

# High Speed GaAlAs Infrared Emitter

## OPE5685

The **OPE5685** 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 850nm and has a high radiant efficiency over a wide range of forward current. This device is packaged T1-3/4 plastic package and has wide beam angle with lensed package and cup frame. Especially this device is suited as the emitter of data transmission without cable.

### FEATURES

- High speed : 25ns rise time
- 850nm wavelength
- Wide 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.

### MAXIMUM RATINGS

(Ta=25°C)

Item	Symbol	Rating	Unit
Power Dissipation	P <sub>D</sub>	150	MW
Forward current	I <sub>F</sub>	100	MA
Pulse forward current	I <sub>FP</sub>	1.0	A
Reverse voltage	V <sub>R</sub>	4.0	V
Operating temp.	T <sub>opr.</sub>	-25~+85	°C
Soldering temp. <sup>*2</sup>	T <sub>sol.</sub>	260.	°C

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

<sup>\*2</sup>.Lead Soldering Temperature (2mm from case for 5sec.).

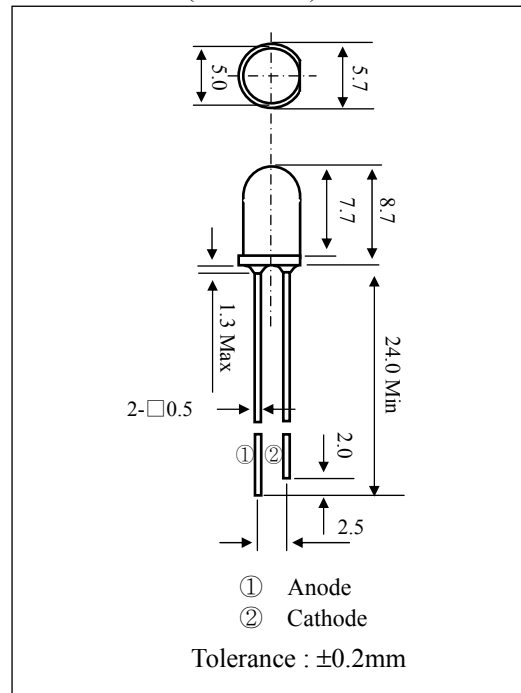
### ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

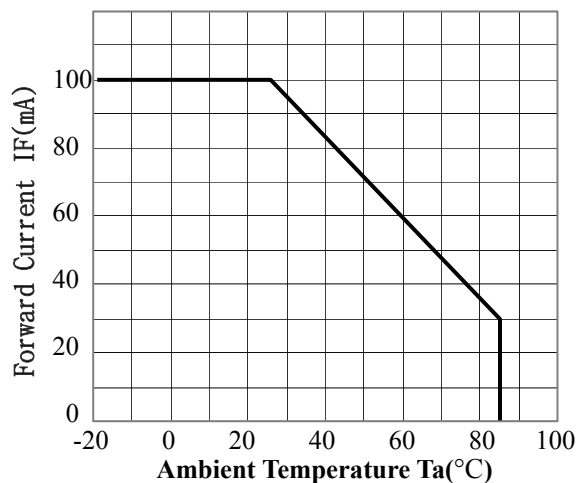
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =50mA		1.5	2.0	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =4V			10	μA
Capacitance	C <sub>t</sub>	f=1MHz		20		pF
Radiant intensity	I <sub>e</sub>	I <sub>F</sub> =50mA		50		mW/sr
Peak emission wavelength	λ <sub>p</sub>	I <sub>F</sub> =50mA		850		nm
Spectral bandwidth 50%	Δλ	I <sub>F</sub> =50mA		45		nm
Half angle	Δθ	I <sub>F</sub> =50mA		±22		deg.
Optical rise & fall time(10%~90%)	tr/tf	I <sub>F</sub> =50mA		25/13		ns
Cut off frequency <sup>*3</sup>	f <sub>c</sub>	I <sub>F</sub> =50mA DC +10mA p-p		14		MHz

<sup>\*3</sup>. 10logPo(fc MHz)/Po(0.1 MHz)=-3

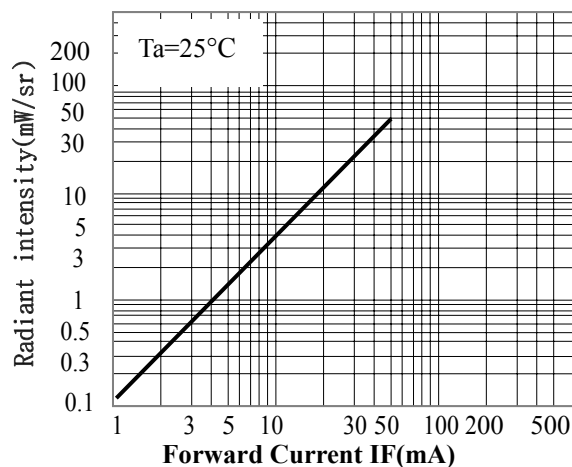
DIMENSIONS(Unit : mm)



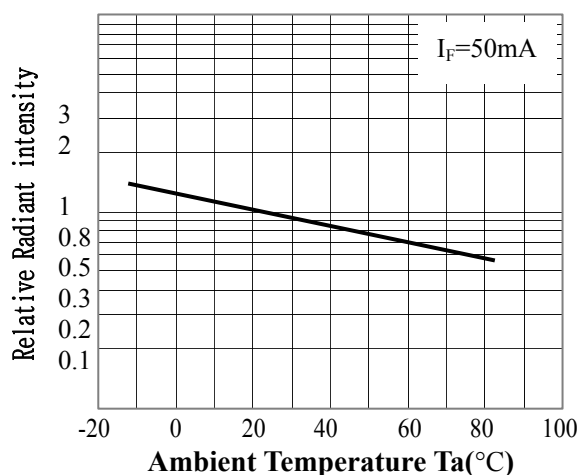
● **FORWARD CURRENT Vs. AMBIENT TEMP.**



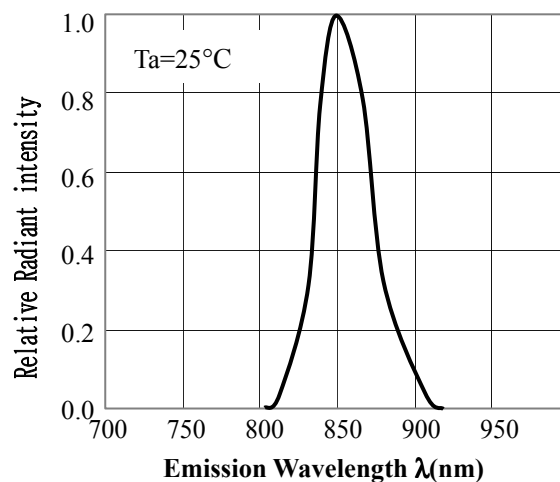
● **RADIANT INTENSITY Vs. FORWARD CURRENT.**



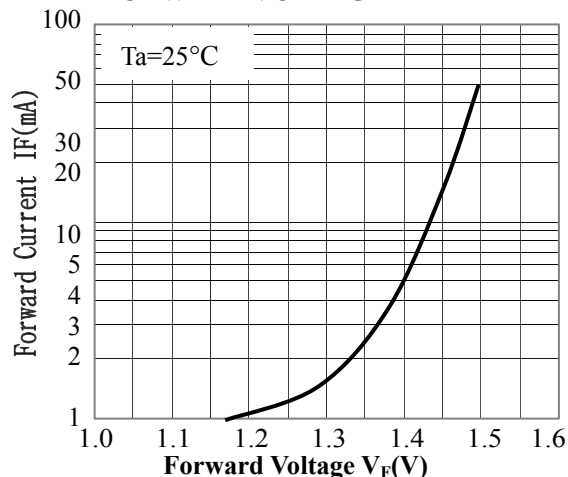
● **RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.**



● **RELATIVE RADIANT INTENSITY Vs. EMISSION WAVELENGTH.**



● **FORWARD CURRENT Vs. FORWARD VOLTAGE**



● **ANGULAR DISPLACEMENT Vs. RELATIVE RADIANT INTENSITY**

