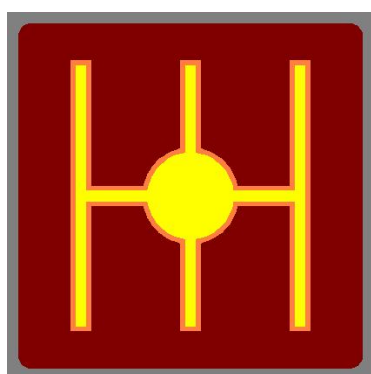


IN-F20IR

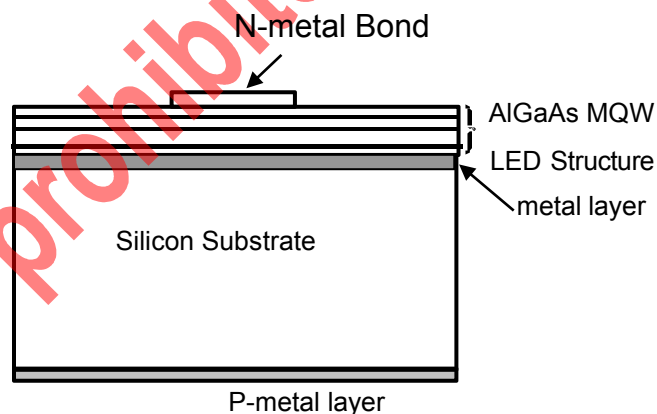
1. Descriptions:

F20IR 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, F20IR 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 F20IR 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	450±25um × 450±25um
Chip thickness	180±15um
Pad Diameter	105±15um

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

Parameter	Condition *1	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I _F =150mA	V _{F1}	1.3	1.5	1.8	V
Threshold voltage	I _F =10uA	V _{F3}	1.0	1.0	1.3	V
Reverse current	V _R =5V	I _R	-	-	10.0	uA
Peak wavelength	I _F =150mA	λ _p	800	-	900	nm
Half width *2	I _F =150mA	Δλ	-	30	-	nm
Radiant Power *3	I _F =150mA	P _o	20	-	-	mW

Note:

- *1 I_F : DC Forward current V_R : 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:

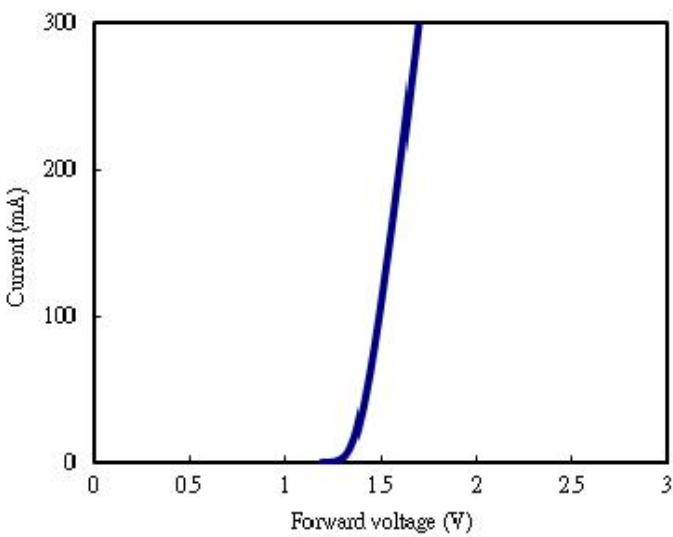


Fig.1 The I-V characteristics (0-300mA)

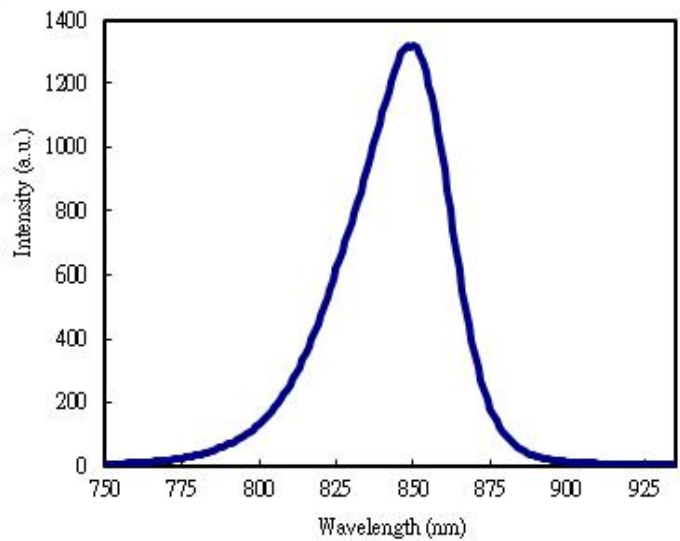


Fig.2 The EL spectrum

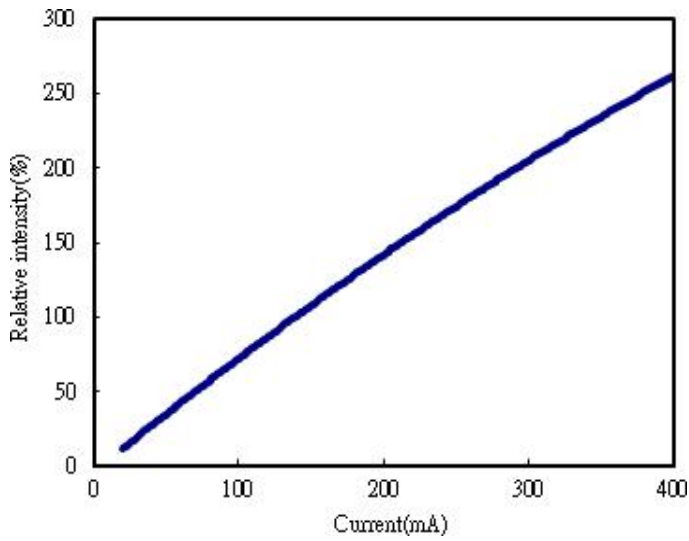


Fig.3 Relative intensity vs forward current

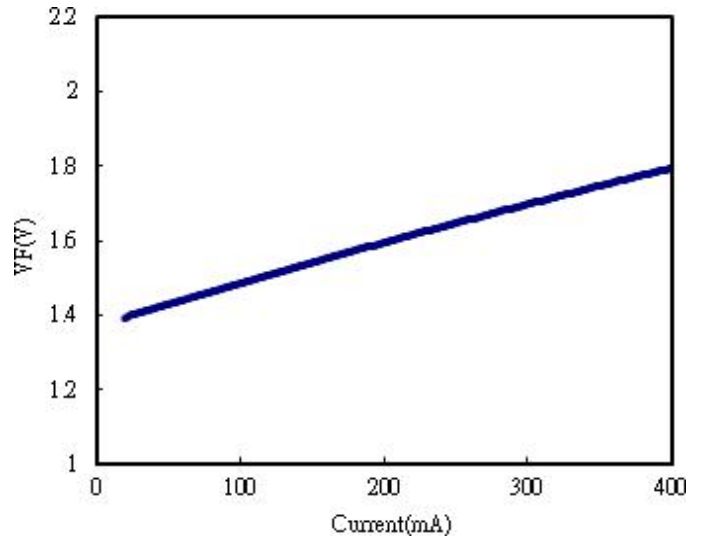


Fig.4 The V-I characteristics (0-400mA)

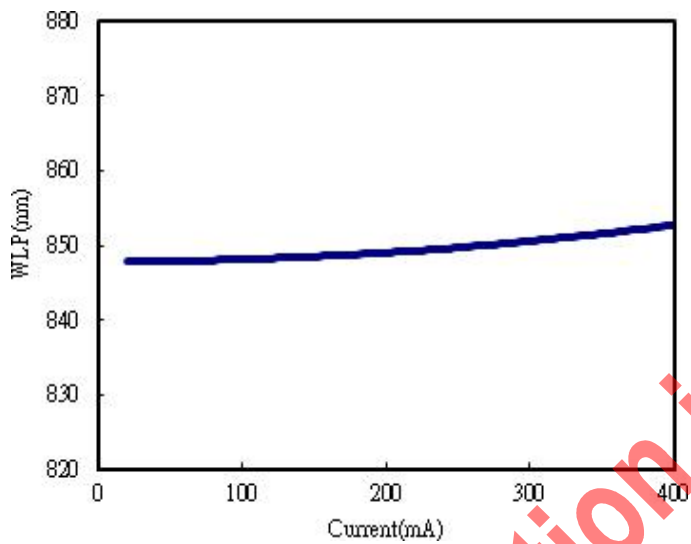


Fig.5 The WLP shift vs forward current

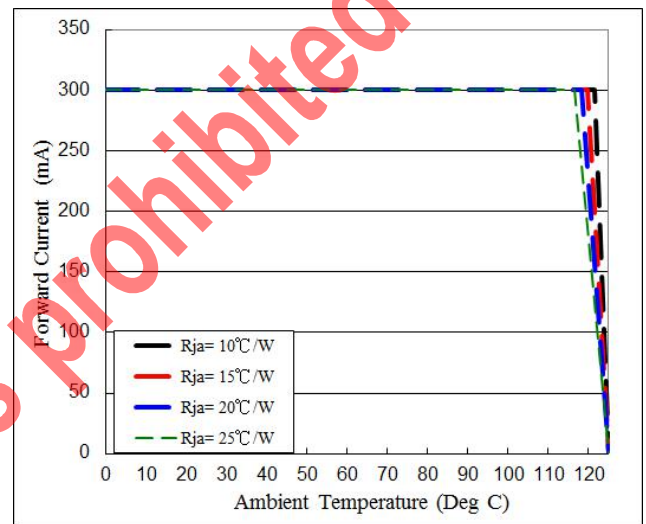


Fig.6 Derating curve based on Tj(max)=125°C

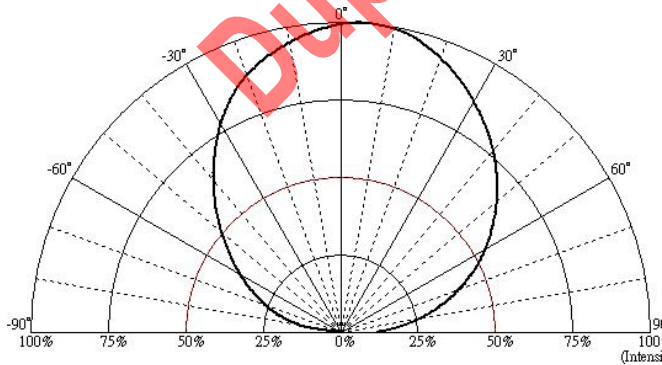


Fig.7 Light pattern and view angle of bare chip

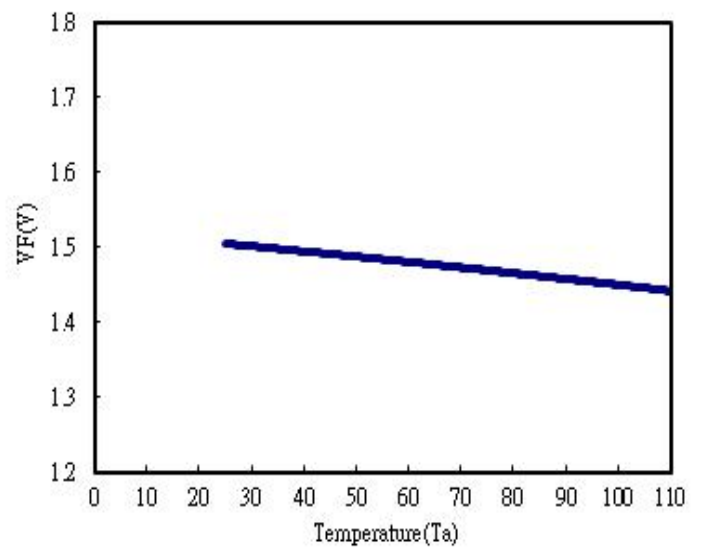


Fig.8 The forward voltage vs Ta(°C)

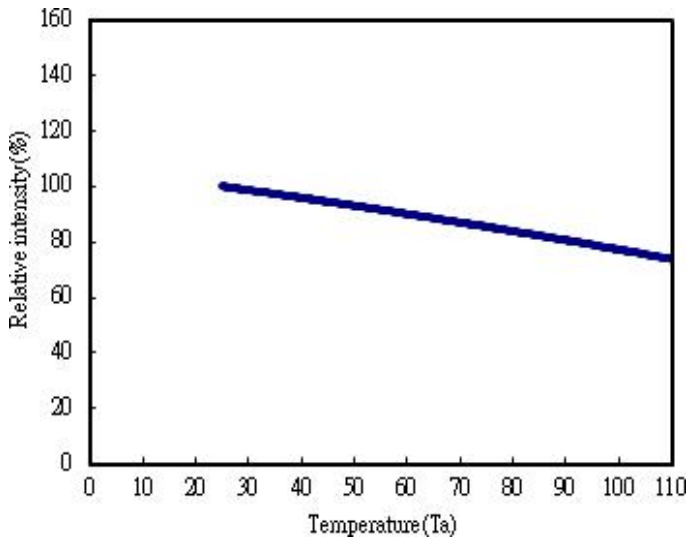


Fig.9 Relative intensity vs Ta(°C)

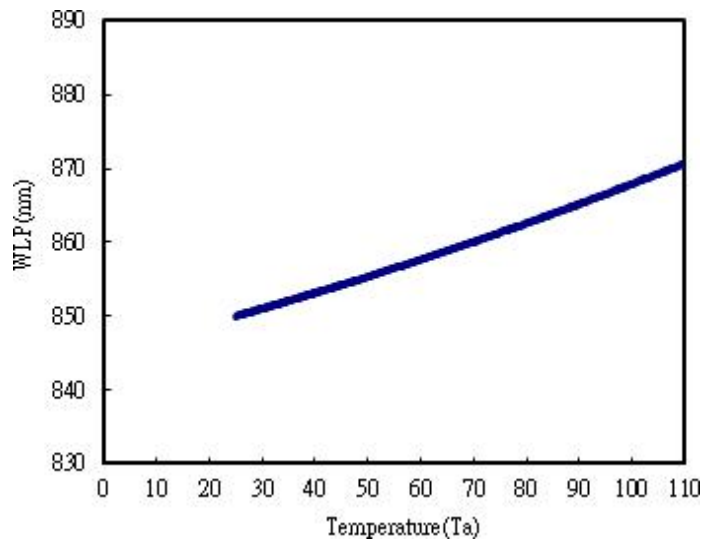


Fig.10 The WLP shift vs Ta(°C)

6. Absolute Maximum Ratings(Ta=25°C):

Parameter	Symbol	Condition	Rating
DC Forward Current	I _F	Ta=25°C	≤ 300mA
Peak Pulsing Current	I _{peak}	1/10 duty cycle @ 1kHz	≤ 400mA
Reverse Voltage	V _R	Ta=25°C	≤ 10V
Operating Temperature Range	T _{OP}	-	-40°C to +85°C
Storage Temperature Range	T _{stg}	Chip-on-tape/storage	+5°C to +30°C
		Chip-on-tape/transportation	-20°C to +65°C
LED Junction Temperature	T _J	-	≤ 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.