

# High Speed GaAlAs Infrared Emitter

## OPE5687HP

The **OPE5687HP** 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
- Wide beam angle
- Low forward voltage
- High power and high reliability
- Available for pulse operating

### APPLICATIONS

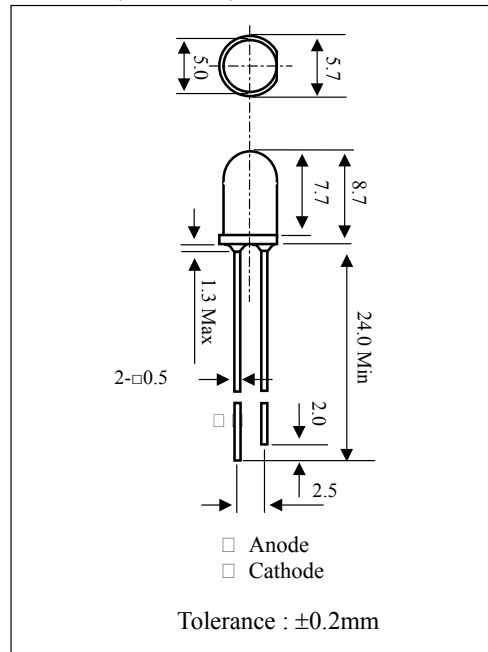
- Emitter of IrDA
- IR Audio and Telephone
- High speed IR communication
- IR LANs
- Available for wireless digital data transmission

### 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	$P_D$	150	mW
Forward current	$I_F$	100	mA
Pulse forward current <sup>*1</sup>	$I_{FP}$	1.0	A
Reverse voltage	$V_R$	4.0	V
Operating temp.	$T_{opr.}$	-25~+85	°C
Soldering temp. <sup>*2</sup>	$T_{sol.}$	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

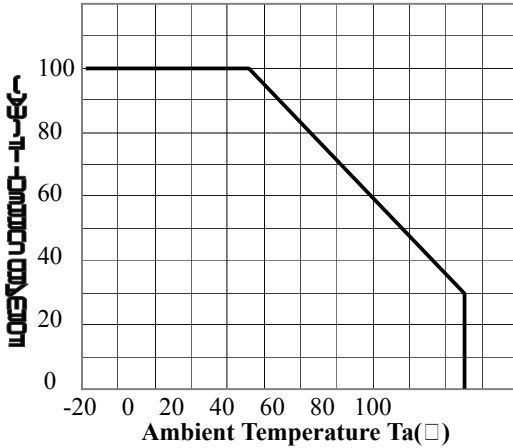
(Ta=25°C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	$V_F$	$I_F=50mA$		1.5	2.0	V
Reverse current	$I_R$	$V_R=4V$			10	μA
Capacitance	$C_t$	$f=1MHz$		20		□
Radiant intensity	$I_e$	$I_F=50mA$	25	50		mW/□
Power	$P_o$	$I_F=100mA$	20	35		mW
Peak emission wavelength	$\lambda_p$	$I_F=50mA$		880		nm
Spectral bandwidth 50%	$\Delta\lambda$	$I_F=50mA$		45		nm
Half angle	$\Delta\theta$	$I_F=50mA$		±22		deg.
Optical rise & fall time(10%~90%)	tr/tf	$I_F=50mA$		25/15		ns
Cut off frequency <sup>*3</sup>	fc	$I_F=50mA$ DC +10mA p-p		14		MHz

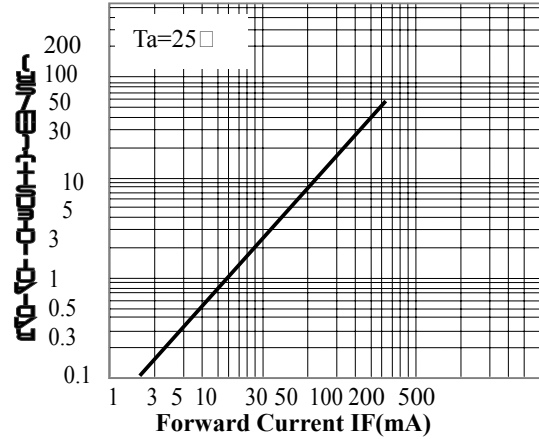
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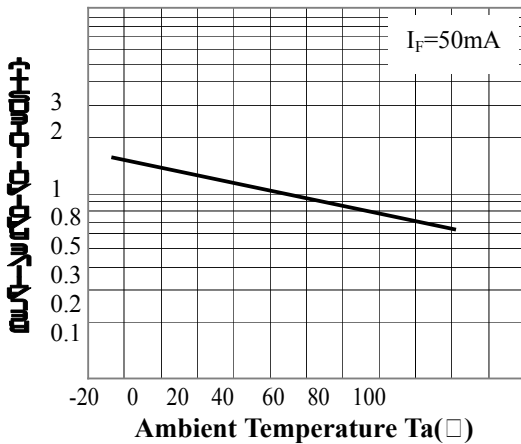
- FORWARD CURRENT Vs. AMBIENT TEMP.



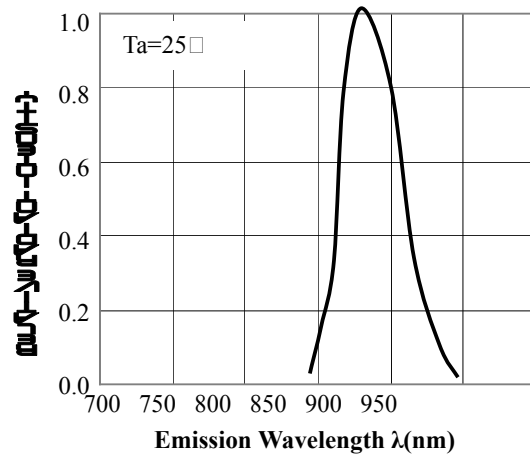
- RADIANT INTENSITY Vs. FORWARD CURRENT.



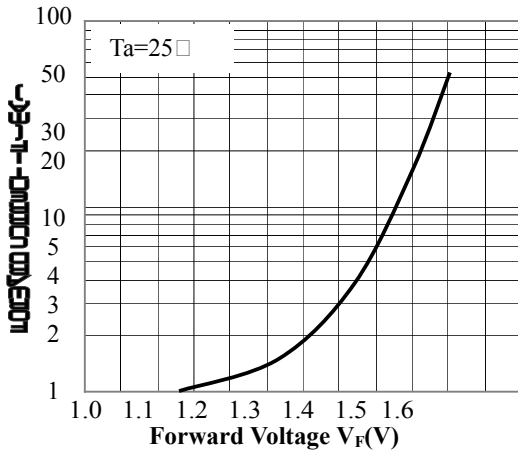
- RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.



- RELATIVE RADIANT INTENSITY Vs. EMISSION WAVELENGTH.



- FORWARD CURRENT Vs. FORWARD VOLTAGE



- ANGULAR DISPLACEMENT Vs. RELATIVE RADIANT INTENSITY

