

Single Digit LED Numeric Display

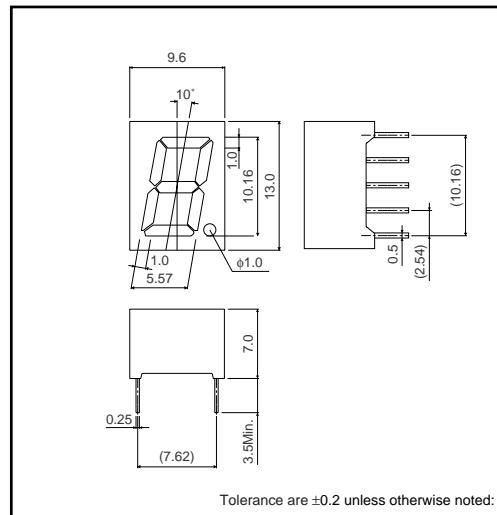
LA-401 D / N Series

LA-401 D / N series is developed because of the demand for small single digit LED Numeric Display. Materials of emission are GaAsP on GaP, AlGaInP GaP and GaN. This is the height of a letter 10.16mm, single digit LED Numeric Display that is packed by EPOXY resin.

●Features

- 1) The height of a letter is 10.16mm.
- 2) Dimension is 9.6×13.0×7.0mm.
- 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.

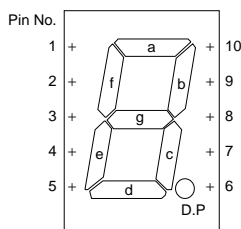
●Dimensions (Unit : mm)



●Selection guide

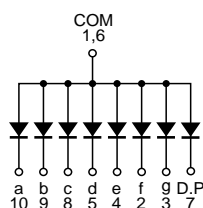
| Emitting color | Red | Red High brightness | Orange High brightness | Yellow High brightness | Green | Blue |
|----------------|----------|---------------------|------------------------|------------------------|----------|----------|
| Anode | LA-401VD | LA-401AD | LA-401ED | LA-401XD | LA-401MD | LA-401BD |
| Cathode | LA-401VN | LA-401AN | LA-401EN | LA-401XN | LA-401MN | LA-401BN |

●Pin assignments

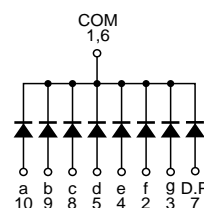


| Pin No. | Function |
|---------|-------------|
| 1 | Common |
| 2 | Segment "f" |
| 3 | Segment "g" |
| 4 | Segment "e" |
| 5 | Segment "d" |
| 6 | Common |
| 7 | D.P |
| 8 | Segment "c" |
| 9 | Segment "b" |
| 10 | Segment "a" |

●Equivalent circuit (anode common)



(cathode common)



LED displays

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Red | Red High brightness | Orange High brightness | Yellow High brightness | Green | Blue | Unit |
|-----------------------|----------------------|---------------|---------------------|------------------------|------------------------|---------------|---------------|------|
| | | LA-401VD / VN | LA-401AD / AN | LA-401ED / EN | LA-401XD / XN | LA-401MD / MN | LA-401BD / BN | |
| Power dissipation | P _D | 320 | 520 | 520 | 520 | 480 | 336 | mW |
| Power dissipation | P _D / seg | 40 | 65 | 65 | 65 | 60 | 42 | mW |
| Forward current | I _F | 15 | 25 | 25 | 25 | 20 | 10 | mA |
| Peak forward current | I _{FP} | 60 *1 | 50 *2 | 50 *2 | 50 *2 | 60 *1 | 50 *2 | mA |
| Reverse voltage | V _R | 5 | 5 | 5 | 5 | 5 | 5 | V |
| Operating temperature | Topr | -25 to +75 | | | | | | °C |
| Storage temperature | Tstg | -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 High brightness | | Orange High brightness | | Yellow High brightness | | Green | | Blue | | Unit |
|--------------------------|----------------|----------------------|------|------|---------------------|------|------------------------|------|------------------------|------|-------|------|------|------|------|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | |
| Forward voltage | V _F | I _F =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 _R | V _R =3V | - | 100 | - | 100 | - | 100 | - | 100 | - | 100 | - | 100 | μA |
| Peak wavelength | λ _P | I _F =10mA | 650 | - | 626* | - | 610* | - | 589* | - | 563 | - | 470 | - | nm |
| Spectral line half width | Δλ | I _F =10mA | 40 | - | 18* | - | 17* | - | 15* | - | 40 | - | 26 | - | nm |

© The products are not radiations resistant.

*Shows the number on the condition of I_F=20mA.

●Luminous intensity

| Color | λ _P (nm) | Type | Min. | Typ. | Unit |
|------------------------|---------------------|----------|------|------|------|
| Red | 650 | LA-401VD | 5.6 | 16 | mcd |
| | | LA-401VN | | | |
| High brightness red | 626 | LA-401AD | 36 | 90 | mcd |
| | | LA-401AN | | | |
| High brightness orange | 610 | LA-401ED | 36 | 90 | mcd |
| | | LA-401EN | | | |
| High brightness yellow | 589 | LA-401XD | 36 | 90 | mcd |
| | | LA-401XN | | | |
| Green | 563 | LA-401MD | 5.6 | 16 | mcd |
| | | LA-401MN | | | |
| Blue | 470 | LA-401BD | 14 | 56 | mcd |
| | | LA-401BN | | | |

© A condition of measurement is I_F=10mA.

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●Electrical and optical characteristic curves

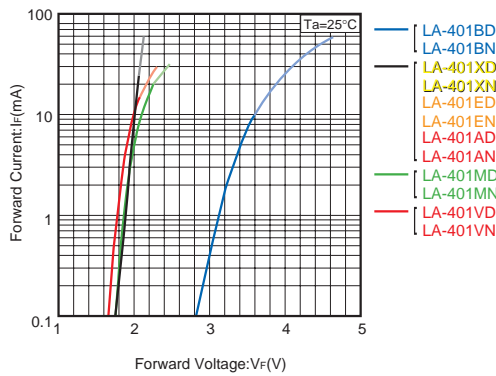


Fig.1 Forward Current - Forward Voltage

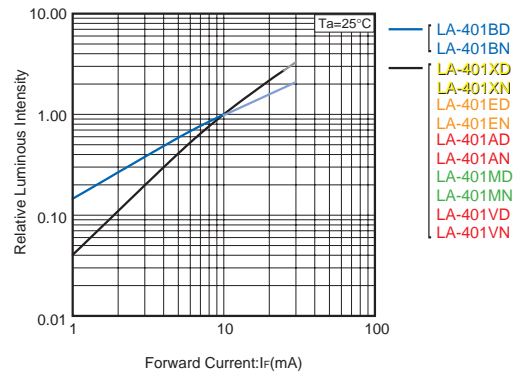


Fig.2 Relative Luminous Intensity - Forward Current

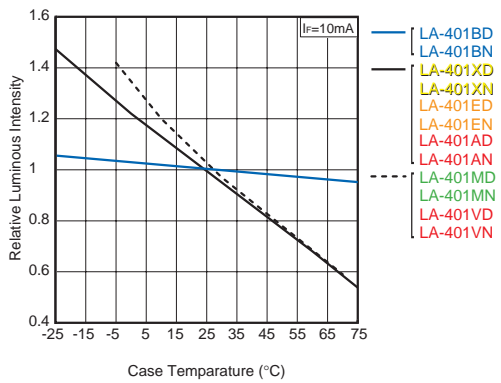


Fig.3 Relative Luminous Intensity - Case Temperature

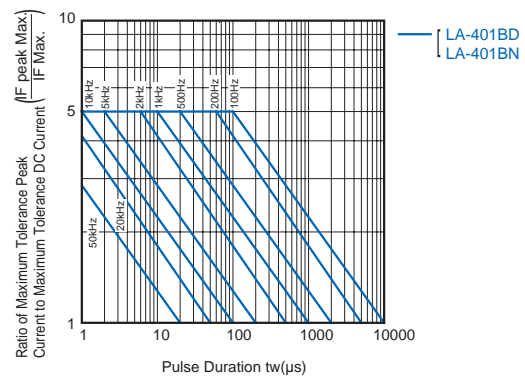


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration (I)

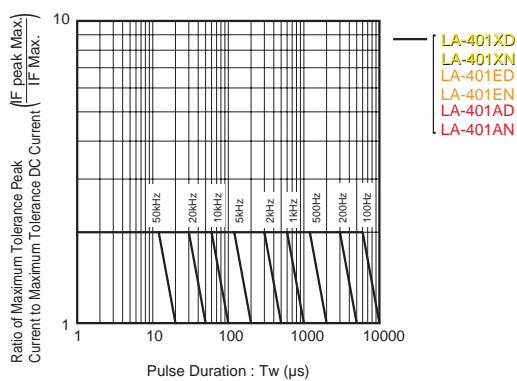


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration (II)

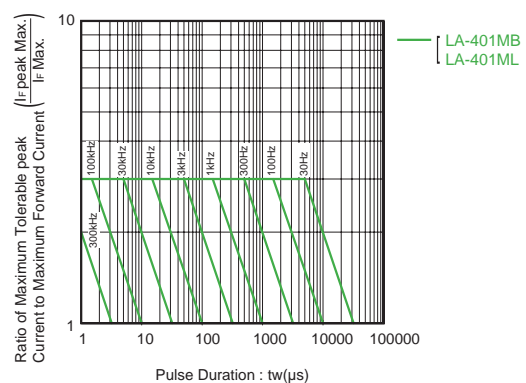


Fig.6 Ratio of Maximum Tolerable Peak Current - Pulse Duration (III)

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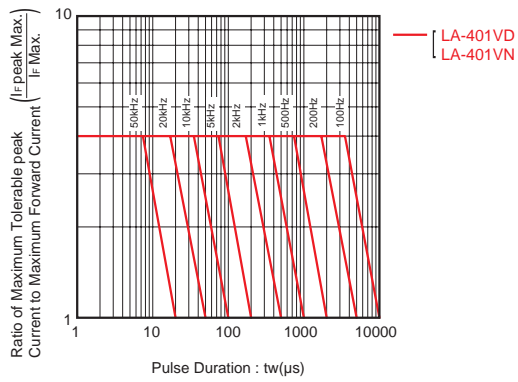


Fig.7 Ratio of Maximum Tolerable Peak Current - Pulse Duration (IV)

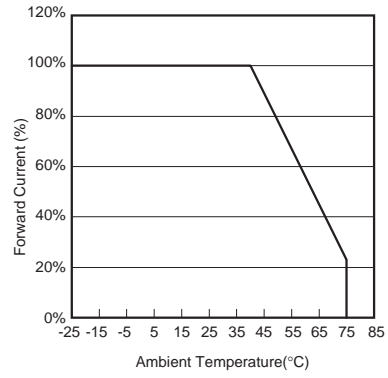


Fig.8 Derating

Notes

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