

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

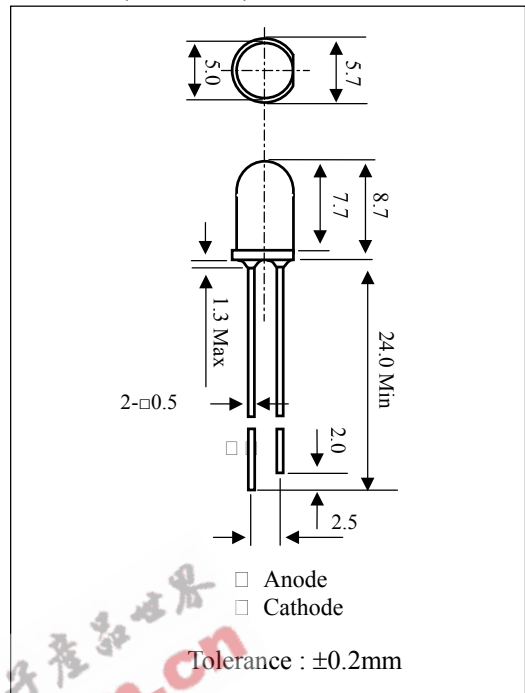
- Emitter of IrDA
- IR Audio and Telephone
- High speed IR communication
- IR LANs
- Available for wireless digital data transmission

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 ^{*1}	I _{FP}	1.0	A
Reverse voltage	V _R	4.0	V
Operating temp.	T _{opr.}	-25~ +85	°C
Soldering temp. ^{*2}	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)

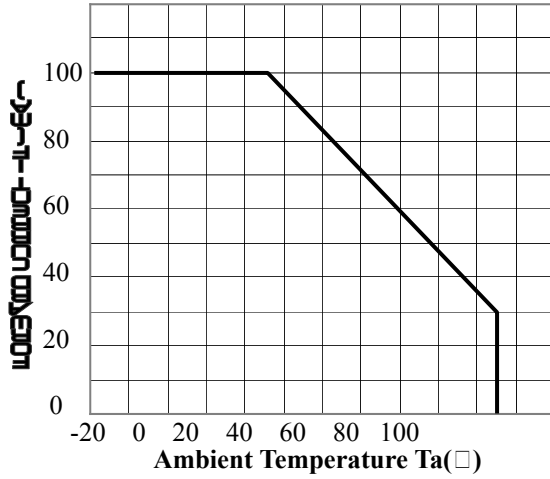
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V _F	I _F =50mA		1.5	2.0	V
Reverse current	I _R	V _R =4V			10	μA
Capacitance	C _t	f=1MHz		20		□
Radiant intensity	I _e	I _F =50mA	25	50		mW/□
Power	P _o	I _F =100mA	20	35		mW
Peak emission wavelength	λ _p	I _F =50mA		880		nm
Spectral bandwidth 50%	Δλ	I _F =50□		45		nm
Half angle	Δθ	I _F =50□		±22		deg.
Optical rise & fall time(10%~90%)	tr/tf	I _F =50□		25/15		ns
Cut off frequency ^{*3}	f _c	I _F =50mA DC +10mA p-p		14		MHz

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

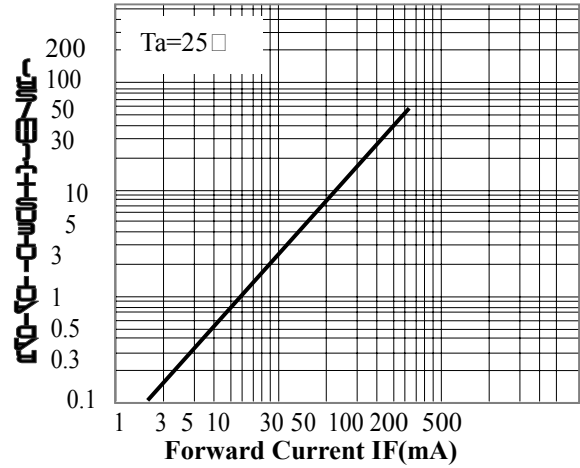
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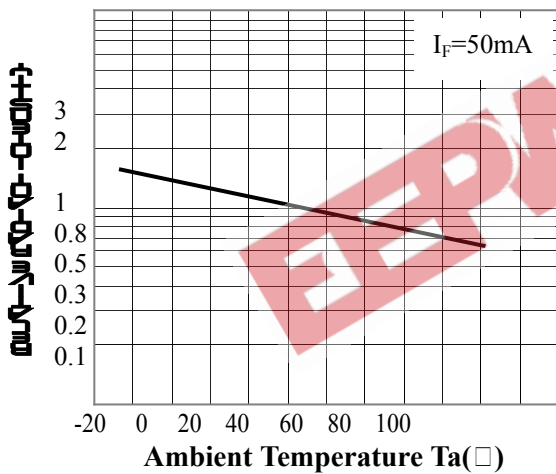
● FORWARD CURRENT Vs. AMBIENT TEMP.



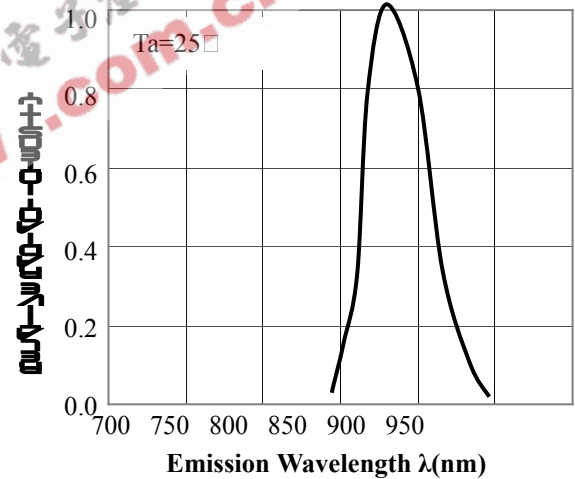
● RADIANT INTENSITY Vs. FORWARD CURRENT.



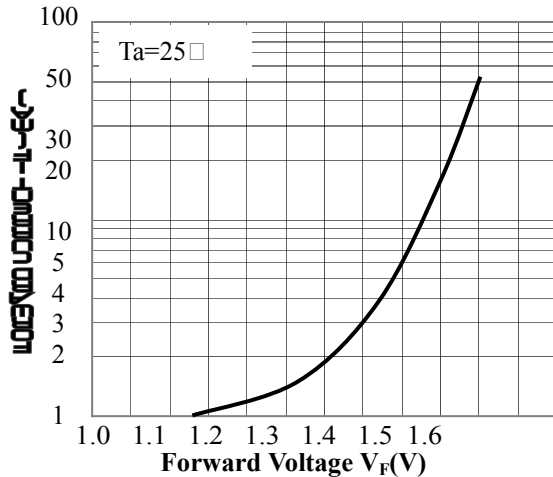
● RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.



● RELATIVE RADIANT INTENSITY Vs. EMISSION WAVELENGTH.



● FORWARD CURRENT Vs. FORWARD VOLTAGE



● ANGULAR DISPLACEMENT Vs. RELATIVE RADIANT INTENSITY

