

High Speed GaAlAs Infrared Emitter

OPE5T87

The **OPE5T87** 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 plastic 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

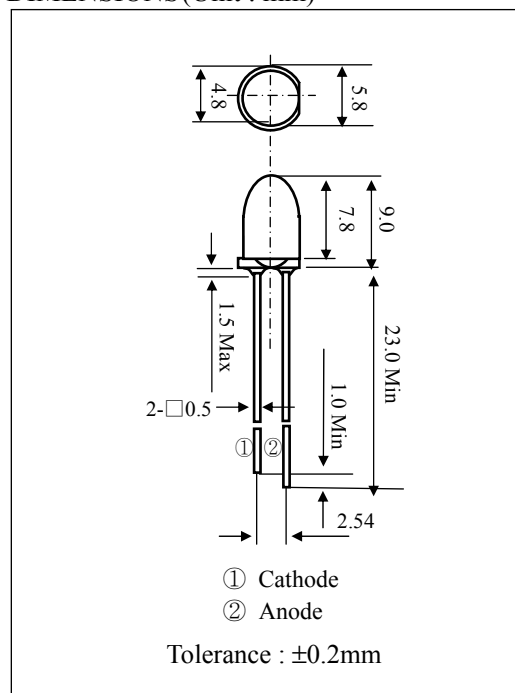
- Emitter of IrDA
- IR Audio and Telephone
- High speed IR communication
- IR LANs
- Available for wireless digital data transmission

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

($T_a=25^\circ\text{C}$)

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	$^\circ\text{C}$
Soldering temp. ^{*2}	$T_{sol.}$	260.	$^\circ\text{C}$

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

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

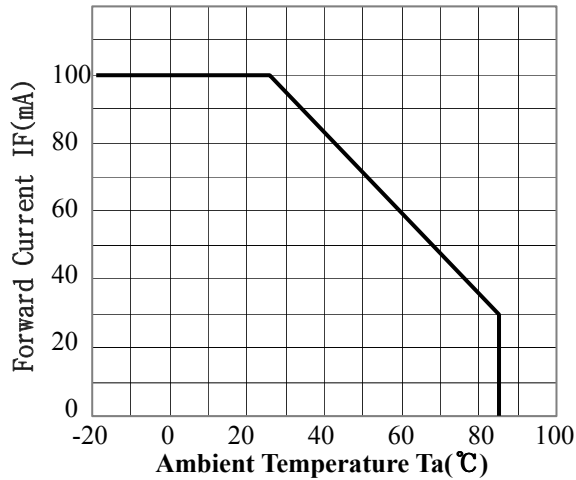
ELECTRO-OPTICAL CHARACTERISTICS

($T_a=25^\circ\text{C}$)

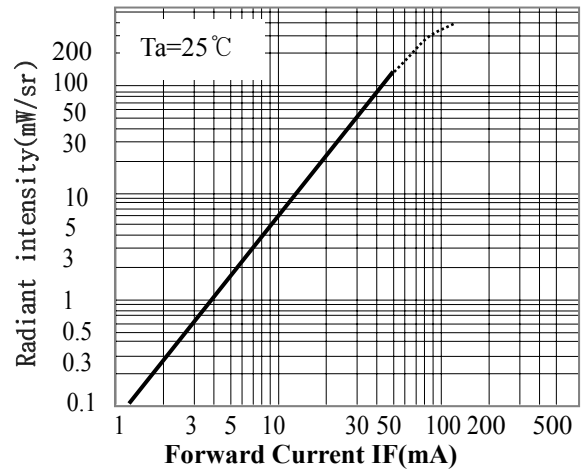
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	V_F	$I_F=50\text{mA}$		1.5	2.0	V
Reverse current	I_R	$V_R=4\text{V}$			10	μA
Capacitance	C_t	$f=1\text{MHz}$		20		pF
Radiant intensity	I_e	$I_F=50\text{mA}$	50	120		mW/sr
Peak emission wavelength	λ_p	$I_F=50\text{mA}$		880		nm
Spectral bandwidth 50%	$\Delta\lambda$	$I_F=50\text{mA}$		45		nm
Half angle	$\Delta\theta$	$I_F=50\text{mA}$		± 8		deg.
Optical rise & fall time(10%~90%)	t_r/t_f	$I_F=50\text{mA}$		25/15		ns
Cut off frequency ^{*3}	f_c	$I_F=50\text{mA}$ DC $+10\text{mA}$ p-p		14		MHz

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

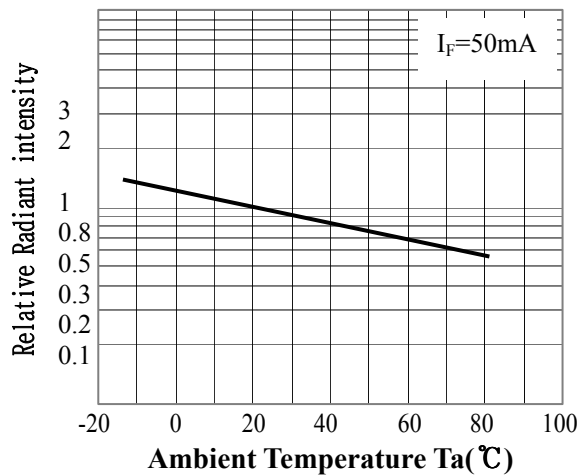
● **FORWARD CURRENT Vs. AMBIENT TEMP.**



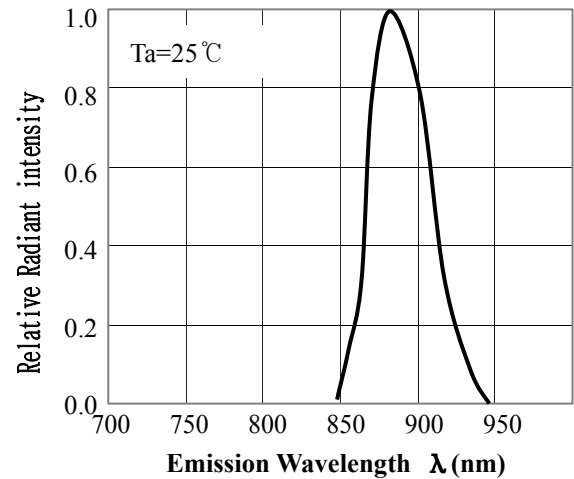
● **RADIANT INTENSITY Vs. FORWARD CURRENT.**



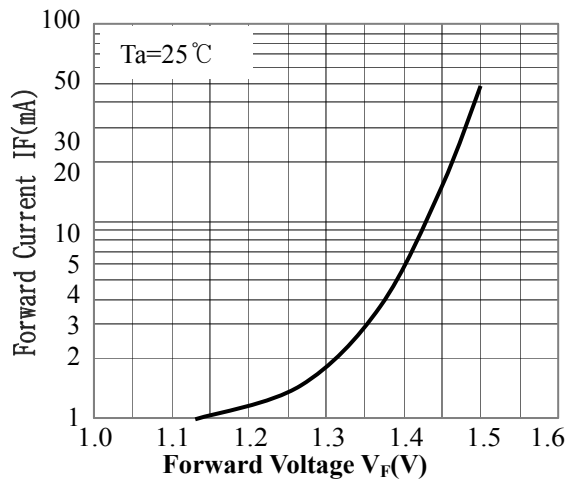
● **RELATIVE RADIANT INTENSITY Vs. AMBIENT TEMP.**



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



● **FORWARD CURRENT Vs. FORWARD VOLTAGE**



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

