# High efficiency, two-digit numeric displays

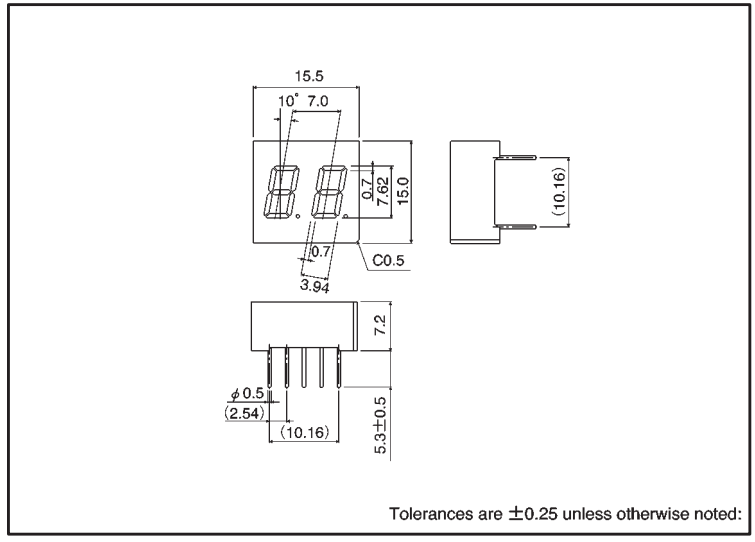
## LB-302 FP / FP1 Series

The LB-302 FP and LB-302 FP1 series were designed to meet the need for multi-digit numeric displays. These two-digit LED numeric displays have a character height of 7.62 mm.

●Features

1) Height of character : 7.62 mm.
2) High efficiency in a compact package.
3) Common anode and common cathode configurations are available for red, orange, yellow and green.
4) Illuminating or non-illuminating dots can be selected.
5) The package surface is painted black and the segments are milky white.

●External dimensions (Units: mm)

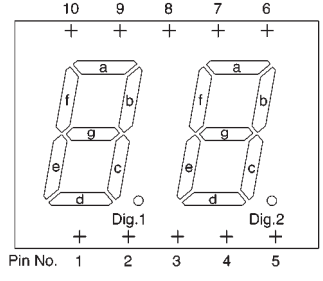



Tolerances are ±0.25 unless otherwise noted:

●Selection guide

| Common \ Emitting color | Red | Orange | Yellow | Green |
|---|---|---|---|---|
| Anode | LB-302VF<br>LB-302VF1 | LB-302DF<br>LB-302DF1 | LB-302YF<br>LB-302YF1 | LB-202MF<br>LB-202MF1 |
| Cathode | LB-302VP<br>LB-302VP1 | LB-302DP<br>LB-302DP1 | LB-302YP<br>LB-302YP1 | LB-202MP<br>LB-202MP1 |

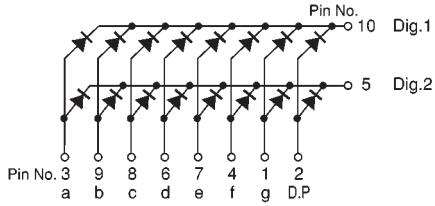
●Pin assignments




| Pin No. | Function |
|---|---|
| 1 | Segment “g” |
| 2 | D.P |
| 3 | Segment “a” |
| 4 | Segment “f” |
| 5 | Digit 2 Common |
| 6 | Segment “d” |
| 7 | Segment “e” |
| 8 | Segment “c” |
| 9 | Segment “b” |
| 10 | Digit 1 Common |

Dots do not illuminate in LB-302FP1 series (no pin)

●Internal circuit schematic (example of common cathode)




●Absolute maximum ratings (Ta = 25°C)

| Parameter | Symbol | Red | Orange | Yellow | Green | Unit |
|---|---|---|---|---|---|---|
| | | LB-302VF / VP / VF1 / VP1 | LB-302DF / DP / DF1 / DP1 | LB-302YF / YP / YF1 / YP1 | LB-302MF / MP / MF1 / MP1 | |
| Power dissipation | $P_D$ | 800(700) | 800(700) | 800(700) | 960(840) | mW |
| Power dissipation | $P_D$ / seg | 50 | 50 | 50 | 60 | mW |
| Forward current | $I_F$ | 15 | 15 | 15 | 20 | mA |
| Peak forward current | $I_{FP}$ | 60* | 60* | 60* | 60* | mA |
| Reverse voltage | $V_R$ | 5 | 5 | 5 | 5 | V |
| Operating temperature | Topr | −25～+75 | | | | ℃ |
| Storage temperature | Tstg | −30～+85 | | | | ℃ |

* Pulse width 1ms duty 1 / 5
( ) is F1 / P1 value

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

| Parameter | Symbol | Conditions | Red | | | Orange | | | Yellow | | | Green | | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| Forward voltage | $V_F$ | $I_F$=10mA | — | 2.0 | 3.0 | — | 2.0 | 3.0 | — | 2.1 | 3.0 | — | 2.1 | 3.0 | V |
| Reverse current | $I_R$ | $V_R$=5V | — | — | 100 | — | — | 100 | — | — | 100 | — | — | 100 | μA |
| Peak wavelength | $\lambda_P$ | $I_F$=10mA | — | 650 | — | — | 610 | — | — | 585 | — | — | 563 | — | nm |
| Spectral line half width | $\Delta\lambda$ | $I_F$=10mA | — | 40 | — | — | 40 | — | — | 40 | — | — | 40 | — | nm |

◎Not designed for radiation resistance.

●Luminous intensity

| Color | $\lambda_P$ | Type | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Red | 650 | LB-302VF / VP | 2.2 | 6.3 | — | mcd |
| | | LB-302VF1 / VP1 | | | | |
| Orange | 610 | LB-302DF / DP | 2.2 | 6.3 | — | mcd |
| | | LB-302DF1 / DP1 | | | | |
| Yellow | 585 | LB-302YF / YP | 2.2 | 6.3 | — | mcd |
| | | LB-302YF1 / YP1 | | | | |
| Green | 563 | LB-302MF / MP | 2.2 | 6.3 | — | mcd |
| | | LB-302MF1 / MP1 | | | | |

Note: Measured at $I_F$ = 10mA