

INFRARED EMITTING DIODE

General Description

The OPE-5685 is GaAlAs infrared emitter diode mounted in a T-1 $\frac{3}{4}$ plastic package.

This device features high speed rise time / fall time, and can be used as emitter of data transmission without cable.



Features

- Lens Appearance : Water Clear
- High output power
- High speed
- Meet RoHS

Applications

- Cordless data communications
- Wireless local area networks
- Cordless headphone

MAXIMUM RATINGS

(Ta=25°C)

Item	Symbol	Rating	Unit
Reverse voltage	V _R	5	V
Forward direct current	I _F	100	mA
Power dissipation	P _D	200	mW
Operating temp.	T _{opr.}	-40 ~ +85	°C
Storage temp.	T _{stg.}	-40 ~ +100	°C

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

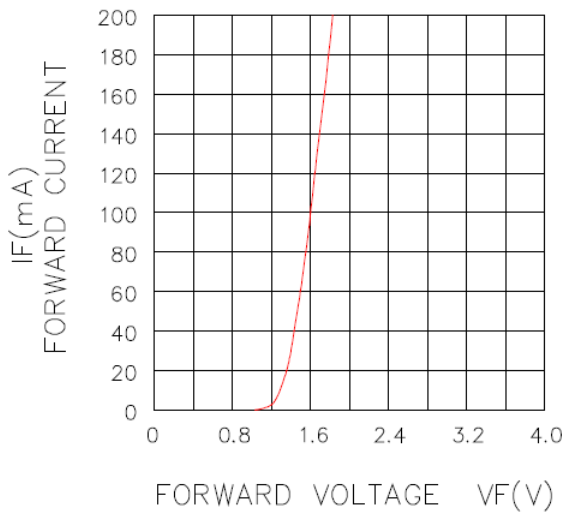
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Radiant intensity	P _o	I _F =50mA	35	-	80	mW/sr
Forward voltage	V _F	I _F =100mA	-	1.6	2.0	V
Reverse current	I _R	V _R =4V	-	-	10	uA
Rise time	t _r	I _F =50mA	-	25	-	nsec
Fall time	t _f		-	15	-	nsec
Peak wavelength	λ _p	I _F =50mA	-	850	-	nm
Spectral band width @ 50%	Δλ	I _F =50mA	-	40	-	nm
Half angle	Δθ	I _F =50mA	-	±20	-	deg.

*Radiant Intensity Measurement allowance is ± 15%

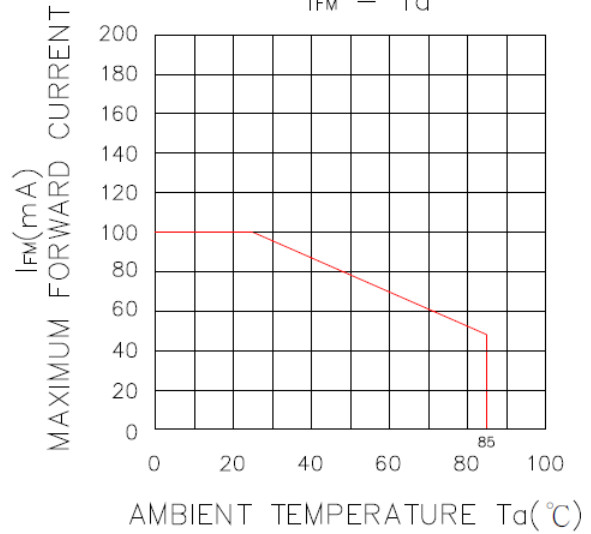
*Forward voltage Measurement allowance is ± 0.05V

*Peak emission wavelength Measurement allowance is ± 1nm

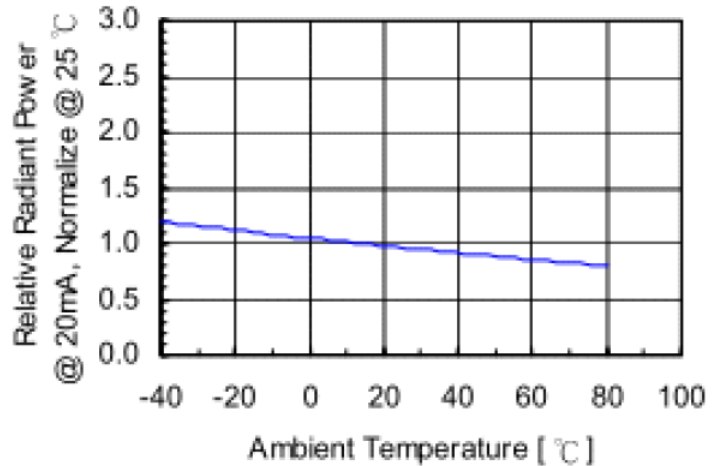
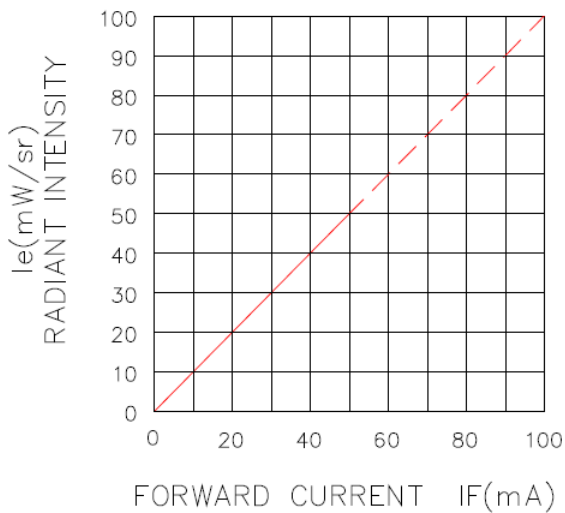
$I_F - V_F$ ($T_a=25^\circ\text{C}$)



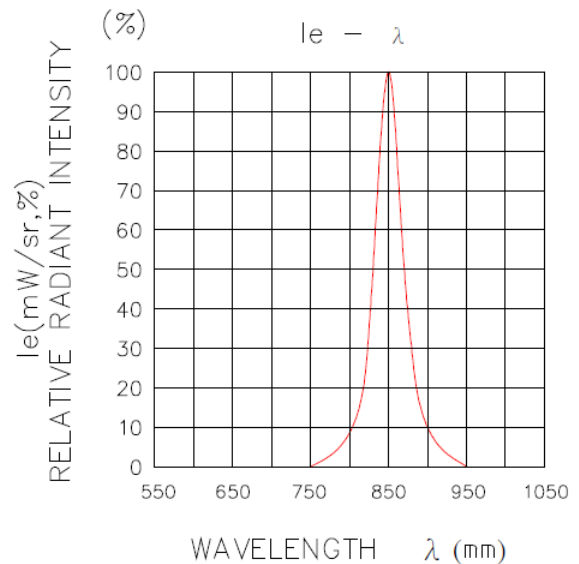
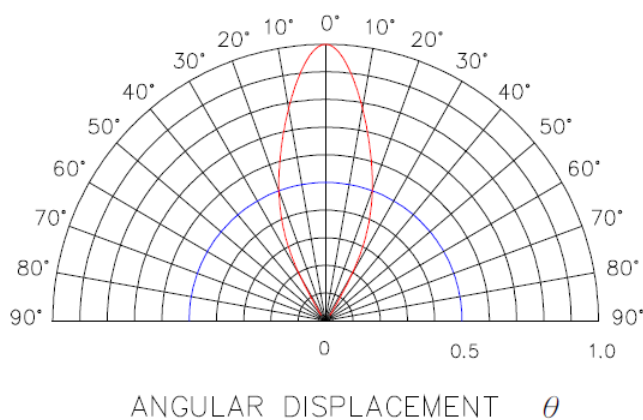
$I_{FM} - T_a$



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



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



RELIABILITY TEST

CONDITIONS :

The reliability of products shall be satisfied with items listed below .

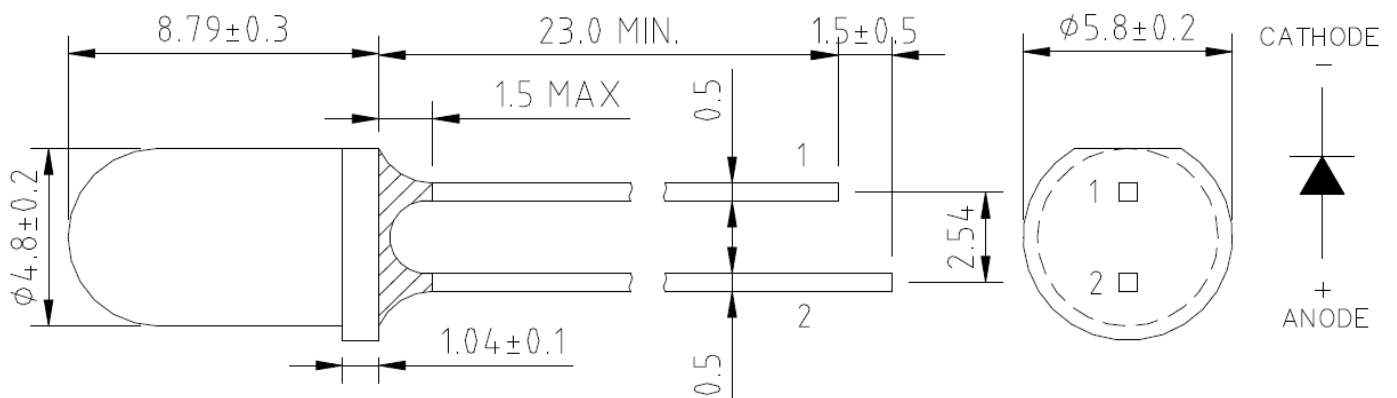
NO.	Item	Condition	Time / Cycle	Number of Damaged
1	Soldering Heat Test	260°C	5 sec	0 / 60
2	Thermal Shock	0°C (15 min) ~ 100°C (15 min)	20 cycle	0 / 60
3	High Temp. Storage	100°C	1000 Hrs	0 / 60
4	Low Temp. Storage	-40°C	1000 Hrs	0 / 60
5	Operation Temperature Cycle TEST	-40°C ~ 85°C	100 Cycles 200Hrs	0 / 60
6	High Temp. High Humidity Test	60°C , 90% RH	1000 Hrs	0 / 60
7	Operation Life Test	IF=50mA	1000 Hrs	0 / 60

DIMENSIONS

SIGN : 1. CATHODE
2. ANODE

UNIT : mm

Tolerance is ± 0.25 mm unless otherwise specified.



APPLICATION NOTES

1. Static Electricity and Surge

Static electricity and surge damage LEDs. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. All devices, equipment and machinery must be electrically grounded.

2. Lead Forming

The leads should be bent at a point at least 3mm from the epoxy resin of the LEDs.

Bending should be performed with the base firmly fixed by means of a jig or radio pliers.



3. Mounting Method

The leads should be formed so they are aligned exactly with the holes on the PC board. This will eliminate any stress on the LEDs.

Use LEDs with stoppers or resin spacer to accurately position the LEDs.

The epoxy resin base should not be touching the PC board when mounting the LEDs.



Mechanical stress to the resin may be caused by the warping of the PC board when soldering. The LEDs must not be designed into a product or system where the epoxy lens is pressed into a plastic or metal board.

The lens part of the LED must not be glued onto plastic or metal.

The mechanical stress to the lead frame must be minimized.

4. Soldering

Solder the LEDs no closer than 3mm from the base of the epoxy resin.

For solder dipping, it may be necessary to fix the LEDs for correct positioning.

When doing this, any mechanical stress to the LEDs must be avoided.

When soldering, do not apply any mechanical force to the lead frame while heating.

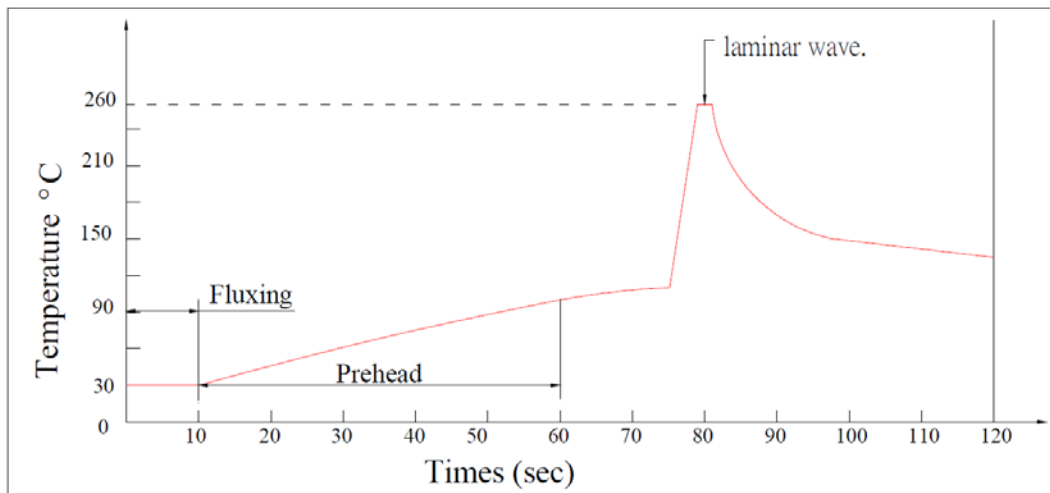
Repositioning after soldering must be avoided.

Soldering Profile

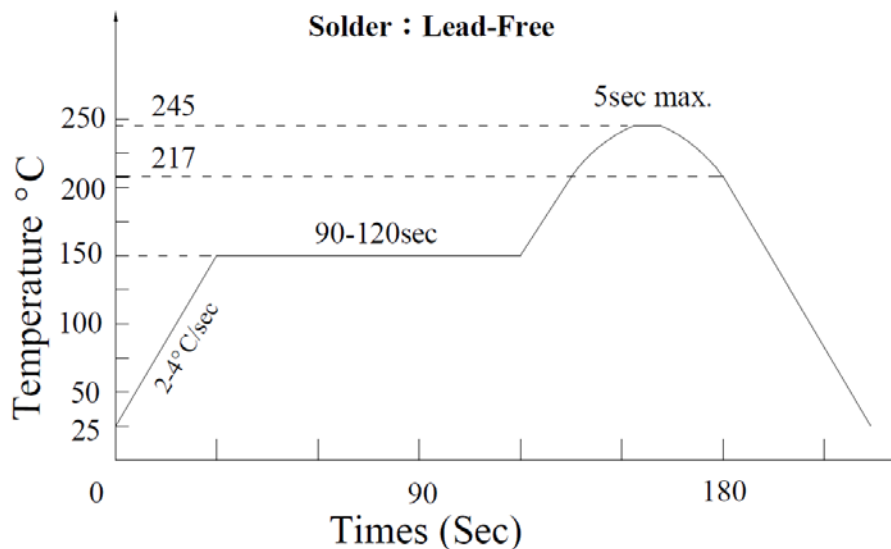
Compliant with the following condition :

- (1) Leaded quantity of product below 100 ppm
- (2) Lead-free process

Shape	Lead Frame Type / Holder Type
Hand soldering	1. Temp. at tip of iron : 300°C MAX (30W MAX). 2. Soldering time : 3 sec MAX. 3. Distance : 3 mm MIN (from solder joint to case)
DIP soldering	1. Preheat temp : 100°C MAX , 60 sec MAX. 2. Bath temp : 260°C MAX. 3. Bath time : 3 sec MAX. 4. Distance : 3 mm MIN (From solder joint to case).

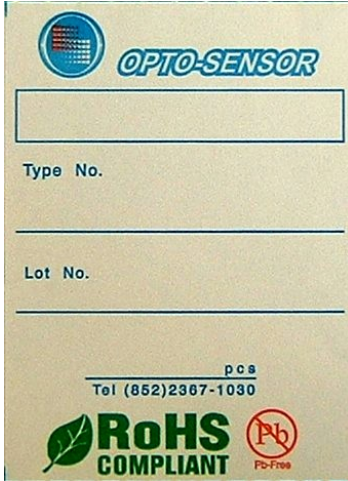


Shape	SMD Type
Hand soldering	1. Temp. at tip of iron : 300°C MAX (30W MAX). 2. Soldering time : 3 sec MAX.
Reflow soldering	1. Preheat temp. : 150-180°C , 4°C/sec MAX. , 120 sec MAX. 2. Peak temp. : 245°C MAX. , 5 sec MAX. 3. Duration above : 217°C , 60 sec MAX.



Packing Specifications

1) Label Specification



Label Dimensions (Unit : mm)

Label Type	L	W	Remark
Label #1	76	56	

2) Box Specifications & Packing Method

(Unit : mm)

Packing Type	Materials	L x W x H	Quantity
Polybag	Polyethylene	-	500 pcs
Box-#1	Corrugated Cardboard	170 x 240 x 65	1,500 pcs
Box-#2	Corrugated Cardboard	400 x 250 x 240	15,000 pcs

1. Put max 500pcs of products in a Polybag.



2. Put max 3pcs of Polybags in Box-#1



3. Put max 10pcs of Box-#1 in Box-#2

