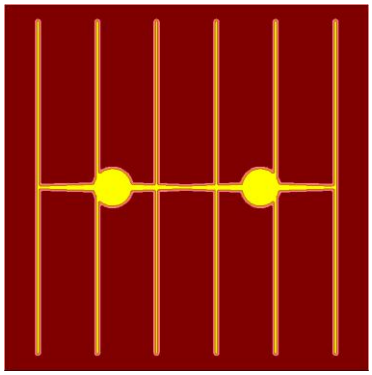
IN-F42IR-D

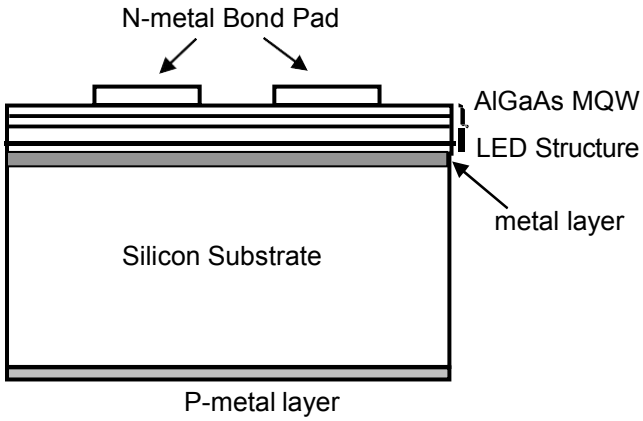
1. Descriptions:

F42IR is a Infra-red LED chip made from MOCVD process and bonded with Silicon. It is fabricated by the proprietary metal Bonding mechanism, F42IR 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 F42IR 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	1070±25um × 1070±25um
Chip thickness	180±15um
Pad Diameter	110±15um

4. Electrical and Optical Characteristics(Ta=25^{O}C):

Parameter	Condition *1	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I_F=350mA	V_{F1}	1.3	1.5	1.9	V
Threshold voltage	I_F=10uA	V_{F3}	-	1.1	1.3	V
Reverse current	V_R=5V	I_R	-	-	10.0	uA
Peak wavelength	I_F=350mA	λ_p	840	-	860	nm
Half width *2	I_F=350mA	$\Delta\lambda$	-	30	-	nm
Radiant Power *3	I_F=350mA	Po	180	-	-	mW

Note:

*1 IF : DC Forward current. VR : Reverse voltage.

*2 Value of Half width is only for reference.

*3 Radiant Power is measured on bare chips.

4 Characteristic curves are measured on standard TO-39 package type without encapsure.

5. Characteristic Curves:

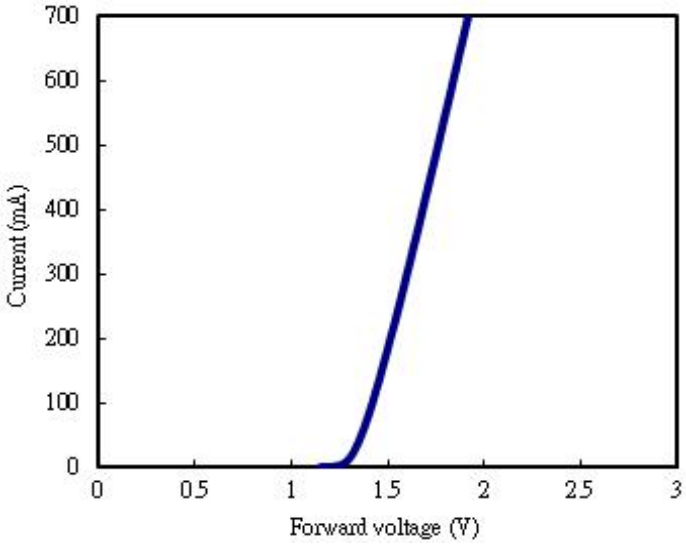


Fig.1 The I-V characteristics (0-700mA)

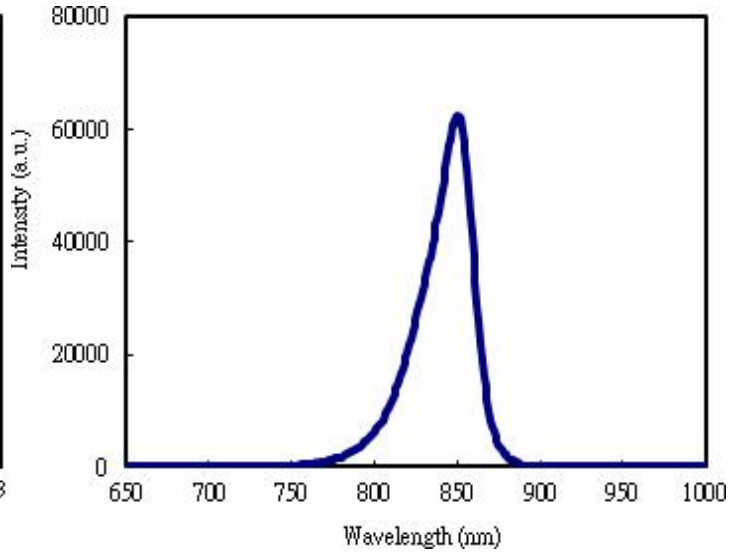


Fig.2 The EL spectrum

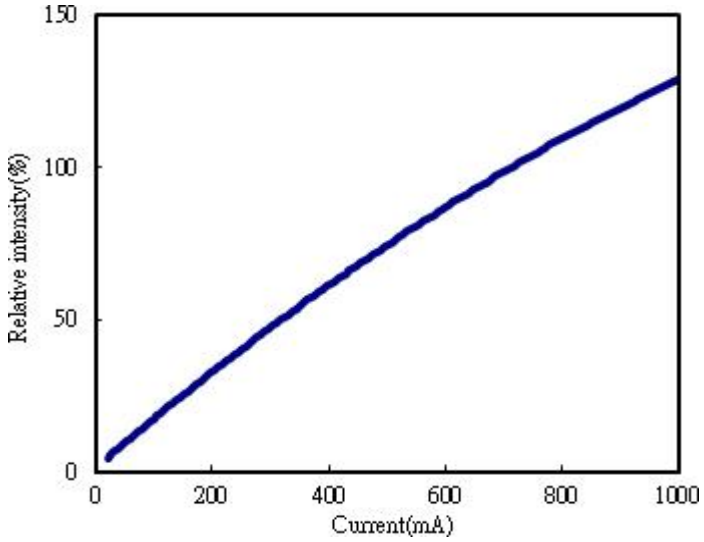


Fig.3 Relative intensity vs forward current

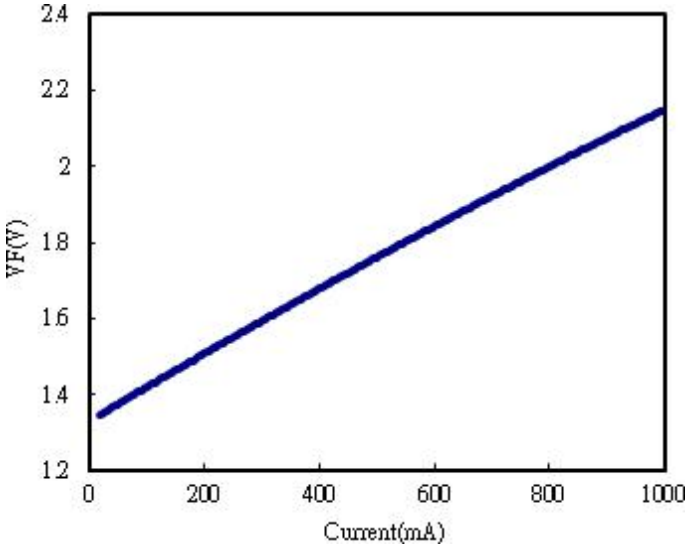


Fig.4 The V-I characteristics (0-1000mA)

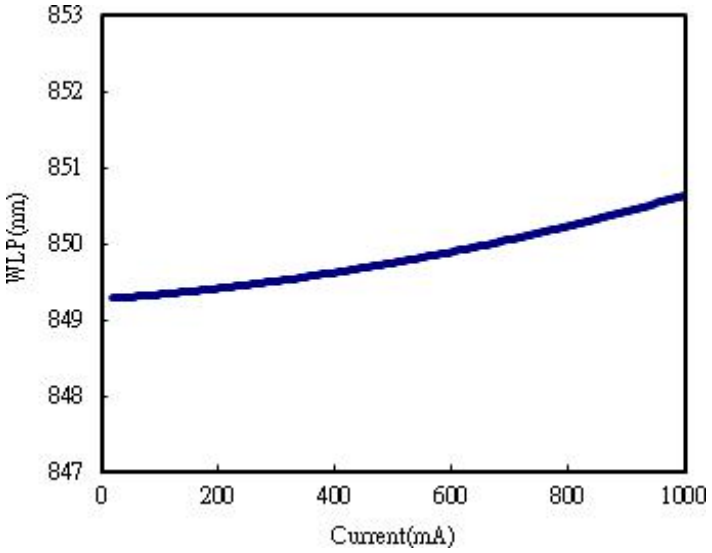


Fig.5 The WLP shift vs forward current

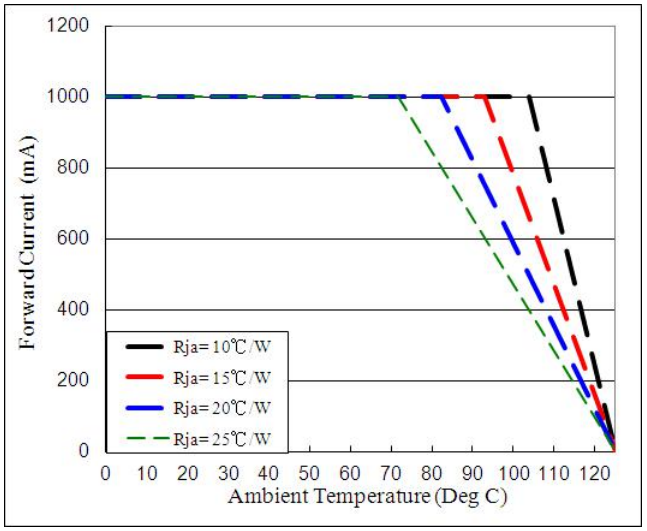


Fig.6 Derating curve based on Tj(max)=125℃

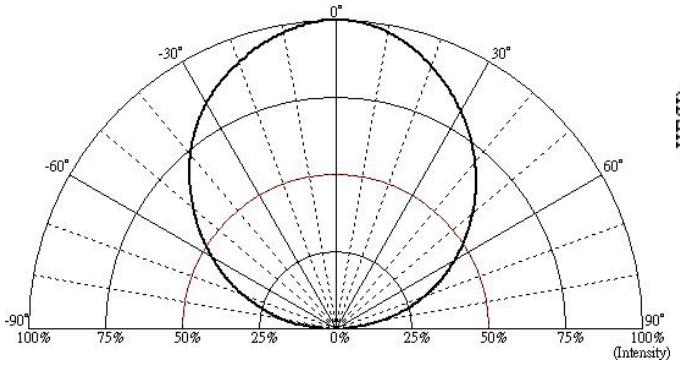


Fig.7 Light pattern and view angle of bare chip

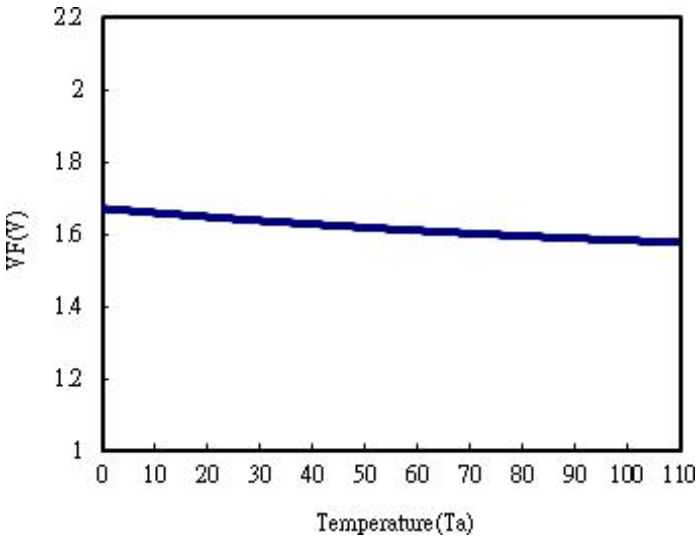


Fig.8 The forward voltage vs Ta(℃)

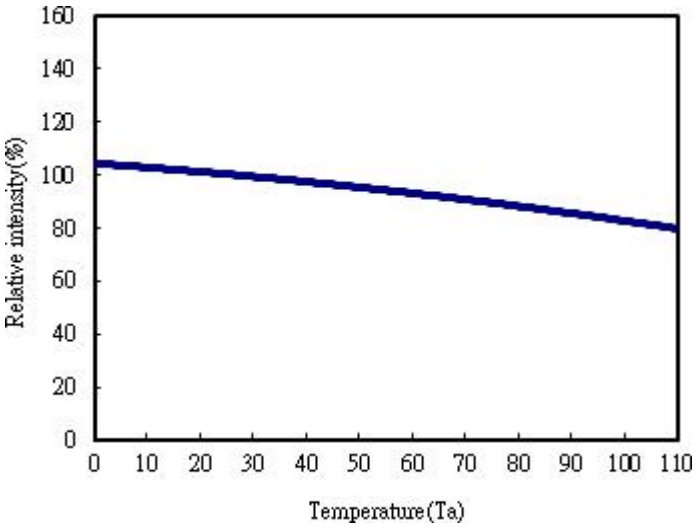


Fig.9 Relative intensity vs Ta(℃)

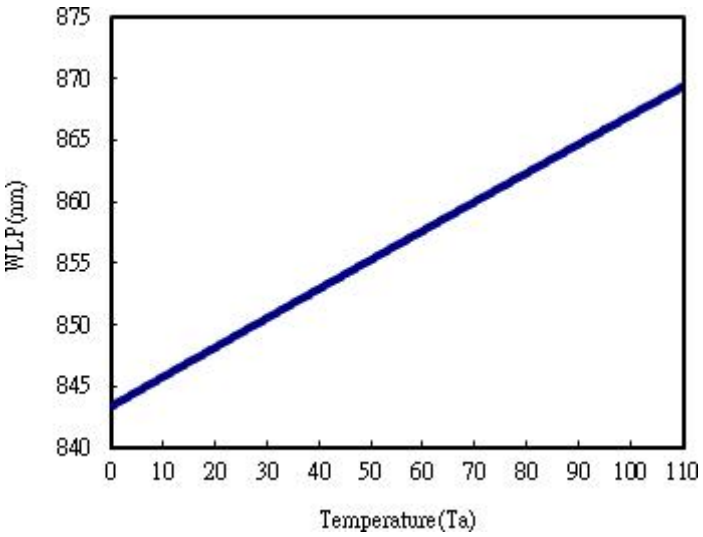


Fig.10 The WLP shift vs Ta(℃)

6. Absolute Maximum Ratings(Ta=25^{O}C):

Parameter	Symbol	Condition	Rating
DC Forward Current	I_F	Ta=25℃	≦1000mA
Peak Pulsing Current	Ipeak	1/10 duty cycle @ 1kHz (T_j ≦65℃)	≦1200mA
Reverse Voltage	V_R	Ta=25℃	≦10V
Operating Temperature Range	T_{OP}	-	-40℃ to +85℃
Storage Temperature Range	T_{stg}	Chip-on-tape/storage	+5℃ to +30℃
		Chip-on-tape/transportation	-20℃ to +65℃
LED Junction Temperature	T_j		≦125℃
Temperature during Packaging	-		280℃(<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.