

GL9□ 18 GL8□ 18 Series

45.0mm Character Height
Numeric LEDs

■ Model No.

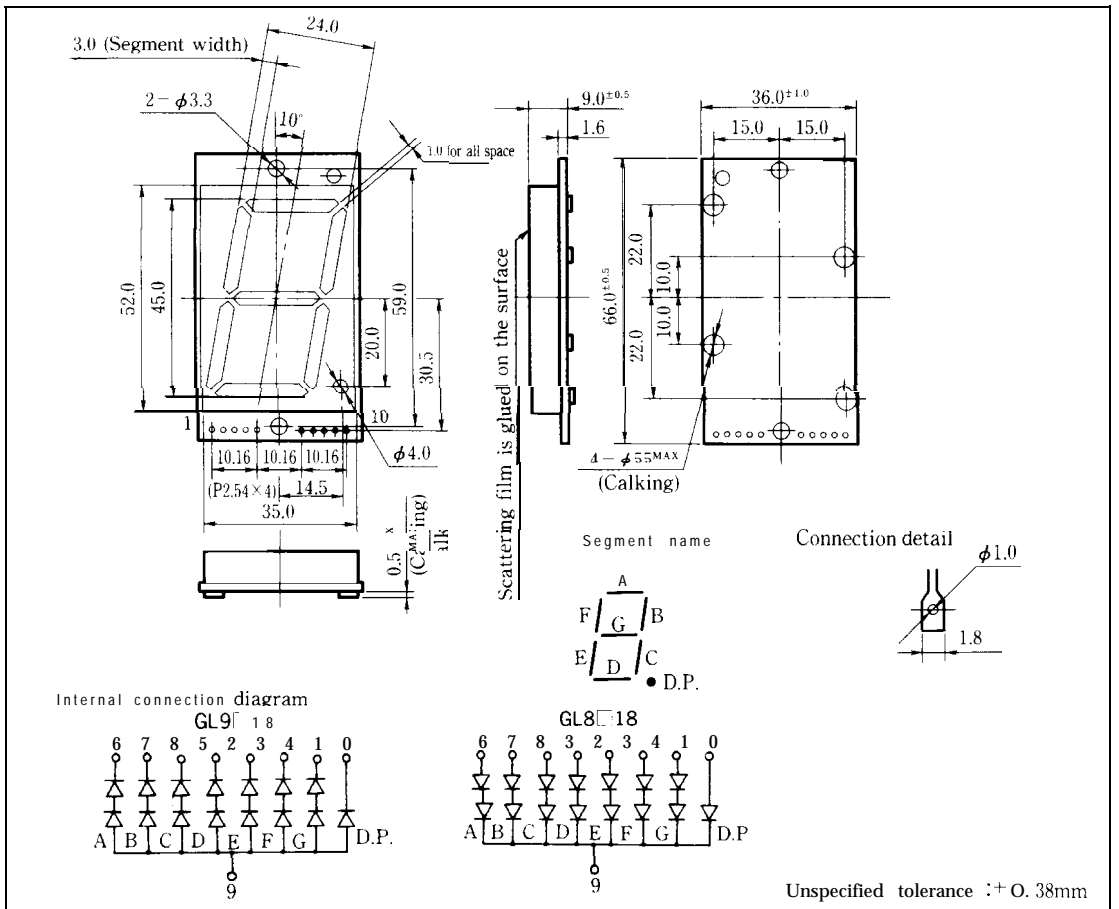
| | | |
|---------------|-----------------------|-------------|
| GL9L18/GL8L18 | Red (High-luminosity) | GaAlAs/GaAs |
| GL9D18/GL8D18 | Red | GaAsP/GaP |
| GL9E18/GL8E18 | Yellow-green | GaP |

■ Features

1. Character height : 45.0mm
2. 1 digit
3. Substrate type

■ Outline Dimensions

(Unit: mm)



GL9□ 18 / GL8□ 18

■ Absolute Maximum Ratings

(Ta = 25°C)

| Parameter | | Symbol | GL9L18 | GL9D18 | GL9E18 | | | Unit | |
|----------------------------|-------------------|--------|-------------------------------|------------|------------|------|--|-------|----|
| | | | GL8L18 | GL8D18 | GL8E18 | | | | |
| Power dissipation | *1 Per digit | P | 1,540 | 1,176 | 700 | | | mV | |
| Continuous forward current | *1 Per digit | IF | 350 | 210 | 140 | | | mA | |
| | *2 | IF | 50 | 30 | 20 | | | mA | |
| *3 Peak forward current | *2 | IFM | 300 | 50 | 50 | | | mA | |
| Derating factor | *1 Per digit | DC | — | 7.78 | 4.67 | 3.11 | | mA/°C | |
| | | Pulse | — | 46.7 | 7.78 | 7.78 | | mA/°C | |
| Reverse voltage | Per segment | VR | 5 | 5 | 5 | | | V | |
| | Per decimal point | VR | 5 | 5 | 5 | | | v | |
| Operating temperature | | Topr | -10 to +60 | | | | | | °c |
| Storage temperature | | Tstg | -20 to +70 | | | | | | °c |
| Soldering temperature | | Tsol | 260 (within 5 seconds) | | | | | | °c |

*1 Per digit: 7 segments

*2 Per segment, or per decimal point

*3 Duty ratio = 1/10, Pulse width = 0.1ms

Duty ratio = 1/16, Pulse width ≤ 1ms for GL9L18/GL8L18

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GL9L18/GL8L1 8(Red)

■ Electro-optical Characteristics

(Ta = 25°C)

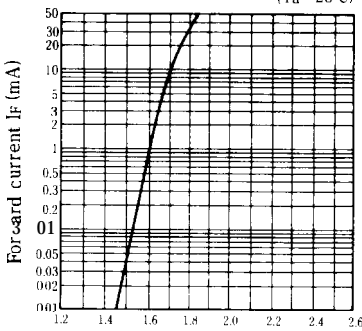
| Parameter | | Symbol | Model No. | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------|-------------------|-----------------|---------------|---------------------|------|------|------|---------------|
| Forward voltage | Per segment | V_F | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | | 3.5 | 4.4 | V |
| | Per decimal point | | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | | 1.75 | 2.20 | V |
| *5 Luminous intensity | Per segment | I_v | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | 3.6 | 9.0 | — | mc/d |
| | Per decimal point | | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | 1.02 | 2.55 | — | mc/d |
| *2 Peak emission wavelength | | λ_p | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | — | 660 | — | *m |
| *2 Spectrum radiation bandwidth | | $\Delta\lambda$ | GL9L18/GL8L18 | $I_F = 20\text{mA}$ | — | 20 | — | nm |
| Reverse current | Per segment | I_R | GL9L18/GL8L18 | $V_R = 4\text{V}$ | — | — | 10 | μA |
| | Per decimal point | | GL9L18/GL8L18 | $V_R = 4\text{V}$ | — | — | 10 | μA |
| *2 Response frequency | | f_c | GL9L18/GL8L18 | — | — | 8 | — | MHz |

*2 Per segment, or per decimal point

*5 Tolerance: $\pm 30\%$

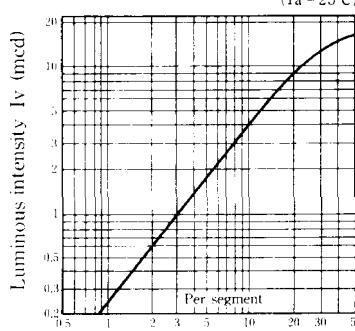
■ Characteristics Diagrams

Forward Current vs. Forward Voltage (Ta = 25°C)



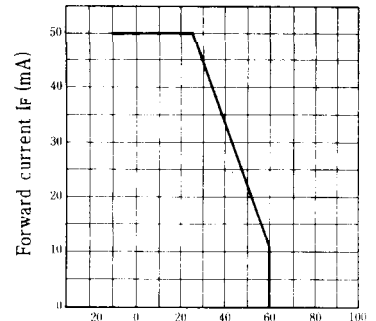
Forward voltage V_F (V)

Luminous Intensity vs. Forward Current (Ta = 25°C)



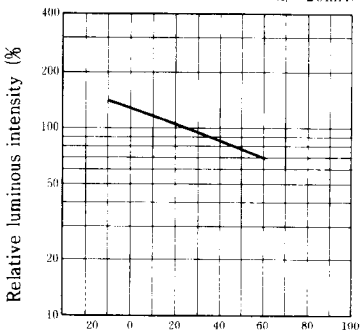
Forward current I_F (mA)

Forward Current Derating Curve



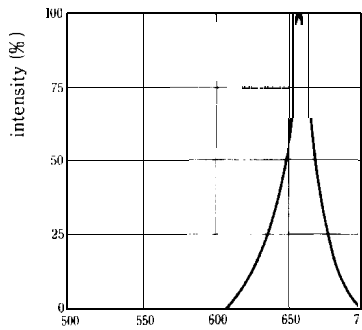
Ambient temperature T_a (°C)

Relative Luminous Intensity vs. Ambient Temperature (If = 20mA)



Ambient temperature T_a (°C)

Spectrum Distribution (Ta = 25°C)



Wavelength λ (nm)

GL9D18/GL8DI 8(Red)

■ Electro-optical Characteristics

(Ta=25°C)

| Parameter | Symbol | Model No. | Conditions | MIN. | TYP. | MAX. | Unit | |
|---------------------------------|----------------------------------|----------------|-----------------------|-----------------------|------|------|------|-----|
| Forward voltage | Per segment Per decimal point | V _F | GL9D18/GL8D18 | I _F = 20mA | — | 4.0 | 5.6 | V |
| | | | GL9D18/GL8D18 | I _F = 20mA | — | 2.0 | 2.8 | V |
| ※2 Luminous intensity | Per segment Per decimal point | I _v | GL9D18/GL8D18 | I _F = 20mA | 2.2 | 6.4 | — | mcd |
| | | | GL9D18/GL8D18 | I _F = 20mA | 0.6 | 1.8 | — | mcd |
| ※2 Peak emission wavelength | λ _p | GL9D18/GL8D18 | I _F = 20mA | — | 635 | — | nm | |
| ※2 Spectrum radiation bandwidth | Δλ | GL9D18/GL8D18 | I _F = 20mA | — | 35 | — | nm | |
| Reverse current | Per segment Per decimal point | I _R | GL9D18/GL8D18 | V _R = 4V | — | — | 10 | μA |
| | | | GL9D18/GL8D18 | V _R = 4V | — | — | 10 | μA |
| ※2 Response frequency | f _c | GL9D18/GL8D18 | — | — | 4 | — | MHz | |

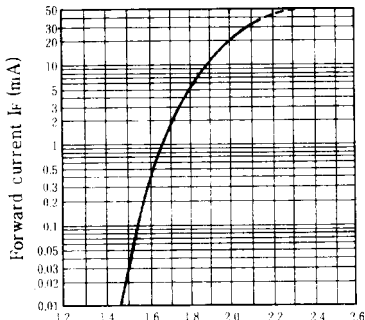
※2 Per segment, or per decimal point

※5 Tolerance: ±30%

■ Characteristics Diagrams

Forward Current vs. Forward Voltage

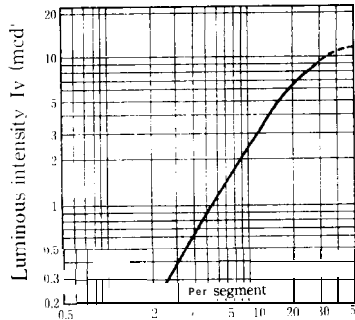
(Ta = 25°C)



Forward voltage V_F (V)

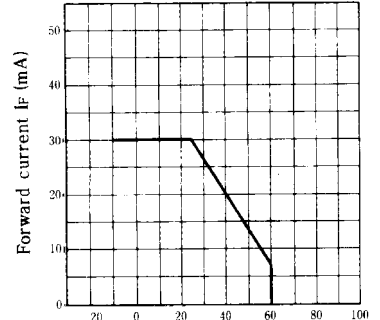
Luminous Intensity vs. Forward Current

(Ta = 25°C)



Forward current I_F (mA)

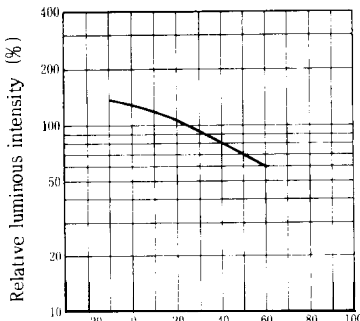
Forward Current Derating Curve



Ambient temperature T_a (°C)

Relative Luminous Intensity vs. Ambient Temperature

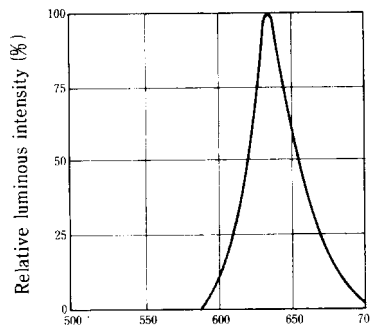
(I_F = 20mA)



Ambient temperature T_a (°C)

Spectrum Distribution

(Ta = 25°C)



Wavelength λ (nm)

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GL9E18/GL8E18 (Yellow-green)

■ Electro-optical Characteristics

(Ta = 25°C)

| Parameter | Symbol | Model No. | Conditions | MIN. | TYP. | MAX. | Unit | |
|---------------------------------|-------------------|----------------|-----------------------|-----------------------|------|------|------|-----|
| Forward voltage | Per segment | V _F | GL9E18/GL8E18 | I _F = 10mA | | 4.0 | 5.0 | V |
| | Per decimal point | | GL9E18/GL8E18 | I _F = 10mA | | 2.0 | 2.5 | V |
| *5 Luminous intensity | Per segment | I _v | GL9E18/GL8E18 | I _F = 10mA | 1.9 | 3.4 | — | mcd |
| | Per decimal point | | GL9E18/GL8E18 | I _F = 10mA | 0.5 | 1.0 | — | mcd |
| *2 Peak emission wavelength | λ _p | GL9E18/GL8E18 | I _F = 10mA | — | 565 | — | nm | |
| *2 Spectrum radiation bandwidth | Δλ | GL9E18/GL8E18 | I _F = 10mA | — | 30 | — | nm | |
| Reverse current | Per segment | I _R | GL9E18/GL8E18 | V _R = 4V | — | — | 10 | μA |
| | Per decimal point | | GL9E18/GL8E18 | V _R = 4V | — | — | 10 | μA |
| *2 Response frequency | f _c | GL9E18/GL8E18 | — | — | 4 | — | MHz | |

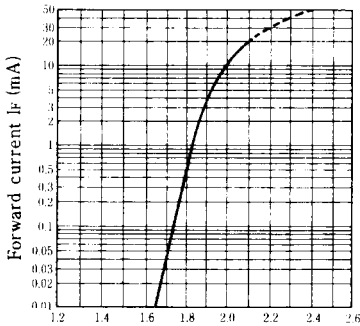
*2 Per segment, or per decimal point

*5 Tolerance: ±30%

■ Characteristics Diagrams

Forward Current vs. Forward Voltage

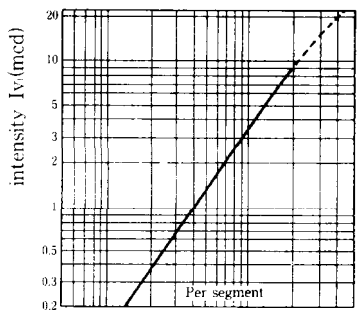
(Ta = 25°C)



Forward voltage VF (V)

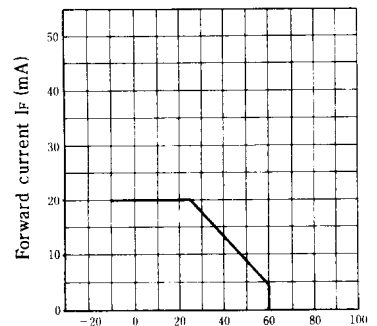
Luminous Intensity vs. Forward Current

(Ta = 25°C)



Forward current If (mA)

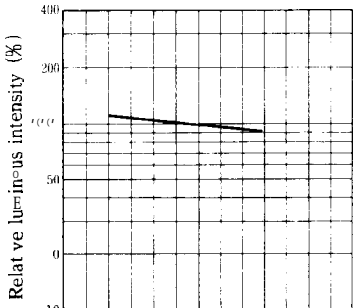
Forward Current Derating Curve



Ambient temperature Ta (°C)

Relative Luminous Intensity vs. Ambient Temperature

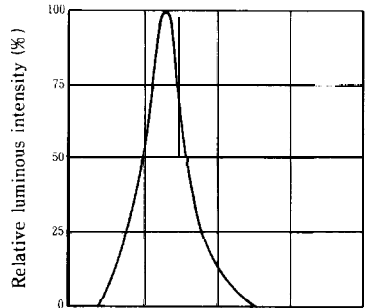
(If = 20mA)



Ambient temperature Ta (°C)

Spectrum Distribution

(Ta = 25°C)



Wavelength λ (nm)