

## KEM5001R

The KEM5001R is GaAlAs infrared emitting diode that is designed for high power, low forward voltage. This device is optimized for speed and efficiency at emission wavelength 870nm and has a high radiant efficiency over a wide range of forward current.

## Features

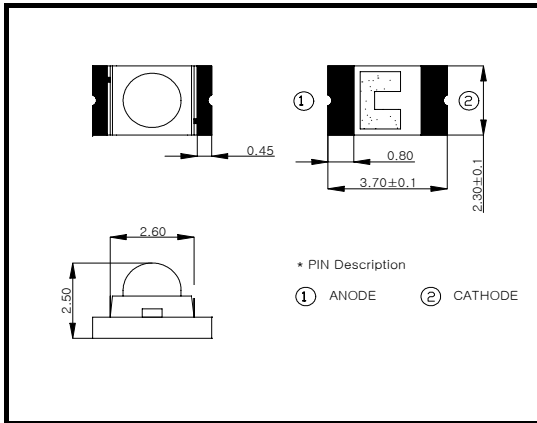
- 870nm wavelength
- Low forward voltage
- High power and high reliability
- Available for pulse operating
- Surface Mountable Leadless Package

## Applications

- IR Audio and Telephone
- IR Communication
- Optical Switch
- Available for Wireless Digital Data Transmission

## Dimensions

[Unit : mm]



## Absolute Maximum Ratings

[T<sub>A</sub> = 25 °C]

| Parameter                | Symbol            | Rating   | Unit |
|--------------------------|-------------------|----------|------|
| Power Dissipation        | PD                | 95       | mW   |
| Forward Current          | I <sub>F</sub>    | 50       | mA   |
| Pulse Forward Current *1 | I <sub>FP</sub>   | 1        | A    |
| Reverse Voltage          | V <sub>R</sub>    | 5        | V    |
| Operating Temperature    | T <sub>opr.</sub> | -25~+85  | °C   |
| Storage Temperature      | T <sub>stg.</sub> | -25~+100 | °C   |
| Soldering Temperature *2 | T <sub>sol</sub>  | 260      | °C   |

\*1. Duty ratio=1/100, pulse width=0.1ms

\*2. MAX 5sec

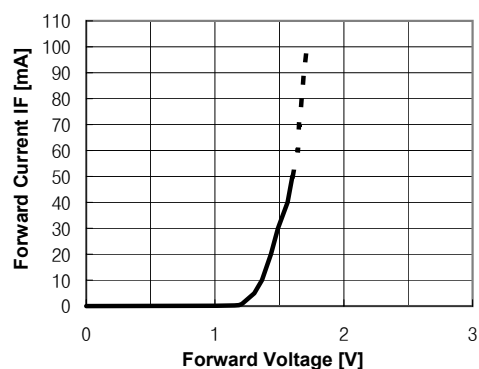
## Electro-Optical Characteristics

[T<sub>A</sub> = 25 °C]

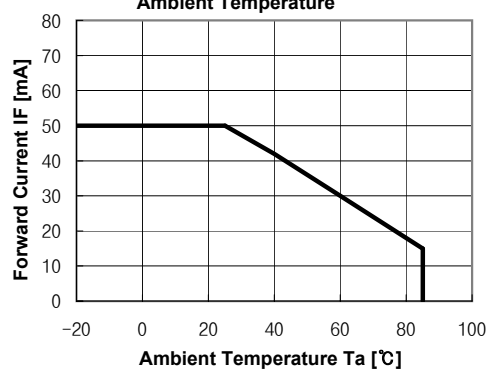
| Parameter                | Symbol           | Conditions           | Min. | Typ. | Max. | Unit. |
|--------------------------|------------------|----------------------|------|------|------|-------|
| Forward Voltage          | V <sub>F</sub>   | I <sub>F</sub> =50mA | -    | 1.6  | 1.9  | V     |
| Reverse Voltage          | V <sub>R</sub>   | I <sub>R</sub> =10uA | 4    | -    | -    | V     |
| Radiant intensity        | P <sub>O</sub>   | I <sub>F</sub> =50mA | 13   | 16   | -    | mW/sr |
| Peak Emission Wavelength | λ <sub>p</sub>   | I <sub>F</sub> =20mA | -    | 870  | -    | nm    |
| Spectral Bandwidth 50%   | Δλ               | I <sub>F</sub> =20mA | -    | 45   | -    | nm    |
| Half Angle               | Θ <sub>1/2</sub> | I <sub>F</sub> =30mA | -    | ±20  | -    | deg.  |
| Rise Time                | Tr               | I <sub>F</sub> =50mA | -    | 15   | -    | ns    |

## KEM5001R

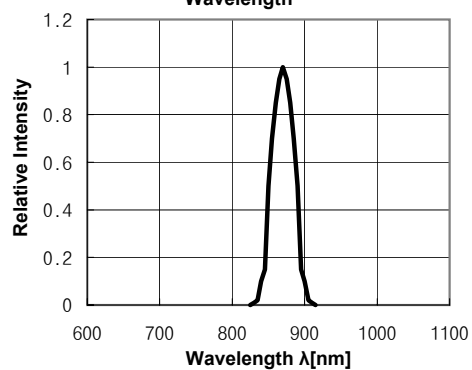
Forward Current  
Vs  
Forward Voltage



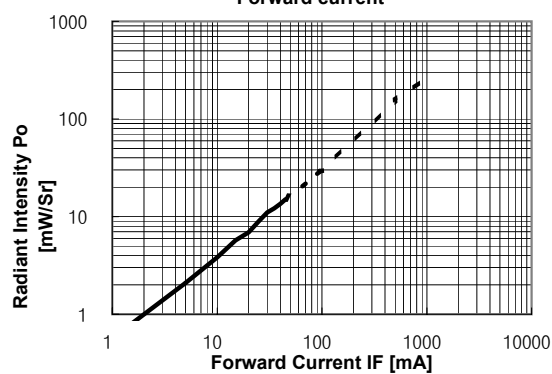
Forward Current  
Vs  
Ambient Temperature



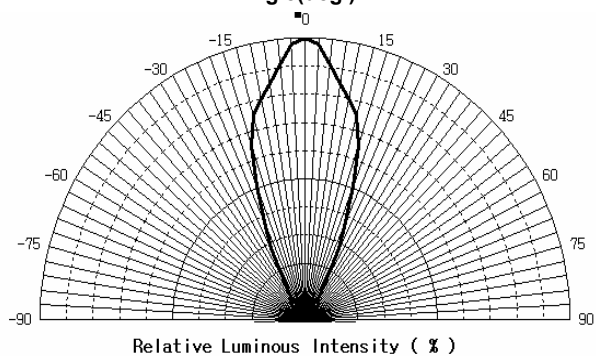
Relative Intensity  
Vs  
Wavelength



Radiant Intensity  
Vs  
Forward current



Radiant Angle  
Angle(deg.)



Pulse Current Vs  
Duty Ratio

