

# AlGaAs / GaAs VCSEL Chip ---TK0909VAN

## 1. Scope

- The specification applies to AlGaAs infrared chips
- Type : TK0909VAN

## 2. Structure

- AlGaAs with AlGaAs / GaAs DBR structure \_SiNy coating type — VCSEL Chip.
- P Electrode (anode) : Gold.
- N Electrode (cathode) : Gold.

## 3. Size

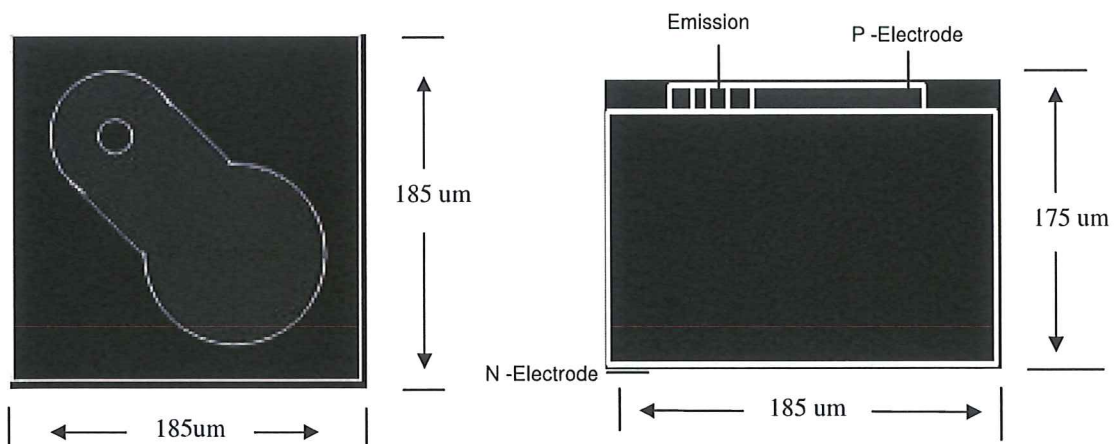
- Chip size :  $185 \times 185 \mu\text{m} \pm 25 \mu\text{m}$  (After cutting)
- Thickness :  $175 \pm 25 \mu\text{m}$
- Bonding Pad :  $100 \pm 10 \mu\text{m}$
- Aperture :  $16 \pm 2 \mu\text{m}$
- Pattern drawing : per fig. 1

Temporary

## 4. Electro-Optical Characteristics

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

| Parameter         | Symbol      | Condition              | Min. | Typ.  | Max. | Unit   |
|-------------------|-------------|------------------------|------|-------|------|--------|
| Forward Voltage   | $V_F$       | $I_F = 9 \text{ mA}$   | 1.80 | 1.90  | 2.20 | V      |
| Slope Efficiency  | $\eta_s$    | $I_F = 9 \text{ mA}$   |      | 0.5   |      | W/A    |
| Threshold Current | $I_{th}$    | $T = 25^\circ\text{C}$ | 1.0  | 2.0   | 2.8  | mA     |
| Output Power      | $P_o$       | $I_F = 9 \text{ mA}$   | 4.1  | 4.75  | 5.5  | mW     |
| Center Wavelength | $\lambda_c$ | $I_F = 9 \text{ mA}$   | 930  | 940   | 950  | nm     |
| Beam Divergence   | $\Theta$    | $I_F = 9 \text{ mA}$   | 20   | 28    | 32   | Degree |
| Response Time     | $T_r/T_f$   | $I_F = 12 \text{ mA}$  |      | 12/10 |      | ns     |
| ESD               |             | HBM                    |      | 200   |      | V      |



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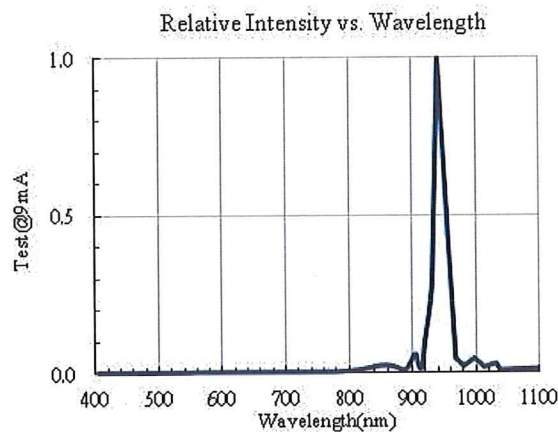
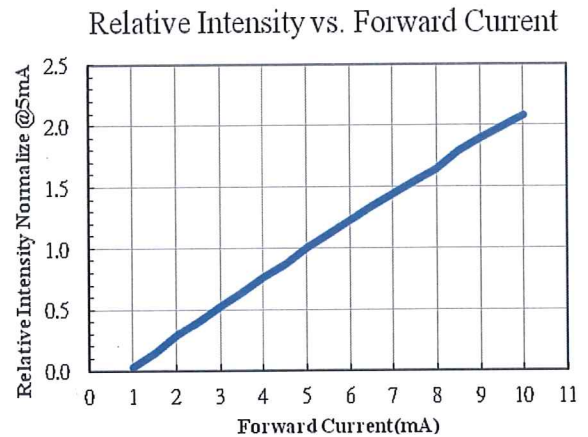
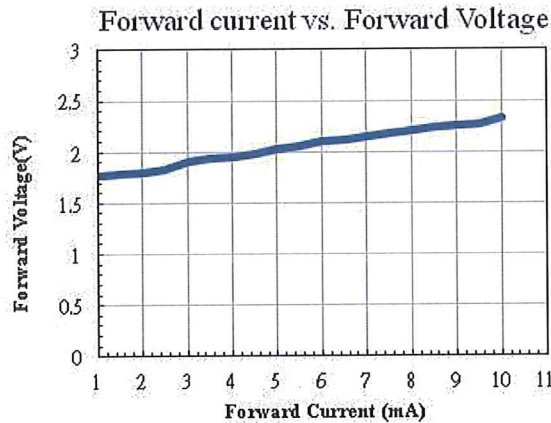


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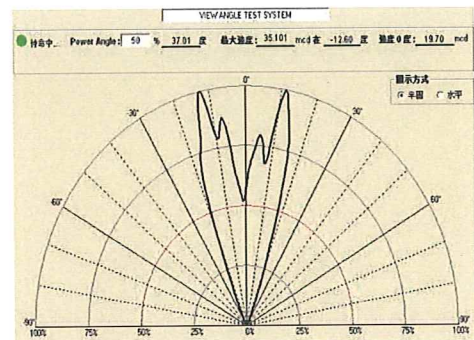
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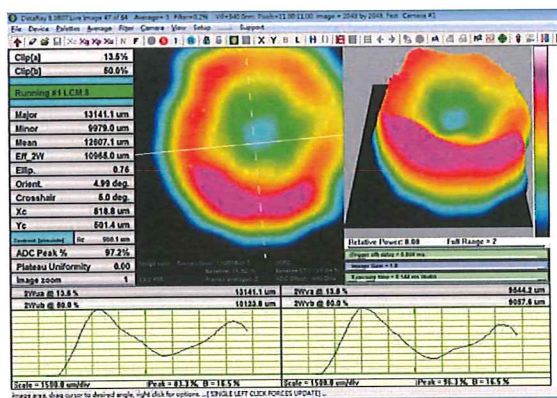
## Electro-Optical Characteristics Curve



Half power angle on TO-18, 25°C, 9mA



Emitting Pattern on TO-can, 25°C, 9mA, 5cm



Emitting Pattern on TO-can, 25°C, 9mA, 3.5cm

