

High Speed GaAlAs Infrared Emitter

OPE5587

The **OPE5587** is GaAlAs infrared emitting diode that is designed for high power, low forward voltage and high speed rise / fall time. This device is optimized for speed and efficiency at emission wavelength 880nm and has a high radiant efficiency over a wide range of forward current. This device is packaged T1-3/4 package and has narrow beam angle with lensed package and cup frame. Especially this device is suited as the emitter of data transmission without cable.

FEATURES

- Ultra high-speed : 25ns rise time
- 880nm wavelength
- Narrow beam angle
- Low forward voltage
- High power and high reliability
- Available for pulse operating

APPLICATIONS

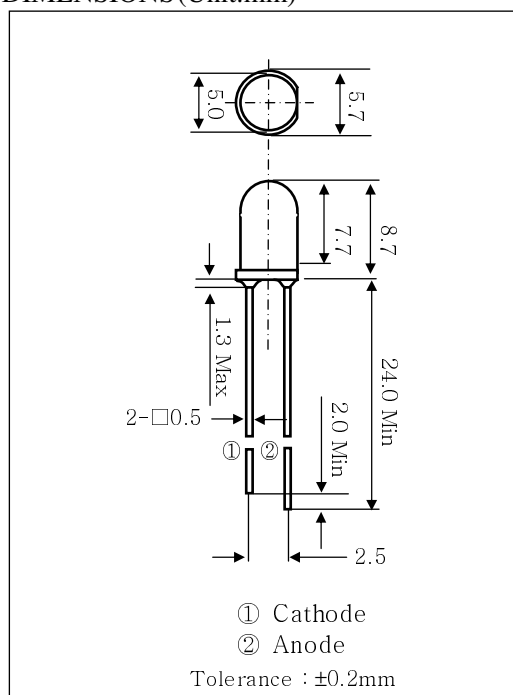
- Emitter of IrDA
- IR Audio and Telephone
- High speed IR communication
- IR LANs
- Available for wireless digital data transmission

STORAGE

- Condition : 5°C~35°C,R.H.60%
- Terms : within 3 months from production date
- Remark : Once the package is opened, the products should be used within a day. Otherwise, it should be keeping in a damp proof box with desiccants.

* Please take proper steps in order to secure reliability and safety in required conditions and environments for this device.

DIMENSIONS (Unit:mm)



MAXIMUM RATINGS

(Ta=25°C)

| Item | Symbol | Rating | Unit |
|-----------------------|------------|---------|------|
| Power dissipation | P_D | 150 | mW |
| Forward current | I_F | 100 | mA |
| Pulse forward current | I_{FP} | 1.0 | A |
| Reverse voltage | V_R | 4.0 | V |
| Operating temp. | $T_{opr.}$ | -25~+85 | °C |
| Soldering temp. | $T_{sol.}$ | 260 | °C |

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

*2. Lead Soldering Temperature (2mm from case for 5sec.).

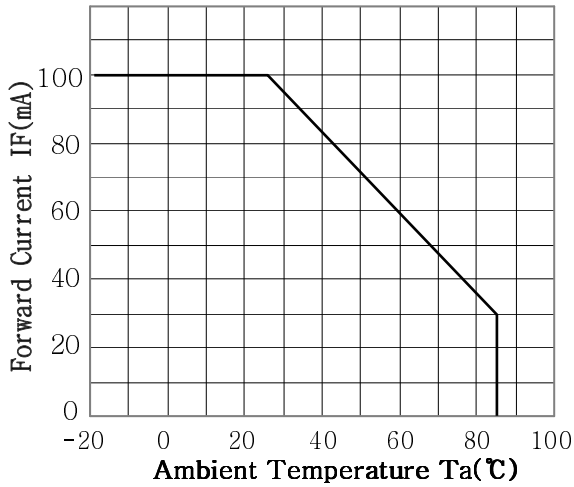
ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

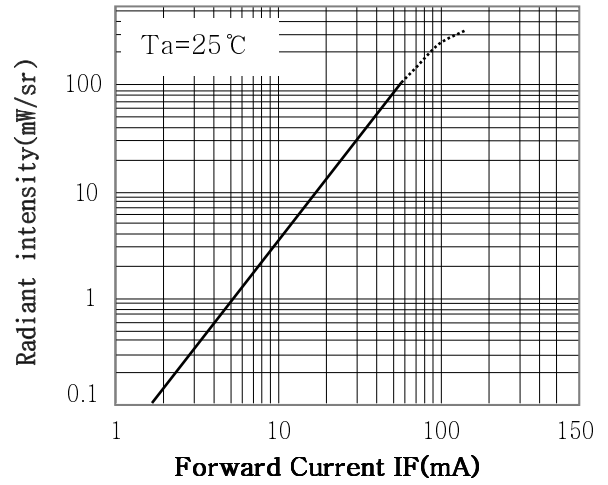
| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------------------|-----------------|----------------------------|------|-------|------|-------|
| Forward voltage | V_F | $I_F=50mA$ | | 1.5 | 2.0 | V |
| Reverse current | I_R | $V_R=4V$ | | | 10 | μA |
| Capacitance | C_t | $f=1MHz$ | | 20 | | pF |
| Radiant intensity | I_e | $I_F=50mA$ | 40 | 90 | | mW/sr |
| Peak emission wavelength | λ_p | $I_F=50mA$ | | 880 | | nm |
| Spectral bandwidth 50% | $\Delta\lambda$ | $I_F=50mA$ | | 45 | | nm |
| Half angle | $\Delta\theta$ | $I_F=50mA$ | | ±10 | | deg. |
| Optical rise & fall time(10%~90%) | tr/tf | $I_F=50mA$ | | 25/15 | | ns |
| Cut off frequency | f_c | $I_F=50mA$ DC +10mA p-p | | 14 | | MHz |

*3. $10\log P_o(f_c \text{ MHz})/P_o(0.1 \text{ MHz})=-3$

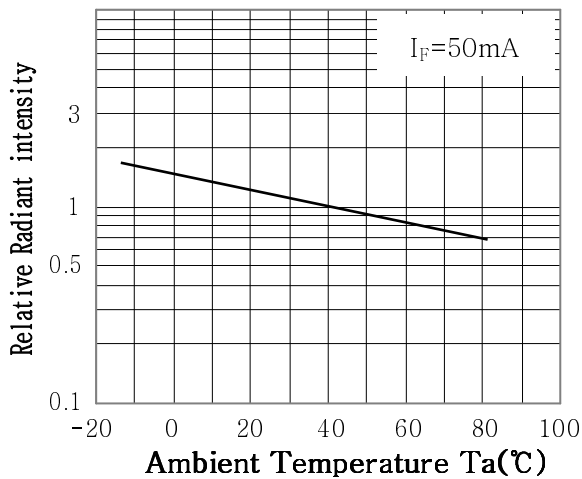
- FORWARD CURRENT Vs. AMBIENT TEMP.



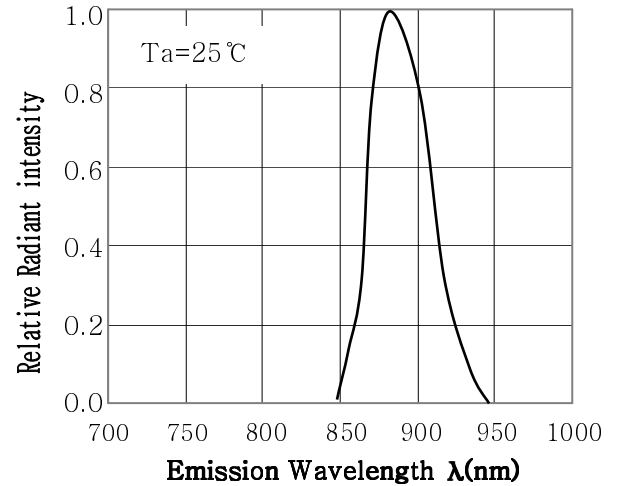
- RADIANT INTENSITY Vs. FORWARD CURRENT.



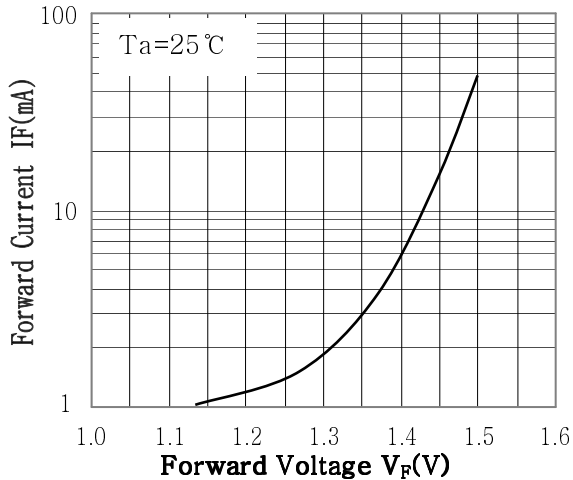
- RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.



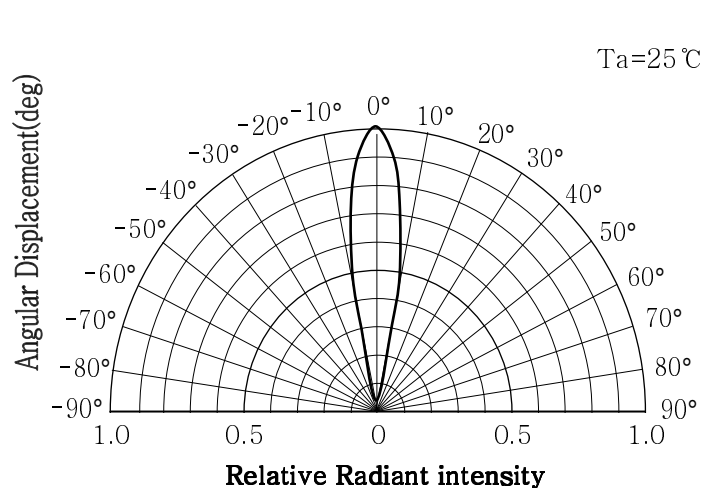
- RELATIVE RADIANT INTENSITY Vs. EMISSION WAVELENGTH.



- FORWARD CURRENT Vs. FORWARD VOLTAGE



- ANGULAR DISPLACEMENT Vs RELATIVE RADIANT INTENSITY



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