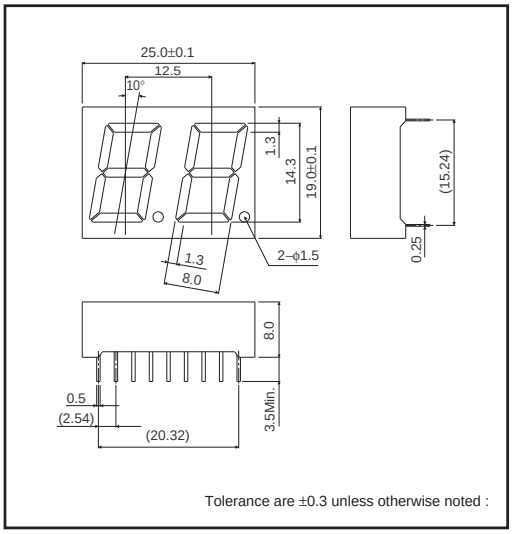
# Double Digits LED Numeric Display

## LBP-602 A / K2 Series

LBP-602 A / K2 series are the numberical display units featuring ROHM's in-house 4-element(AlGaInP) high-brightness LED dies.Their luminous intensity is top class in the industry while degradation is considerably slow, which helps to keep illumination vividness almost unchanged and the image of sets high over a long period of time.

●**Dimensions** (Unit : mm)



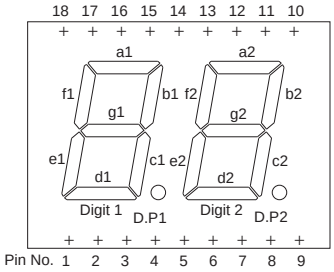

●**Features**

1) 14.3mm for letter height, two-lines LED numerical displays.
2) About 10 times more luminous intensity than the conventional products by use of 4-element LED dies. (in case of orange color)
3) The same luminous intensity as the conventional products at their 1/10 of current, which contributes lots to energy-saving of sets.
4)Light-leakage from segments probable with the small display packages is very rare.
5)Both anode common type and cathode common type are available in lineup for each color.

●**Selection guide**

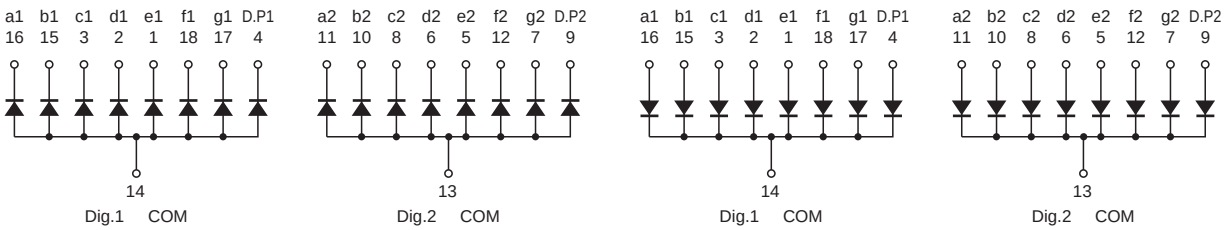
| Common \ Emitting color | Red | Orange | Yellow | Green |
|---|---|---|---|---|
| Anode | LBP-602VA2 | LBP-602DA2 | LBP-602YA2 | LBP-602MA2 |
| Cathode | LBP-602VK2 | LBP-602DK2 | LBP-602YK2 | LBP-602MK2 |

●**Pin assignments**




| Pin No. | Function | Pin No. | Function |
|---|---|---|---|
| 1 | Segment "e1" | 10 | Segment "b2" |
| 2 | Segment "d1" | 11 | Segment "a2" |
| 3 | Segment "c1" | 12 | Segment "f2" |
| 4 | D.P1 | 13 | Digit 2 Common |
| 5 | Segment "e2" | 14 | Digit 1 Common |
| 6 | Segment "d2" | 15 | Segment "b1" |
| 7 | Segment "g2" | 16 | Segment "a1" |
| 8 | Segment "c2" | 17 | Segment "g1" |
| 9 | D.P2 | 18 | Segment "f1" |

●**Inner circuit (anode common)** **(cathode common)**



## ●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Red | Orange | Yellow | Green | Unit |
|---|---|---|---|---|---|---|
| | | LBP-602VA2 / VK2 | LBP-602DA2 /DK2 | LB-602YA2 / YK2 | LBP-602MA2 / MK2 | |
| Power dissipation | $P_D$ | 896 | 896 | 896 | 896 | mW |
| Power dissipation | $P_D$ / 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 | $V_R$ | 5 | 5 | 5 | 5 | V |
| Operating temperature | Topr | –25 to +75 | | | | ˚C |
| Storage temperature | Tstg | –30 to +85 | | | | ˚C |

* Pulse width 1ms Duty 1 / 5

## ●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Conditions | Red | | Orange | | Yellow | | Green | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | |
| Forward voltage | $V_F$ | $I_F$=10mA | 1.9 | 2.8 | 1.9 | 2.8 | 1.9 | 2.8 | 1.9 | 2.8 | V |
| Reverse current | $I_R$ | $V_R$=3V | – | 100 | – | 100 | – | 100 | – | 100 | μA |
| Peak wavelength | $\lambda_P$ | $I_F$=10mA | 650 | – | 605 * | – | 590 | – | 572 | – | nm |
| Spectral line half width | $\Delta\lambda$ | $I_F$=10mA | 20 | – | 20 * | – | 20 | – | 20 | – | nm |

◎ The products are not radiations resistant.

## ●Luminous intensity

| Color | $\lambda_P$ (nm) | Type | Min. | Typ. | Unit |
|---|---|---|---|---|---|
| Red | 650 | LBP-602VA2 | 14 | 36 | mcd |
| | | LBP-602VK2 | | | |
| Orange | 605 | LBP-602DA2 | 56 | 250 | mcd |
| | | LBP-602DK2 | | | |
| Yellow | 590 | LBP-602YA2 | 90 | 450 | mcd |
| | | LBP-602YK2 | | | |
| Green | 572 | LBP-602MA2 | 36 | 100 | mcd |
| | | LBP-602MK2 | | | |

◎ A condition of measurement is $I_F$=10mA.

## ●Electrical and optical characteristic curve

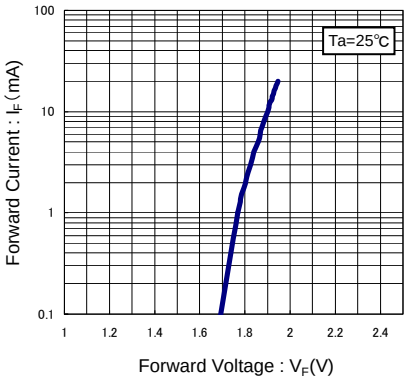



Fig.1 Forward Current - Forward Voltage

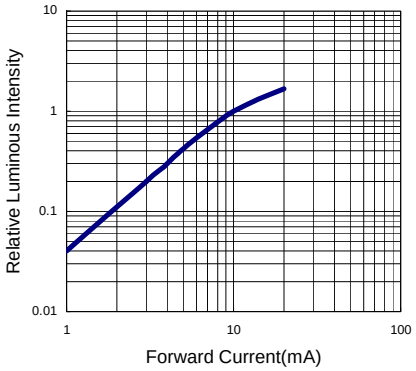



Fig.2 Relative Luminous Intensity - Forward Current

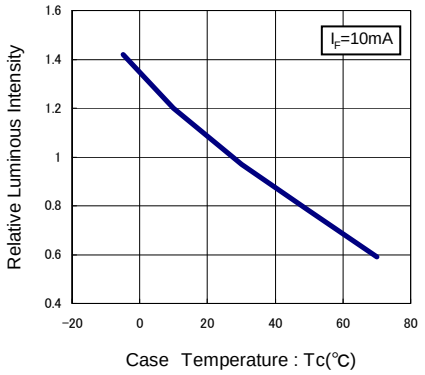



Fig.3 Relative Luminous Intensity - Case Temperature(℃)

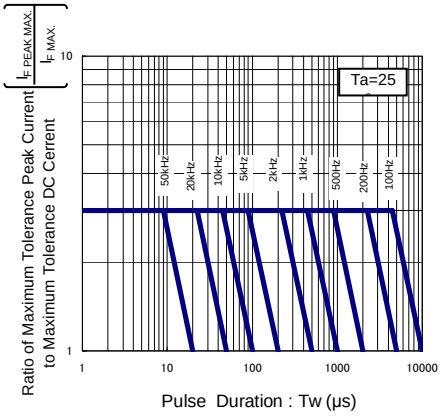



Fig.4 Ratio of Maximum Tolerable Peak Current- Pulse Duration

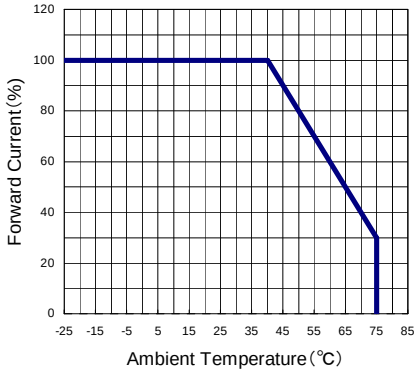



Fig.5 Derating

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