

# AlGaAs/Si High Power IR Chip ---TK0542IRP

## 1. Scope

- AlGaAs High power IR LED chip.

## 2. Structure

- AlGaAs on Silicon
- N Electrode (cathode) side : Gold.
- P Electrode (anode) side : Gold alloy.

## 3. Size

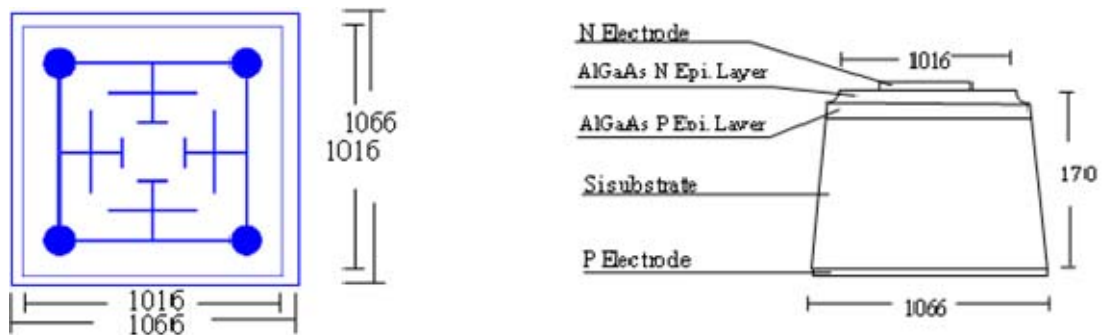
- Chip size : 1066um × 1066um
- Chip height : 170um ± 30um
- Pattern drawing : per fig. 1

## 4. Electro-Optical Characteristics

( $T_a = +25\text{ }^\circ\text{C}$ )

| Parameter                    | Symbol          | Condition             | Min. | Typ. | Max. | Unit  |
|------------------------------|-----------------|-----------------------|------|------|------|-------|
| Forward Voltage              | $V_F$           | $I_F = 20\text{mA}$   |      |      | 1.50 | V     |
| Forward Voltage              | $V_F$           | $I_F = 350\text{mA}$  |      |      | 1.80 | V     |
| Forward Voltage              | $V_F$           | $I_F = 1000\text{mA}$ |      |      | 2.00 | V     |
| Reverse Current              | $I_R$           | $V_R = 5\text{V}$     |      |      | 1    | uA    |
| Axis Radiant Power           | $P_O$           | $I_F = 20\text{ mA}$  | 10   |      |      | mW/sr |
| Axis Radiant Power           | $P_O$           | $I_F = 350\text{ mA}$ | ※    |      |      | mW/sr |
| Peak Wavelength              | $\lambda_p$     | $I_F = 350\text{ mA}$ |      | 850  |      | nm    |
| Spectrum Width of Half Value | $\Delta\lambda$ | $I_F = 350\text{ mA}$ |      | 30   |      | nm    |
| Optical Rise Time            | $T_R$           | $I_F = 20\text{mA}$   |      | 25   |      | ns    |
| Optical Rise Time            | $T_F$           | $I_F = 20\text{mA}$   |      | 25   |      | ns    |

- ※ • Rank P : min.  $\geq 200$   
 • Rank Q : min.  $\geq 220$



Unit :  $\mu\text{m}$

fig. 1

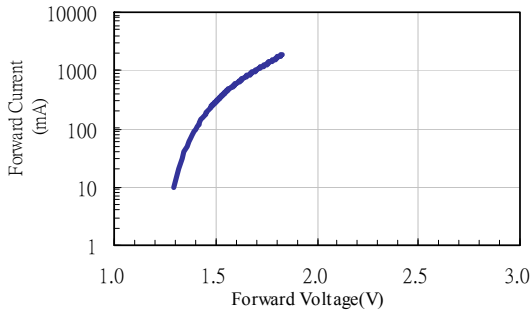
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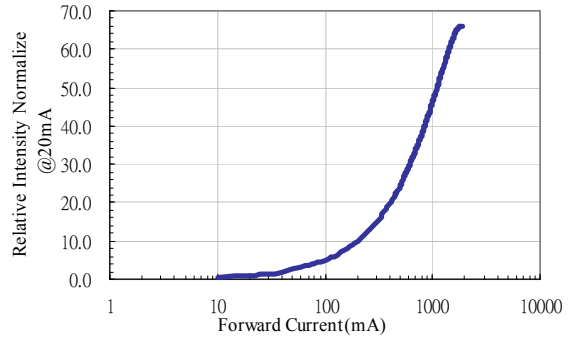
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## Electro-Optical Characteristics Curve

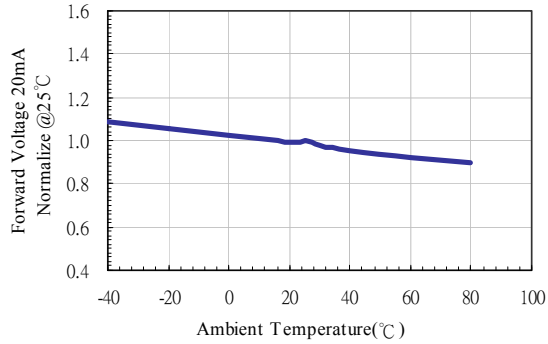
Forward current vs. Forward Voltage



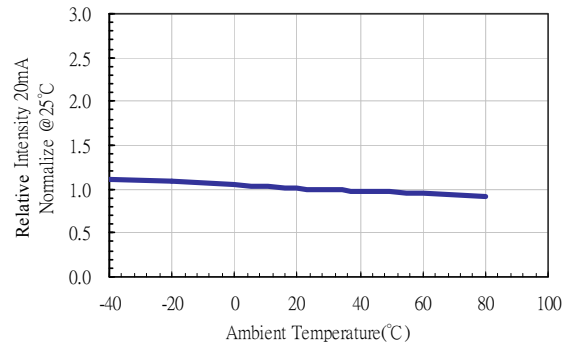
Relative Intensity vs. Forward Current



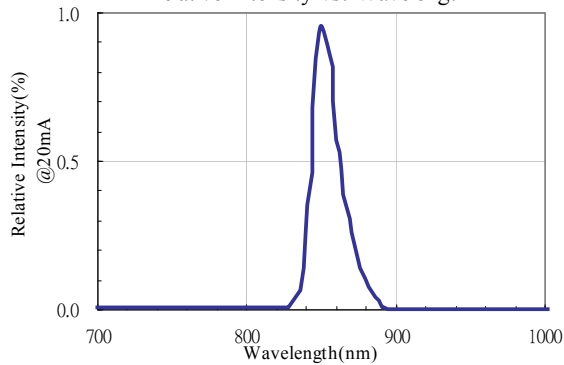
Forward Voltage vs. Temperature



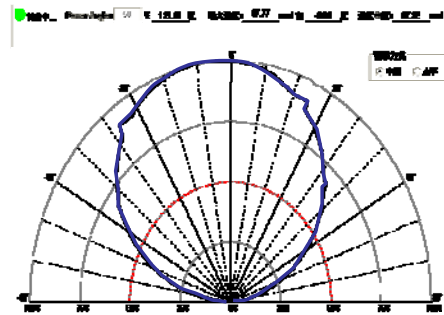
Relative Intensity vs. Temperature



Relative Intensity vs. Wavelength



Half power angle on TO-18



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