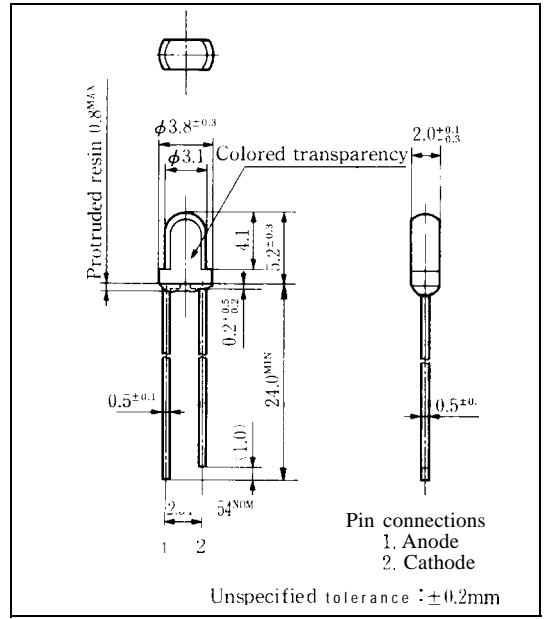


# GL8□□4 Series Arch Type 'ED' amps

## Model No.

|                                |               |
|--------------------------------|---------------|
| GL8UR4 Red (Super- luminosity) | GaAlAs/GaAlAs |
| GL8LR4 Red [High- luminosity)  | GaAlAs/GaAs   |
| GL8TR4 Red [High-luminosity)   | GaAlAs/GaAs   |
| GL8HD4 Red                     | GaAsP/GaP     |
| GL8HY4 Yellow                  | GaAsP/GaP     |
| GL8EG4 Yellow-green            | GaP           |

## Outline Dimensions (Unit: mm)



## Features

- 2.0mm×3.1mm arch type all resin mold
- Colored transparency lens type

## Absolute Maximum Ratings

(Ta = 25°C)

| Parameter                  | Symbol           | GL8UR4                | GL8LR4 | GL8HD4 | GL8EG4 | Unit  |
|----------------------------|------------------|-----------------------|--------|--------|--------|-------|
|                            |                  |                       | GL8TR4 | GL8HY4 |        |       |
| Power dissipation          | P                | 75                    | 110    | 84     | 84     | mW    |
| Continuous forward current | I <sub>F</sub>   | 30                    | 50     | 30     | 30     | mA    |
| *1 Peak forward current    | I <sub>FM</sub>  | 50                    | 300    | 50     | 50     | mA    |
| Derating factor            | DC               | 0.40                  | 0.67   | 0.40   | 0.40   | mA/°C |
|                            | Pulse            | 0.67                  | 4.00   | 0.67   | 0.67   | mA/°C |
| Reverse voltage            | V <sub>R</sub>   | 4                     | 5      | 5      | 5      | V     |
| Operating temperature      | T <sub>opr</sub> | -25 to +85            |        |        |        | °C    |
| Storage temperature        | T <sub>stg</sub> | -25 to +100           |        |        |        | °C    |
| *2 Soldering temperature   | T <sub>sol</sub> | 260(within 5 seconds) |        |        |        | °C    |

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

Duty ratio = 1/16 , Pulse width ≤ 1ms for GL8LR4 and GL8TR4

\*2 At the position of 1.6mm from the, bottom face of resin package

**SHARP**

## GL8UR4 (Red)

## ■ Electro-optical Characteristics

(Ta = 25°C)

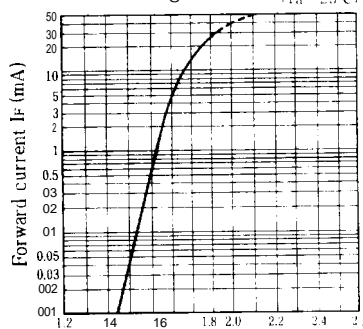
| Parameter                    | Symbol          | Model No. | Conditions                       | MIN. | TYP. | MAX. | Unit          |
|------------------------------|-----------------|-----------|----------------------------------|------|------|------|---------------|
| Forward voltage              | $V_F$           | GL8UR4    | $I_F = 20\text{mA}$              |      | 1.85 | 2.5  | V             |
| ※3 Luminous intensity        | $I_v$           | GL8UR4    | $I_F = 20\text{mA}$              | 80   | 150  | -    | mcd           |
| Peak emission wavelength     | $\lambda_p$     | GL8UR4    | $I_F = 20\text{mA}$              | -    | 660  | -    | nm            |
| Spectrum radiation bandwidth | $\Delta\lambda$ | GL8UR4    | $I_F = 20\text{mA}$              |      | 20   | --   | nm            |
| Reverse current              | $I_R$           | GL8UR4    | $V_R = 3\text{V}$                | -    |      | 100  | $\mu\text{A}$ |
| Terminal capacitance         | $C_t$           | GL8UR4    | $V = 0\text{V}, f = 1\text{MHz}$ | -    | 25   | -    | pF            |
| Response frequency           | $f_c$           | GL8UR4    | -                                |      | 8    | -    | MHz           |

※3 Tolerance:  $\pm 30\%$ 

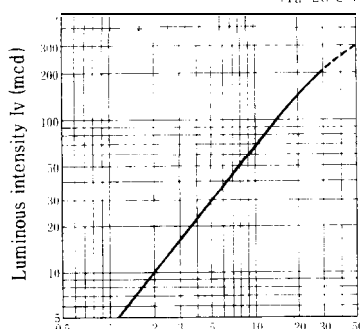
## ■ Characteristics Diagrams

Forward Current vs.  
Forward Voltage

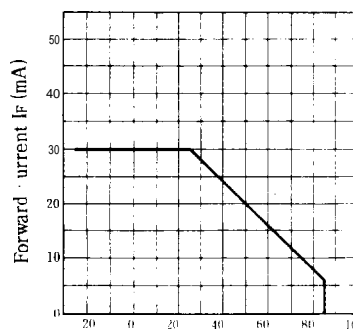
(Ta = 25°C)

Forward voltage  $V_F$  (V)Luminous Intensity vs.  
Forward Current

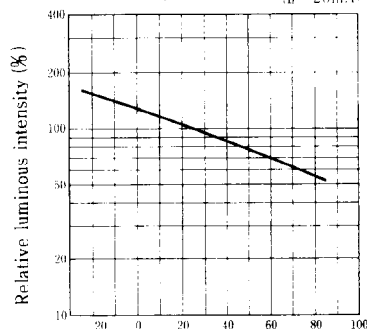
(Ta = 25°C)

Forward current  $I_F$  (mA)

Forward Current Derating Curve

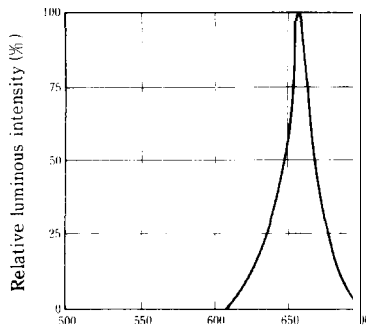
Ambient temperature  $T_a$  (°C)Relative Luminous Intensity vs.  
Ambient Temperature

(If = 20mA)

Ambient temperature  $T_a$  (°C)

Spectrum Distribution

(Ta = 25°C)

Wavelength  $\lambda$  (nm)

SHARP

3

## GL8LR4 (Red) / GL8TR4 (Red)

## ■ Electrical Characteristics

(T<sub>a</sub> = 25°C)

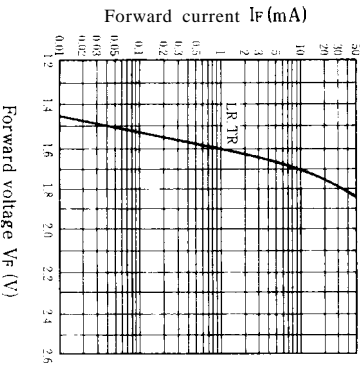
| Parameter                    | Symbol         | Model No.                | Conditions                                     | MIN | TYP  | MAX | Unit |
|------------------------------|----------------|--------------------------|--|-----|------|-----|------|
| Forward voltage              | V <sub>F</sub> | GL8LR4<br>GL8TR4         | I <sub>F</sub> = 20mA<br>I <sub>F</sub> = 20mA | —   | 1.75 | 2.2 | V    |
| *3 Luminous intensity        | I <sub>v</sub> | GL8LR4                   | I <sub>F</sub> = 20mA<br>I <sub>r</sub> = 20mA | 2.5 | 7.0  | —   | mcld |
|                              |                | GL8TR4                   | I <sub>F</sub> = 20mA<br>I <sub>r</sub> = 20mA | 1.5 | 4.0  | —   | mcld |
| Peak emission wavelength     | λ <sub>p</sub> | GL8LR4<br>GL8TR4         | I <sub>F</sub> = 20mA<br>I <sub>r</sub> = 20mA | —   | 600  | —   | nm   |
| Spectrum radiation bandwidth | Δλ             | GL8LR4<br>GL8TR4         | I <sub>F</sub> = 20mA<br>I <sub>r</sub> = 20mA | —   | 20   | —   | nm   |
| Reverse current              | I <sub>r</sub> | GL8LR4<br>GL8TR4         | V <sub>r</sub> = 4V<br>V <sub>r</sub> = 4V     | —   | —    | 10  | μA   |
| Terminal capacitance         | C <sub>t</sub> | GL8LR4<br>GL8TR4         | V = 0V<br>V = 0V                               | —   | 30   | —   | pF   |
| Response frequency           | f <sub>c</sub> | f <sub>c</sub> = R4<br>— | f = 1MHz<br>f = 1MHz                           | —   | —    | —   | MHz  |

※3 Tolerance: ±30%

## ■ Characteristics Diagrams

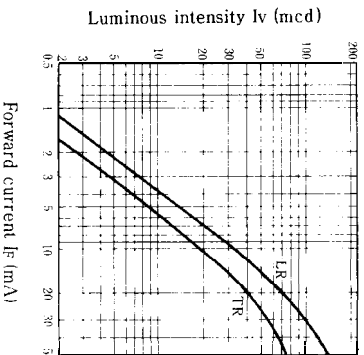
## Forward Current vs.

## Forward Voltage

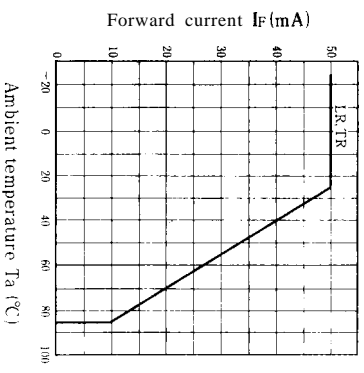
(T<sub>a</sub> = 25°C)

## Luminous Intensity vs.

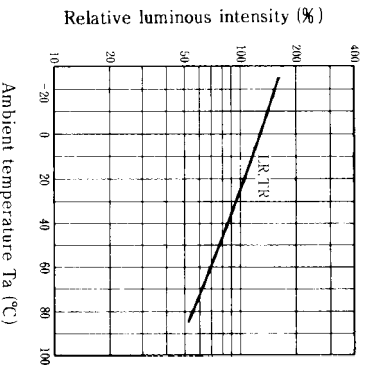
## Forward Current

(T<sub>a</sub> = 25°C)

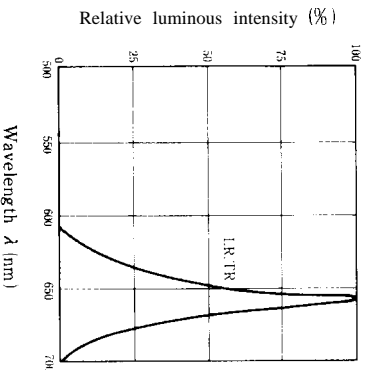
## Forward Current Derating Curve



## Relative Luminous Intensity vs. Ambient Temperature

(I<sub>F</sub> = 20mA)

## Spectrum Distribution

(T<sub>a</sub> = 25°C)

## GL8HD4 (Red)

## ■ Electro-optical Characteristics

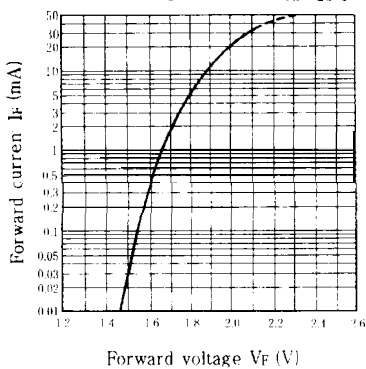
(Ta = 25°C)

| Parameter                    | Symbol          | Model No. | Conditions                        | MIN. | TYP. | MAX. | Unit          |
|------------------------------|-----------------|-----------|-----------------------------------|------|------|------|---------------|
| Forward voltage              | $V_F$           | GL8HD4    | $I_F = 20\text{mA}$               |      | 2.0  | 2.8  | V             |
| ※3 Luminous intensity        | $I_V$           | GL8HD4    | $I_F = 20\text{mA}$               | 15   | 40   | —    | mcd           |
| Peak emission wavelength     | $\lambda_p$     | GL8HD4    | $I_F = 20\text{mA}$               |      | 635  | —    | nm            |
| Spectrum radiation bandwidth | $\Delta\lambda$ | GL8HD4    | $I_F = 20\text{mA}$               |      | 35   | —    | nm            |
| Reverse current              | $I_R$           | GL8HD4    | $V_R = 4\text{V}$                 |      | —    | 10   | $\mu\text{A}$ |
| Terminal capacitance         | $C_T$           | GL8HD4    | $V = 0\text{V}$ $f = 1\text{MHz}$ | —    | 20   | —    | pF            |
| Response frequency           | $f_c$           | GL8HD4    | —                                 | —    | 4    | —    | MHz           |

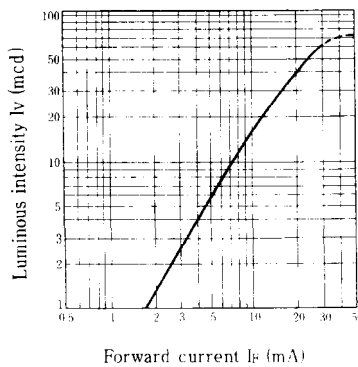
※3 Tolerance:  $\pm 30\%$ 

## ■ Characteristics Diagrams

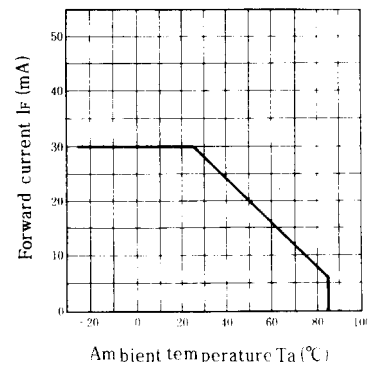
Forward Current vs. Forward Voltage (Ta = 25°C)



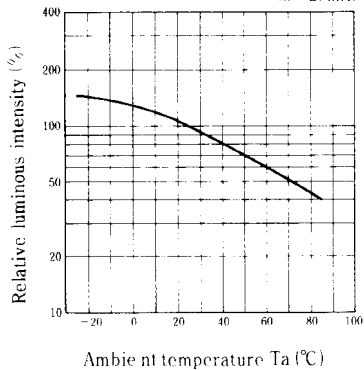
Luminous Intensity vs. Forward Current (Ta = 25°C)



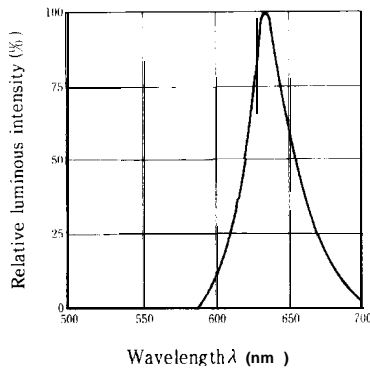
Forward Current Derating Curve



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



Spectrum Distribution (Ta = 25°C)



## GL8HY4 (Yellow)

## ■ Electro-optical Characteristics

(Ta=25°C)

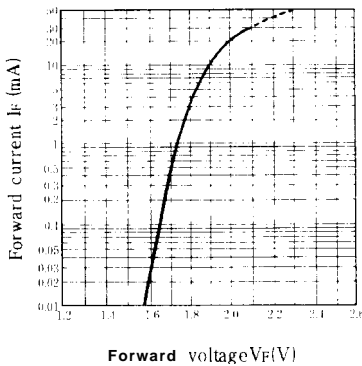
| Parameter                    | Symbol          | Model No. | Conditions                        | MIN. | TYP. | MAX. | Unit          |
|------------------------------|-----------------|-----------|-----------------------------------|------|------|------|---------------|
| Forward voltage              | $V_F$           | GL8HY4    | $I_F = 20\text{mA}$               | —    | 2.0  | 2.8  | V             |
| ※3 Luminous intensity        | $I_V$           | GL8HY4    | $I_F = 20\text{mA}$               | 14   | 44   | —    | mcd           |
| Peak emission wavelength     | $\lambda_p$     | GL8HY4    | $I_F = 20\text{mA}$               | —    | 585  | —    | nm            |
| Spectrum radiation bandwidth | $\Delta\lambda$ | GL8HY4    | $I_F = 20\text{mA}$               | —    | 30   | —    | nm            |
| Reverse current              | $I_R$           | GL8HY4    | $V_R = 4\text{V}$                 | —    | —    | 10   | $\mu\text{A}$ |
| Terminal capacitance         | $C_t$           | GL8HY4    | $V = 0\text{V}$ $f = 1\text{MHz}$ | —    | 35   | —    | pF            |
| Response frequency           | $f_c$           | GL8HY4    | —                                 | —    | 4    | —    | MHz           |

※3 Tolerance:  $\pm 30\%$ 

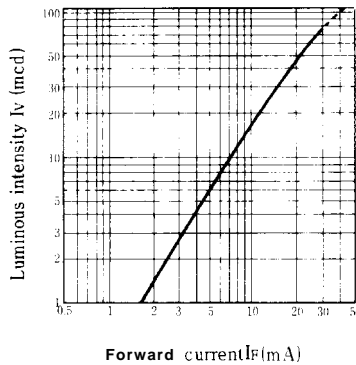
## ■ Characteristics Diagrams

Forward Current vs.  
Forward Voltage

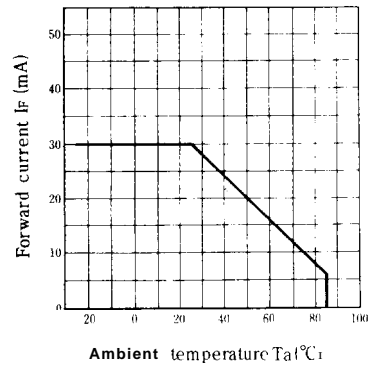
(Ta=25°C)

Luminous Intensity vs.  
Forward Current

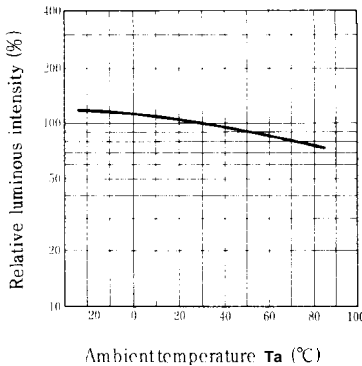
(Ta=25°C)



Forward Current Derating Curve

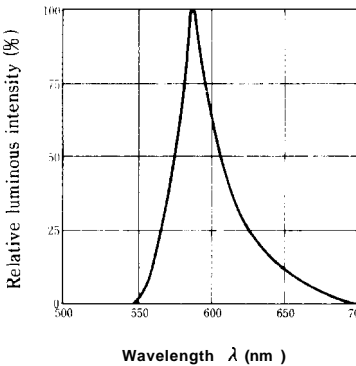
Relative Luminous Intensity vs.  
Ambient Temperature

(If=20mA)



Spectrum Distribution

(Ta=25°C)



GL8EG4 (Yellow-green)

■ Electro-optical Characteristics

(Ta = 25°C)

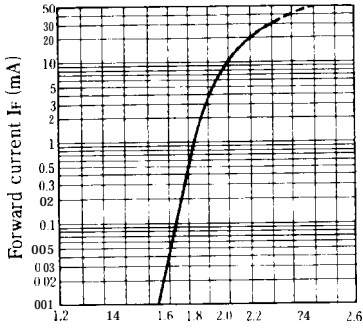
| Parameter                    | Symbol          | Model No. | Conditions                        | MIN. | TYP. | MAX. | Unit          |
|------------------------------|-----------------|-----------|-----------------------------------|------|------|------|---------------|
| Forward voltage              | $V_F$           | GL8EG4    | $I_F = 20\text{mA}$               | —    | 2.1  | 2.8  | V             |
| ※3 Luminous intensity        | $I_V$           | GL8EG4    | $I_F = 20\text{mA}$               | 20   | 50   | —    | mcd           |
| Peak emission wavelength     | $\lambda_p$     | GL8EG4    | $I_F = 20\text{mA}$               | —    | 565  | —    | nm            |
| Spectrum radiation bandwidth | $\Delta\lambda$ | GL8EG4    | $I_F = 20\text{mA}$               | —    | 30   | —    | nm            |
| Reverse current              | $I_R$           | GL8EG4    | $V_R = 4\text{V}$                 | —    | —    | 10   | $\mu\text{A}$ |
| Terminal capacitance         | $C_t$           | GL8EG4    | $V = 0\text{V}$ $f = 1\text{MHz}$ | —    | 35   | —    | pF            |
| Response frequency           | $f_c$           | GL8EG4    | —                                 | —    | 4    | —    | MHz           |

※3 Tolerance:  $\pm 30\%$

■ Characteristics Diagrams

Forward Current vs. Forward Voltage

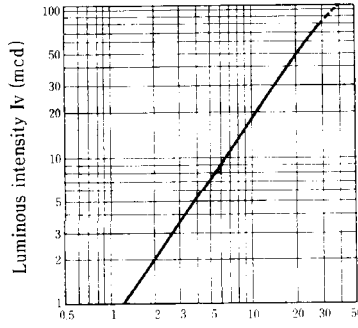
(Ta = 25°C)



Forward voltage  $V_F$  (V)

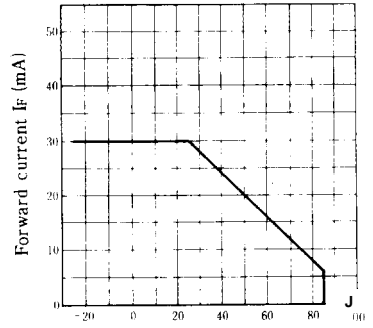
Luminous Intensity vs. Forward Current

(Ta = 25°C)



Forward current  $I_F$  (mA)

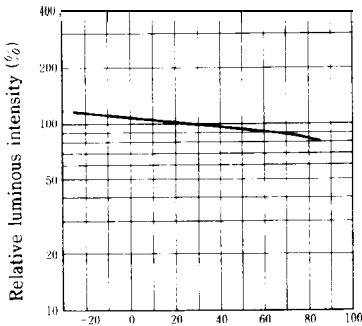
Forward Current Derating Curve



Ambient temperature  $T_a$  (°C)

Relative Luminous Intensity vs. Ambient Temperature

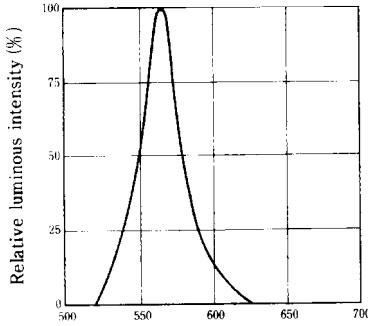
( $I_F = 20\text{mA}$ )



Ambient temperature  $T_a$  (°C)

Spectrum Distribution

(Ta = 25°C)



Wavelength  $\lambda$  (nm)