | 2.8  | V             |
| Reverse current          | $I_R$           | $V_R = 3\text{V}$   | —    | —    | 100  | —      | —    | 100  | —      | —    | 100  | —     | —    | 100  | $\mu\text{A}$ |
| Peak wavelength          | $\lambda_P$     | $I_F = 10\text{mA}$ | —    | 650  | —    | —      | 610  | —    | —      | 585  | —    | —     | 563  | —    | nm            |
| Spectral line half width | $\Delta\lambda$ | $I_F = 10\text{mA}$ | —    | 40   | —    | —      | 40   | —    | —      | 40   | —    | —     | 40   | —    | nm            |

◎ Not designed for radiation resistance.

● Luminous intensity

| Color  | $\lambda_P$ | Type     | Min. | Typ. | Max. | Unit |
|--------|-------------|----------|------|------|------|------|
| Red    | 650         | LB-202VD | 1.4  | 4.0  | —    | mcd  |
|        |             | LB-202VN |      |      |      |      |
| Orange | 610         | LB-202DD | 2.2  | 6.3  | —    | mcd  |
|        |             | LB-202DN |      |      |      |      |
| Yellow | 585         | LB-202YD | 1.4  | 4.0  | —    | mcd  |
|        |             | LB-202YN |      |      |      |      |
| Green  | 563         | LB-202MD | 3.6  | 10   | —    | mcd  |
|        |             | LB-202MN |      |      |      |      |

Note: Measured at  $I_F = 10\text{mA}$