

# High Speed GaAlAs Infrared Emitter

## OPE5985

The **OPE5985** 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 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

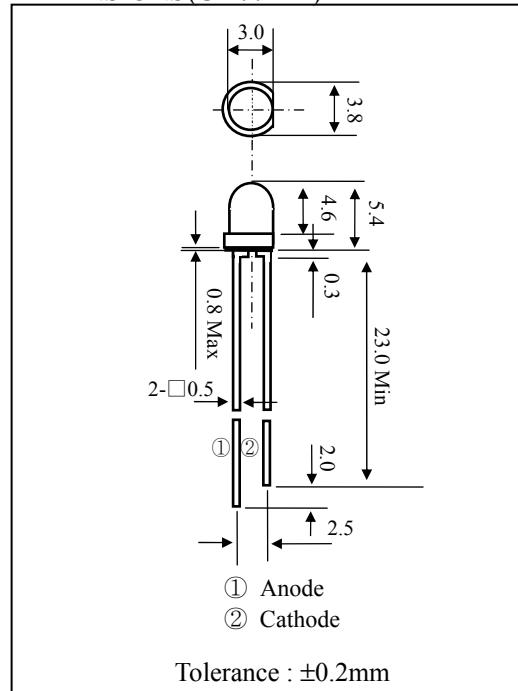
### STORAGE

- 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.

DIMENSIONS(Unit : mm)



### MAXIMUM RATINGS

(Ta=25°C)

Item	Symbol	Rating	Unit
Power Dissipation	P <sub>D</sub>	80	mW
Forward current	I <sub>F</sub>	60	mA
Pulse forward current	I <sub>FP</sub>	0.5	A
Reverse voltage	V <sub>R</sub>	5.0	V
Operating temp.	T <sub>opr.</sub>	-20~ +70	°C
Soldering temp.	*2 T <sub>sol.</sub>	240.	°C

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

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

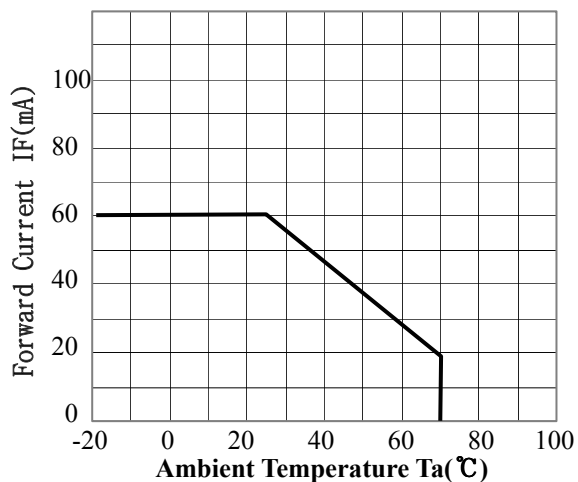
### ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

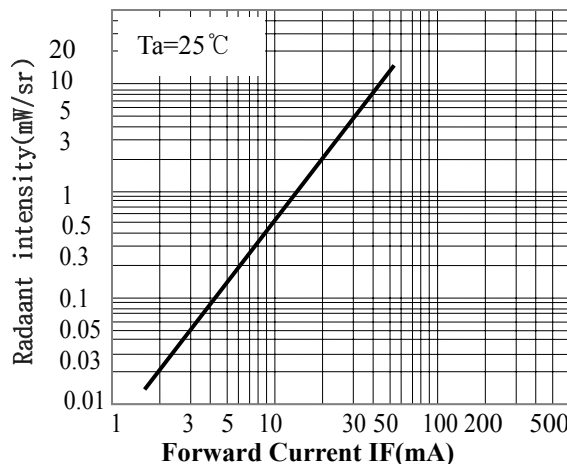
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =50mA		1.5	2.0	V	
Reverse current	I <sub>R</sub>	V <sub>R</sub> =5V			10	μA	
Capacitance	C <sub>t</sub>	f=1MHz		20		pF	
Radiant intensity	I <sub>e</sub>	I <sub>F</sub> =50mA	A Rank	15	~	40	mW/sr
			B Rank	40	~	55	
			C Rank	55	~		
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> =40mA		±25		deg.	
Optical rise & fall time(10%~90%)	tr/tf	I <sub>F</sub> =50mA		25/13		ns	
Cut off frequency	*3 fc	I <sub>F</sub> =50mA DC +10mA p-p		14		MHz	

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

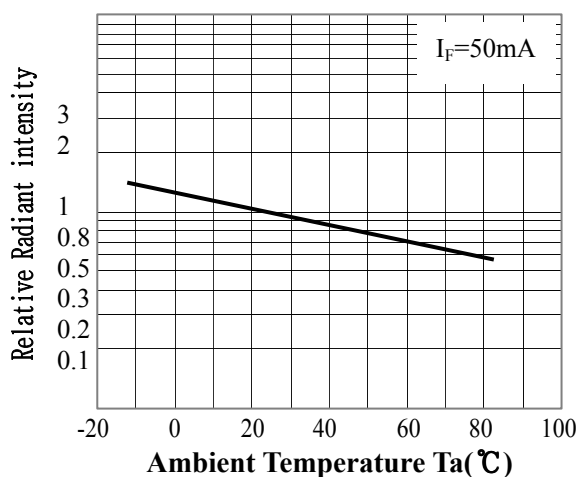
- **FORWARD CURRENT Vs. AMBIENT TEMP.**



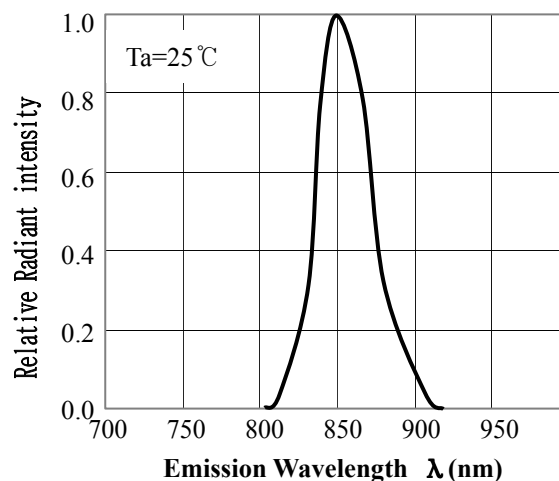
- **RADIANT INTENSITY Vs. FORWARD CURRENT.**



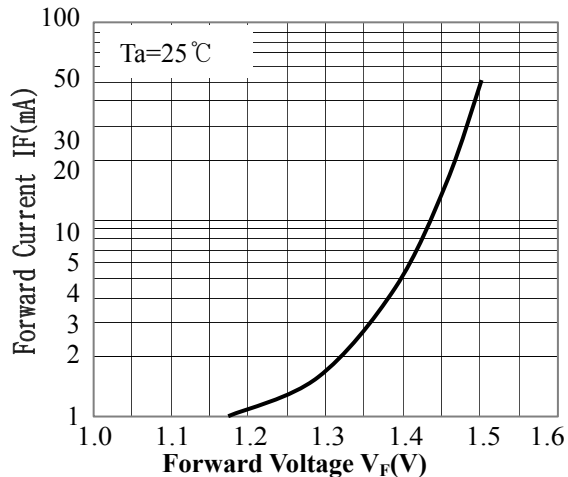
- **RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.**



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



- **FORWARD CURRENT Vs. FORWARD VOLTAGE**



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

