

# Single Digit LED Numeric Display

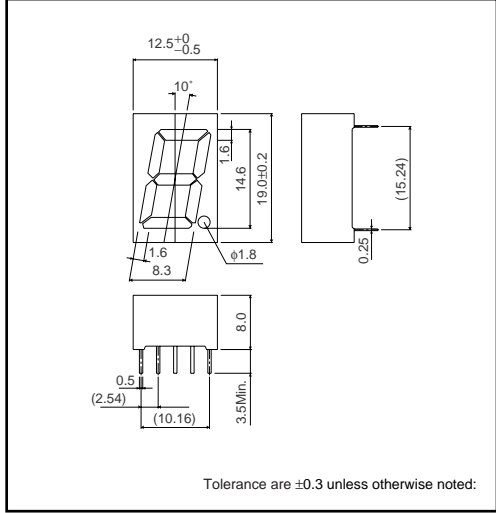
## LA-601 B / L Series

LA-601 B / L series is designed to use in the light. Materials of emission are GaAsP on GaP, AlGaInP GaP and GaN. This is the height of a letter 14.6mm, single digit LED Numeric Display that is packed by epoxy resin.

**●Features**

- 1) The height of a letter is 14.6mm.
- 2) Dimension is 12.5×19.0×8.0mm.
- 3) The package of surface color is black. Color of segment is colored in emitting color. (Blue color is only milky white)
- 4) Each color has anode common and cathode common respectively.

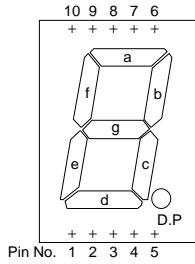
**●Dimensions (Unit : mm)**



**●Selection guide**

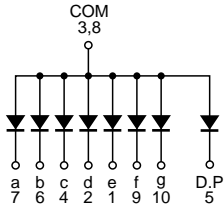
| Common  | Emitting color |                       |                          |                          |          |          |
|---------|----------------|-----------------------|--------------------------|--------------------------|----------|----------|
|         | Red            | Red (High brightness) | Orange (High brightness) | Yellow (High brightness) | Green    | Blue     |
| Anode   | LA-601VB       | LA-601AB              | LA-601EB                 | LA-601XB                 | LA-601MB | LA-601BB |
| Cathode | LA-601VL       | LA-601AL              | LA-601EL                 | LA-601XL                 | LA-601ML | LA-601BL |

**●Pin assignments**

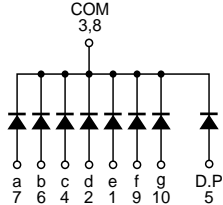


| Pin No. | Function    |
|---------|-------------|
| 1       | Segment "e" |
| 2       | Segment "d" |
| 3       | Common      |
| 4       | Segment "c" |
| 5       | D.P         |
| 6       | Segment "b" |
| 7       | Segment "a" |
| 8       | Common      |
| 9       | Segment "f" |
| 10      | Segment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

**●Equivalent circuit (anode common)**



**(cathode common)**



## LED displays

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

| Parameter             | Symbol               | Red           | Red<br>(High brightness) | Orange<br>(High brightness) | Yellow<br>(High brightness) | Green         | Blue          | Unit |
|-----------------------|----------------------|---------------|--------------------------|-----------------------------|-----------------------------|---------------|---------------|------|
|                       |                      | LA-601VB / VL | LA-601AB / AL            | LA-601EB / EL               | LA-601XB / XL               | LA-601MB / ML | LA-601BB / BL |      |
| Power dissipation     | P <sub>D</sub>       | 480           | 520                      | 520                         | 520                         | 480           | 336           | mW   |
| Power dissipation     | P <sub>D</sub> / seg | 60            | 65                       | 65                          | 65                          | 60            | 42            | mW   |
| Forward current       | I <sub>F</sub>       | 20            | 25                       | 25                          | 25                          | 20            | 10            | mA   |
| Peak forward current  | I <sub>FP</sub>      | 60 *1         | 50 *2                    | 50 *2                       | 50 *2                       | 60 *1         | 50 *2         | mA   |
| Reverse voltage       | V <sub>R</sub>       | 5             | 5                        | 5                           | 5                           | 5             | 5             | V    |
| Operating temperature | T <sub>opr</sub>     | -25 to +75    |                          |                             |                             |               |               | °C   |
| Storage temperature   | T <sub>stg</sub>     | -30 to +85    |                          |                             |                             |               |               | °C   |

\*1 Pulse width 1ms Duty 1 / 5

\*2 Pulse width 0.1ms Duty 1 / 10

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

| Parameter                | Symbol         | Conditions           | Red  |      | Red<br>(High brightness) |      | Orange<br>(High brightness) |      | Yellow<br>(High brightness) |      | Green |      | Blue |      | Unit |
|--------------------------|----------------|----------------------|------|------|--------------------------|------|-----------------------------|------|-----------------------------|------|-------|------|------|------|------|
|                          |                |                      | Typ. | Max. | Typ.                     | Max. | Typ.                        | Max. | Typ.                        | Max. | Typ.  | Max. | Typ. | Max. |      |
| Forward voltage          | V <sub>F</sub> | I <sub>F</sub> =10mA | 2.0  | 2.8  | 2.05*                    | 2.6* | 2.05*                       | 2.6* | 2.05*                       | 2.6* | 2.1   | 2.8  | 3.6  | 4.2  | V    |
| Reverse current          | I <sub>R</sub> | V <sub>R</sub> =3V   | -    | 100  | -                        | 100  | -                           | 100  | -                           | 100  | -     | 100  | -    | 100  | μA   |
| Peak wavelength          | λ <sub>P</sub> | I <sub>F</sub> =10mA | 650  | -    | 626*                     | -    | 610*                        | -    | 589*                        | -    | 563   | -    | 470  | -    | nm   |
| Spectral line half width | Δλ             | I <sub>F</sub> =10mA | 40   | -    | 18*                      | -    | 17*                         | -    | 15*                         | -    | 40    | -    | 26   | -    | nm   |

©The products are not radiations resistant.

\* Shows the number on the condition of I<sub>F</sub>=20mA.

## ●Luminous intensity

| Color                    | λ <sub>P</sub> (nm) | Type     | Min. | Typ. | Unit |
|--------------------------|---------------------|----------|------|------|------|
| Red                      | 650                 | LA-601VB | 5.6  | 14   | mcd  |
|                          |                     | LA-601VL |      |      |      |
| Red (High brightness)    | 626                 | LA-601AB | 36   | 90   | mcd  |
|                          |                     | LA-601AL |      |      |      |
| Orange (High brightness) | 610                 | LA-601EB | 36   | 90   | mcd  |
|                          |                     | LA-601EL |      |      |      |
| Yellow (High brightness) | 589                 | LA-601XB | 36   | 90   | mcd  |
|                          |                     | LA-601XL |      |      |      |
| Green                    | 563                 | LA-601MB | 9    | 22   | mcd  |
|                          |                     | LA-601ML |      |      |      |
| Blue                     | 470                 | LA-601BB | 14   | 56   | mcd  |
|                          |                     | LA-601BL |      |      |      |

©A condition of measurement is I<sub>F</sub>=10mA.

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●Electrical and optical characteristic curves

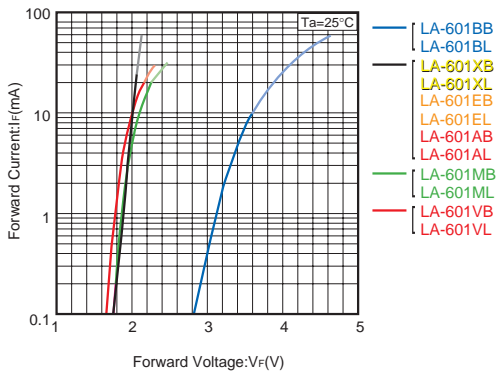


Fig.1 Forward Current - Forward Voltage

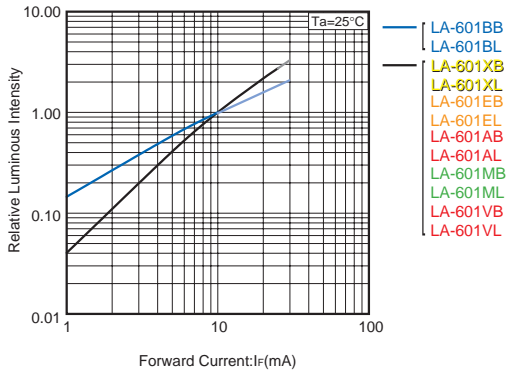


Fig.2 Relative Luminous Intensity - Forward Current

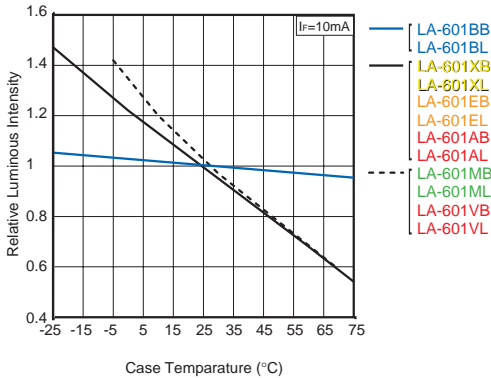


Fig.3 Relative Luminous Intensity - Case Temperature

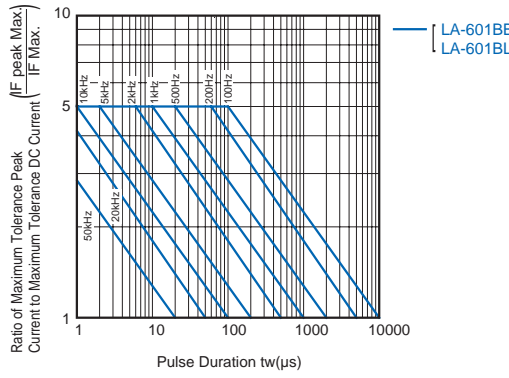


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( I )

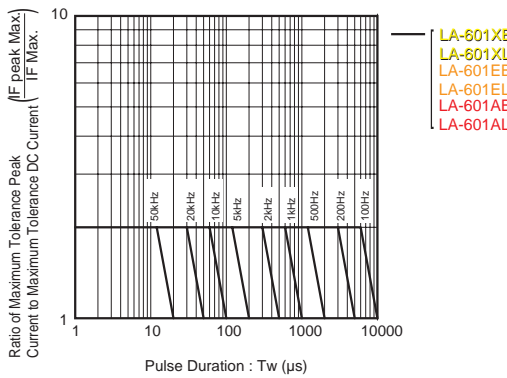


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( II )

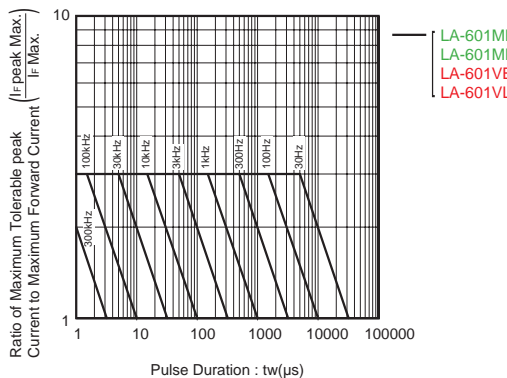


Fig.6 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( III )

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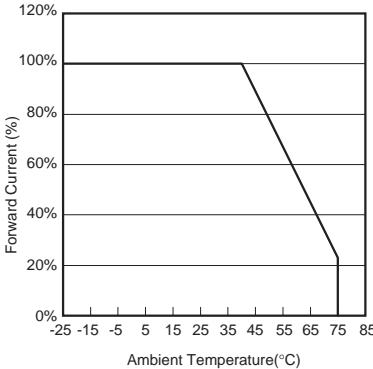


Fig.7 Derating

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