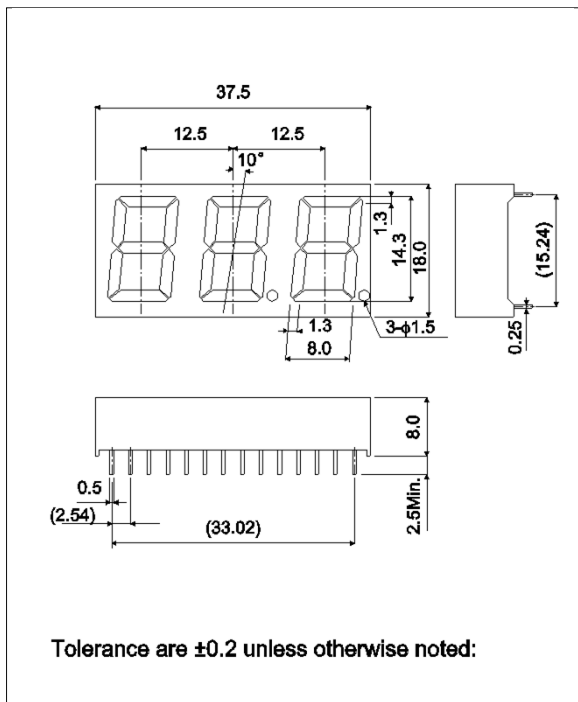


The LB-603 FP series were designed to meet the need for multi-digit numeric displays. These LED numeric displays use GaAsP on GaP(red), GaP(green) for the emitting material and are housed in an epoxy resin package. They are three-digit displays with a character height of 14.3mm.

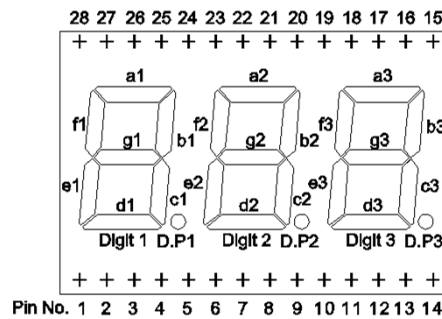
●Features

- 1) Height of character : 14.3mm.
- 2) The package surface is painted black and the segments are colored the display color.
- 3) High efficiency reflectors are used to achieve a bright, clear display.

●Dimensions (Unit : mm)



●Pin assignments

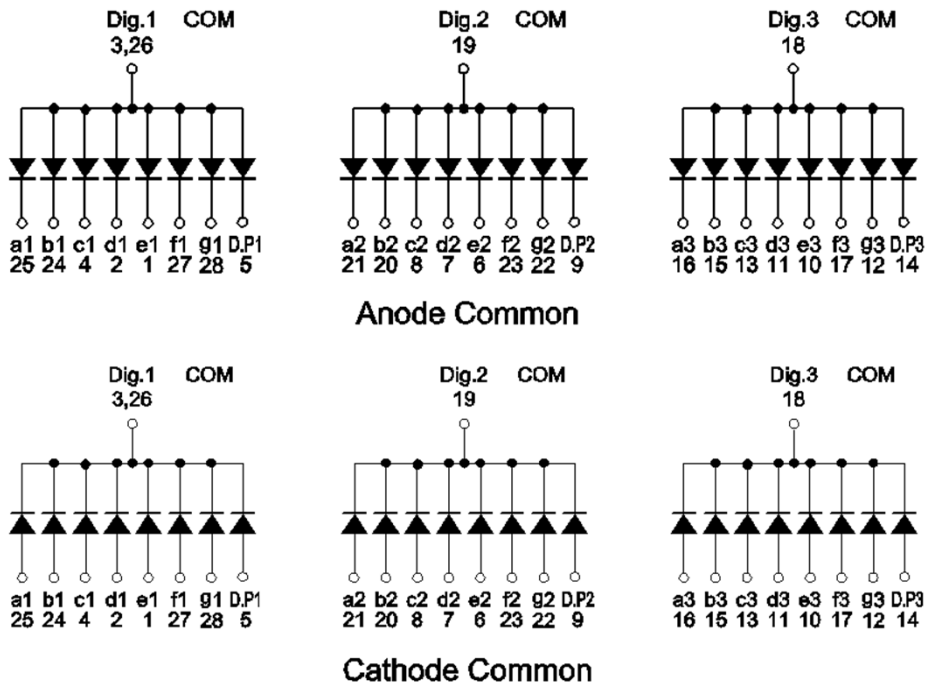


| Pin No. | Function |
|---------|----------------|
| 1 | Segment "e1" |
| 2 | Segment "d1" |
| 3 | Digit 1 Common |
| 4 | Segment "c1" |
| 5 | D.P1 |
| 6 | Segment "e2" |
| 7 | Segment "d2" |
| 8 | Segment "c2" |
| 9 | D.P2 |
| 10 | Segment "e3" |
| 11 | Segment "d3" |
| 12 | Segment "g3" |
| 13 | Segment "c3" |
| 14 | D.P3 |
| 15 | Segment "b3" |
| 16 | Segment "a3" |
| 17 | Segment "f3" |
| 18 | Digit 3 Common |
| 19 | Digit 2 Common |
| 20 | Segment "b2" |
| 21 | Segment "a2" |
| 22 | Segment "g2" |
| 23 | Segment "f2" |
| 24 | Segment "b1" |
| 25 | Segment "a1" |
| 26 | Digit 1 Common |
| 27 | Segment "f1" |
| 28 | Segment "g1" |

●Selection guide

| | Emitting color | |
|---------|----------------|----------|
| | Red | Green |
| Common | | |
| Anode | LB-603VF | LB-603MF |
| Cathode | LB-603VP | LB-603MP |

●Internal circuit schematic



●Absolute maximum ratings (T_a = 25°C)

| Parameter | Symbol | Red | Green | Unit |
|-----------------------|----------------------|---------------|---------------|------|
| | | LB-603VF / VP | LB-603MF / MP | |
| Power dissipation | P _D | 960 | 1440 | mW |
| Power dissipation | P _D / seg | 40 | 60 | mW |
| Forward current | I _F | 15 | 20 | mA |
| Peak forward current | I _{FP} | 60 * | 60 * | mA |
| Reverse voltage | V _R | 5 | 5 | V |
| Operating temperature | T _{opr} | -25 to +75 | | °C |
| Storage temperature | T _{stg} | -30 to +85 | | °C |

* Pulse width 1ms, duty 1 / 5

●Electrical and optical characteristics (T_a = 25°C)

| Parameter | Symbol | Conditions | Red | | | Green | | | Unit |
|-------------------------|----------------|----------------------|------|------|------|-------|------|------|------|
| | | | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| Forward voltage | V _F | I _F =10mA | - | 2.0 | 2.8 | - | 2.1 | 2.8 | V |
| Reverse current | I _R | V _R =3V | - | - | 100 | - | - | 100 | μA |
| Peak wavelength | λ _p | I _F =10mA | - | 650 | - | - | 563 | - | nm |
| Spectral line halfwidth | Δλ | I _F =10mA | - | 40 | - | - | 40 | - | nm |

© Not designed for radiation resistance.

●Luminous intensity

| Parameter | λ_p | Type | Min. | Typ. | Max. | Unit |
|-----------|-------------|----------|------|------|------|------|
| Red | 650 | LB-603VF | 5.6 | 16 | - | mcd |
| | | LB-603VP | | | | |
| Green | 563 | LB-603MF | 9 | 25 | - | mcd |
| | | LB-603MP | | | | |

© Condition $I_F=10\text{mA}$

●Iv classification

| Parameter | Type | Item | Iv classification | Unit |
|-----------|----------------------|-------|-------------------|------|
| Red | LB-603VF LB-603VP | “ L ” | 5.6 to 11 | mcd |
| | | “ M ” | 9.0 to 18 | mcd |
| | | “ N ” | 14 to 28 | mcd |
| | | “ P ” | 22 to 45 | mcd |
| | | “ Q ” | 36 to (71) | mcd |
| Green | LB-603MF LB-603MP | “ M ” | 9.0 to 18 | mcd |
| | | “ N ” | 14 to 28 | mcd |
| | | “ P ” | 22 to 45 | mcd |
| | | “ Q ” | 36 to 71 | mcd |
| | | “ R ” | 56 to (110) | mcd |

© Condition $I_F=10\text{mA}$

●Electrical and optical characteristics curves

Fig.1 Forward Current vs. Forward Voltage

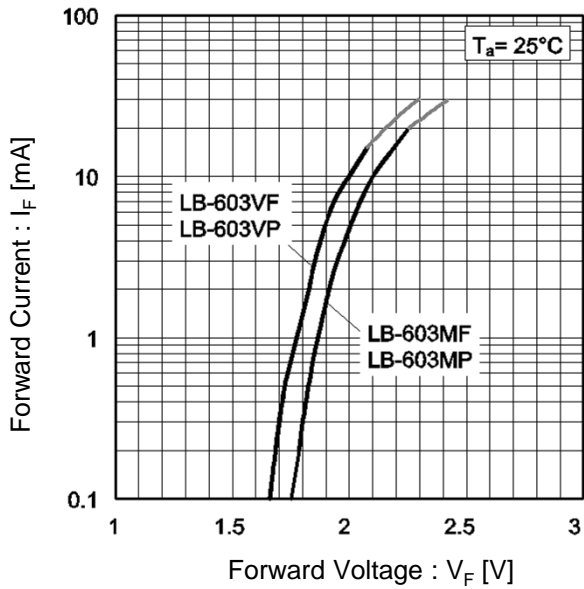


Fig.2 Relative Luminous Intensity vs. Forward Current

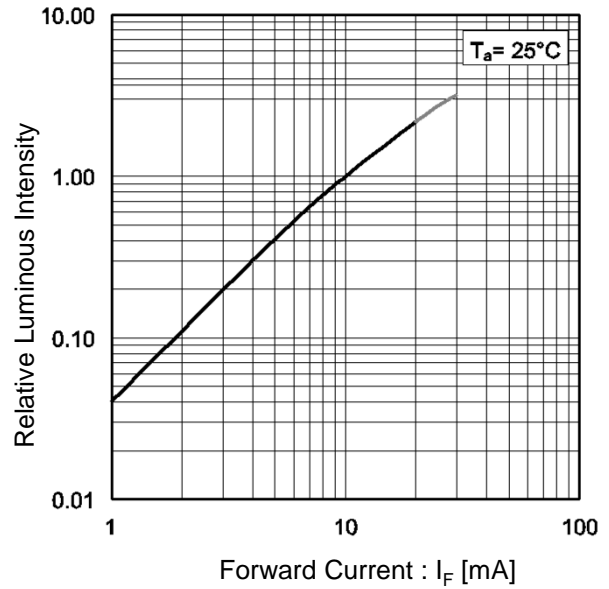


Fig.3 Relative Luminous Intensity vs. Case Temperature

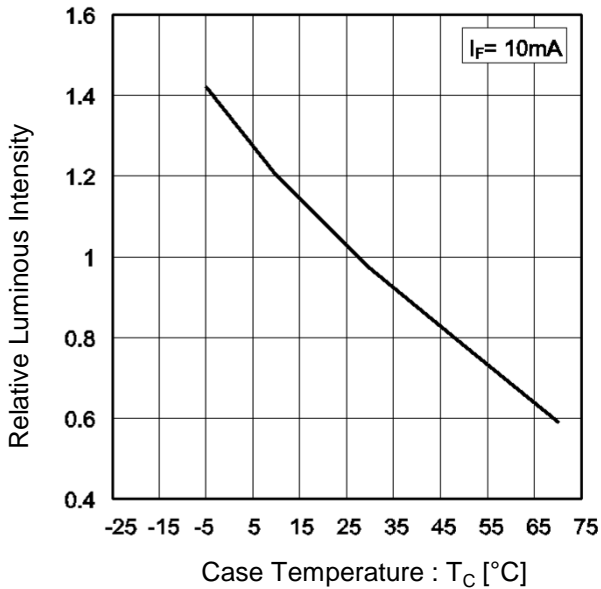
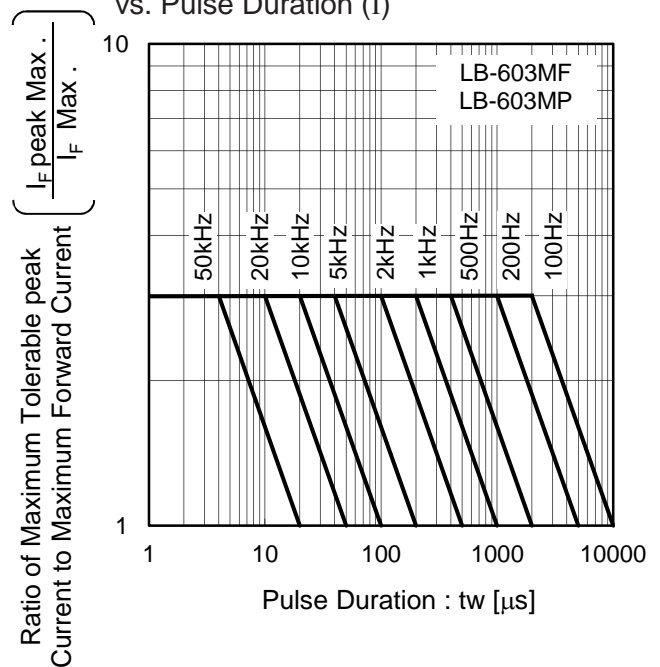


Fig.4 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration (I)



●Electrical and optical characteristics curves

Fig.5 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration (II)

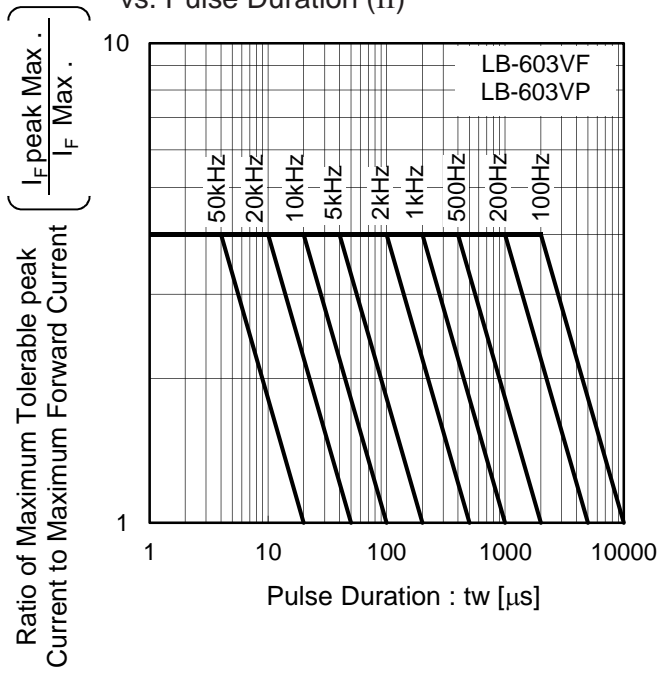
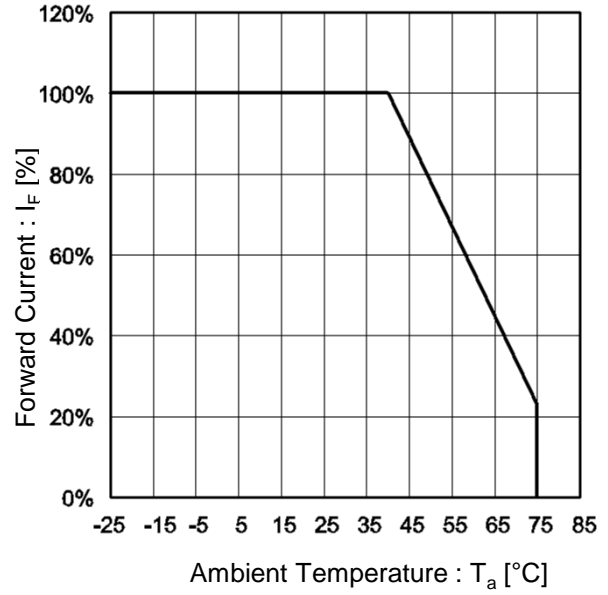


Fig.6 Derating



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