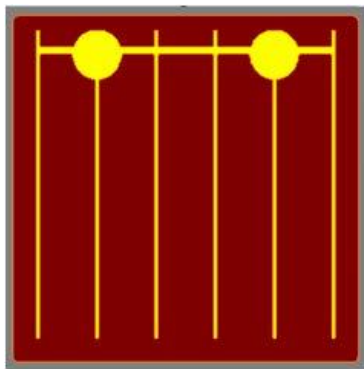


# IN-F32IR

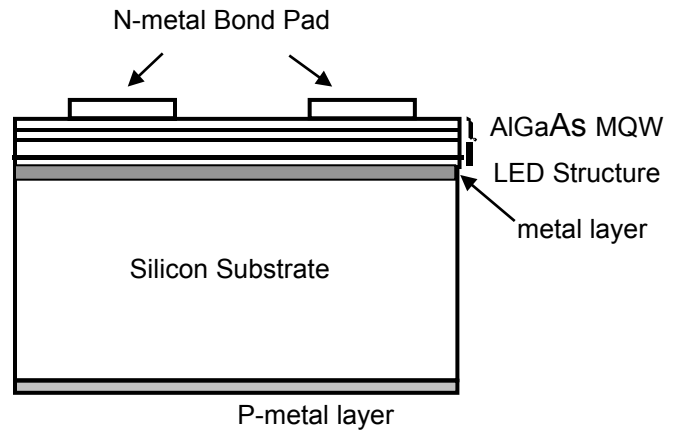
## 1. Descriptions:

F32IR is an Infra-red LED chip made from MOCVD process and bonded with Silicon. It is fabricated by the HPO's proprietary metal Bonding mechanism, F32IR is featured by homogeneous and high light output at top side with superior beam pattern. Excellent performance under sunlight and reliable life-long stability make F32IR ideal for IrDA, Encoder, data communication applications.

## 2. Chip Diagram:



Chip pattern



Chip Side view

## 3. Chip characteristics:

Substrate	Si
Emitting material	AlGaAs
p-pad electrode	Au-alloy
n-pad electrode	Au-alloy
Chip size	810±25um × 810±25um
Chip thickness	180±25um
Pad Diameter	110±15um

#### 4. Electrical and Optical Characteristics(Ta=25°C):

Parameter	Condition *1	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I <sub>F</sub> =350mA	V <sub>F1</sub>	1.3	1.5	1.8	V
Threshold voltage	I <sub>F</sub> =10uA	V <sub>F3</sub>	-	1.0	1.3	V
Reverse current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10.0	uA
Peak wavelength	I <sub>F</sub> =350mA	λ <sub>p</sub>	800	-	900	nm
Half width *2	I <sub>F</sub> =350mA	Δλ	-	15	-	nm
Radiant Power *3	I <sub>F</sub> =350mA	P <sub>o</sub>	100	-	-	mW

Note:

- \*1 I<sub>F</sub> : DC Forward current    V<sub>R</sub> : Reverse voltage
- \*2 Value of Half width is only for reference
- \*3 Radiant Power is measured by HPO's equipment on bare chips.
- \*4 Characteristic curves are measured on standard TO-39 package type without encapsure.

#### 5. Characteristic Curves:

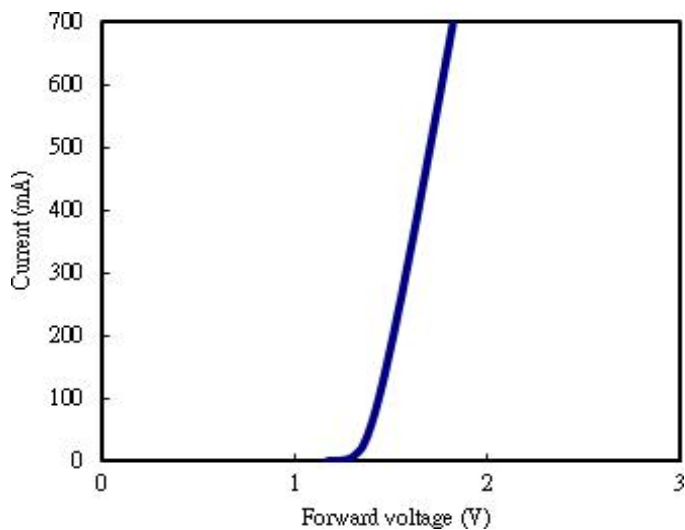


Fig.1 The I-V characteristics (0-700mA)

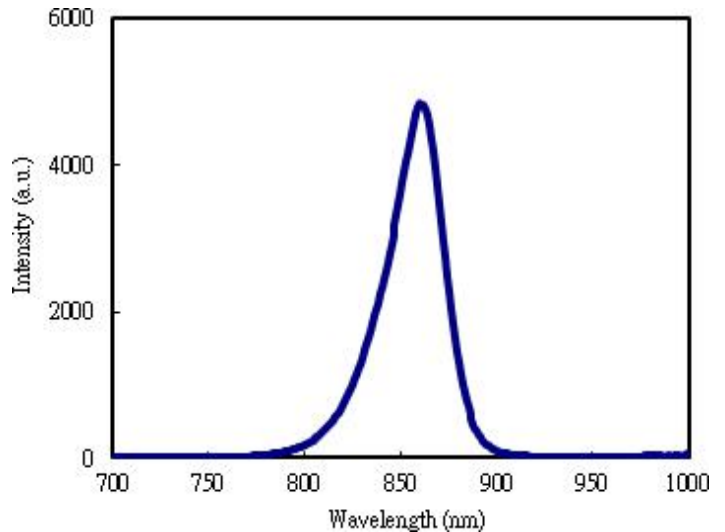


Fig.2 The EL spectrum

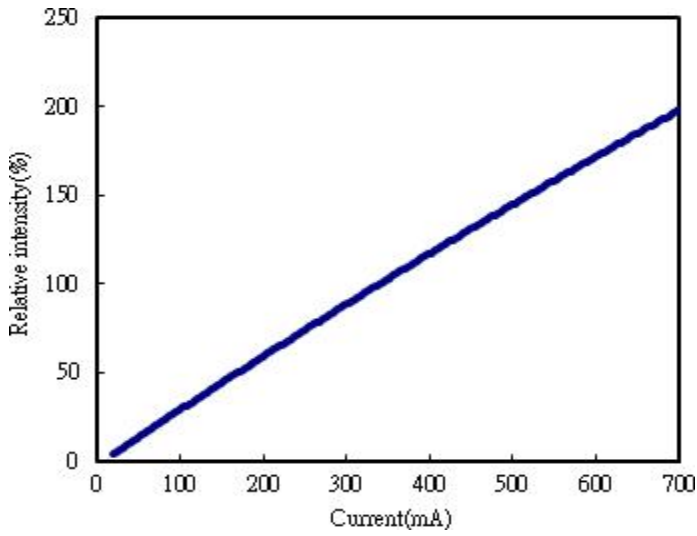


Fig.3 Relative intensity vs forward current

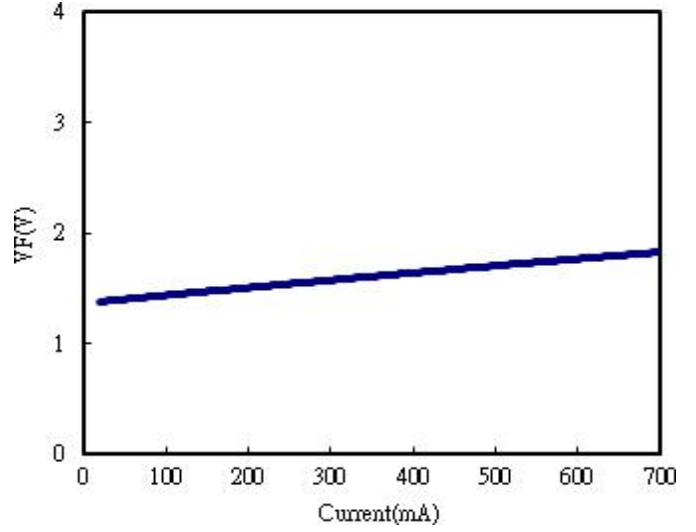


Fig.4 The V-I characteristics (0-700mA)

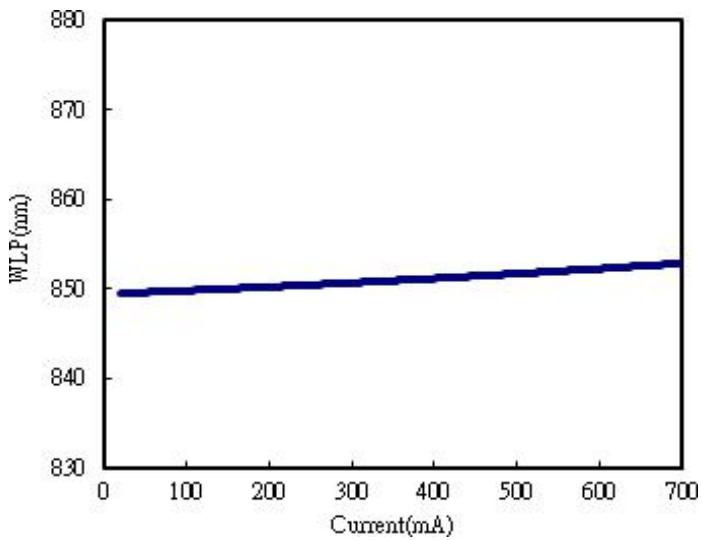


Fig.5 The WLP shift vs forward current

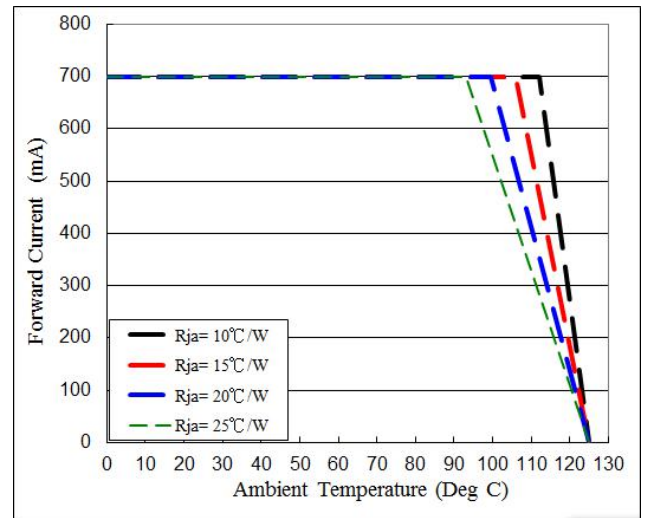


Fig.6 Derating curve based on  $T_j(\max)=125^\circ\text{C}$

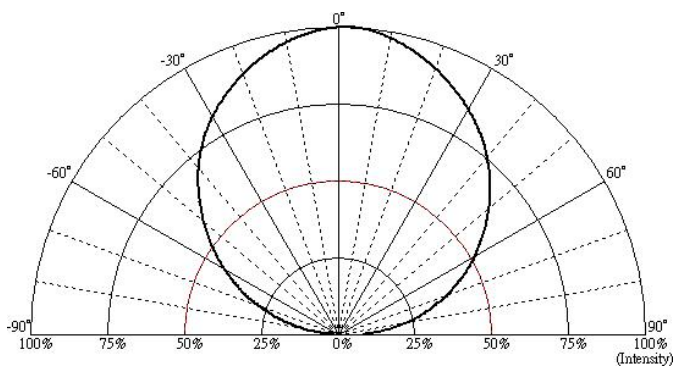


Fig.7 Light pattern and view angle of bare chip

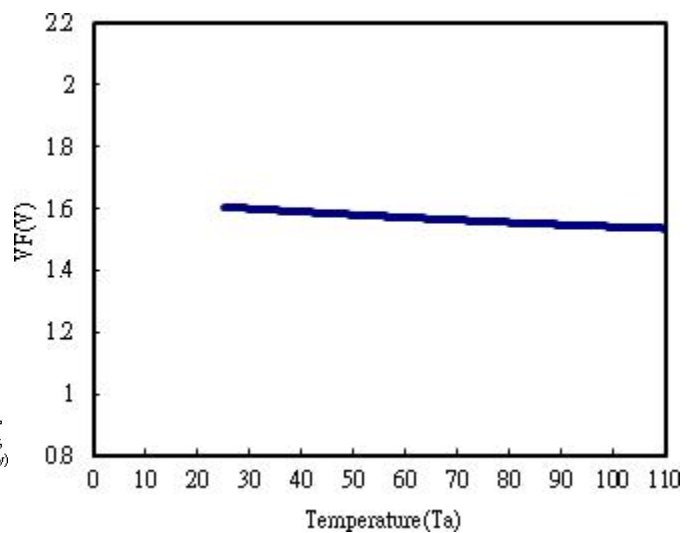


Fig.8 The forward voltage vs  $T_a(^{\circ}\text{C})$

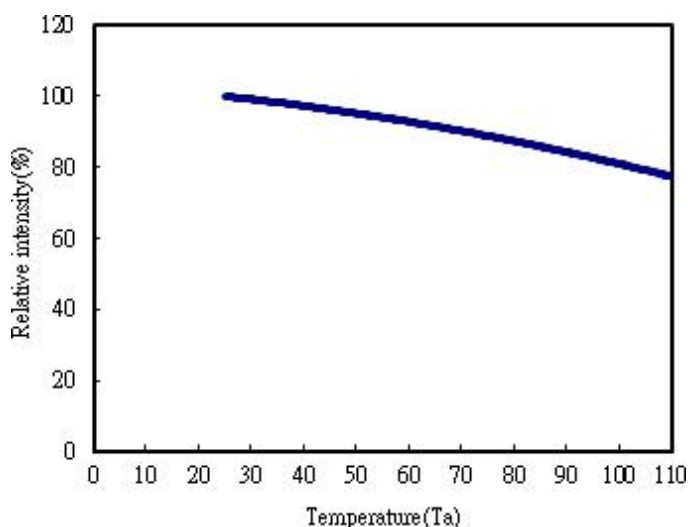


Fig.9 Relative intensity vs Ta(°C)

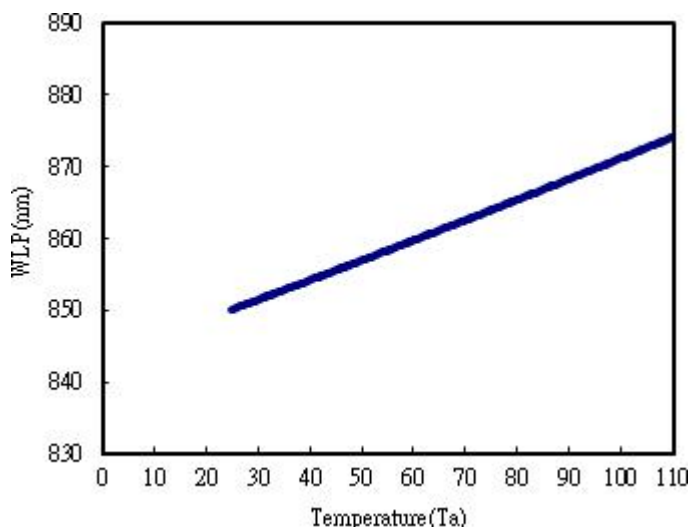


Fig.10 The WLP shift vs Ta(°C)

## 6. Absolute Maximum Ratings(Ta=25°C):

Parameter	Symbol	Condition	Rating
DC Forward Current	I <sub>F</sub>	Ta=25°C	≤ 700mA
Peak Pulsing Current	I <sub>peak</sub>	1/10 duty cycle @ 1kHz	≤ 1000mA
Reverse Voltage	V <sub>R</sub>	Ta=25°C	≤ 10V
Operating Temperature Range	T <sub>OP</sub>	-	-40°C to +85°C
Storage Temperature Range	T <sub>stg</sub>	Chip-on-tape/storage	+5°C to +30°C
		Chip-on-tape/transportation	-20°C to +65°C
LED Junction Temperature	T <sub>j</sub>	-	≤ 125°C
Temperature during Packaging	-	-	280°C (<10sec)

Note: Maximum ratings are package dependent. The above maximum ratings were determined using a Metal Core Printed Circuit Board(MCPCB) without an encapsulant. Stress in excess of the absolute maximum ratings such as forward current and junction temperature may cause damage to the LED.