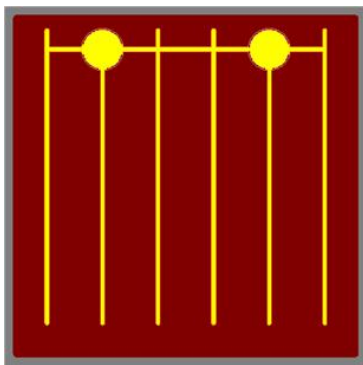


IN-F40IR-MH

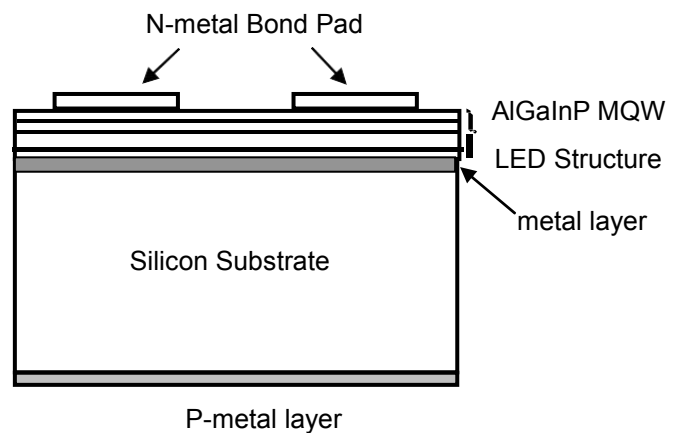
1. Descriptions:

F40IR is an Infra-red LED chip made from MOCVD process and bonded with Silicon. It is fabricated by the s proprietary metal Bonding mechanism, F40IR 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 F40IR ideal for IrDA, Encoder, data communication applications.

2. Chip Diagram:



Chip pattern



P-metal layer
Chip Side view

3. Chip characteristics:

Substrate	Si
Emitting material	AlGaInP
p-pad electrode	Au-alloy
n-pad electrode	Au-alloy
Chip size	1000±25um × 1000±25um
Chip thickness	180±15um
Pad Diameter	110±15um

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

Parameter	Condition *1	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I _F =350mA	V _{F1}	1.8	2.1	2.6	V
Threshold voltage	I _F =10uA	V _{F3}	1.3	1.5	1.8	V
Reverse current	V _R =5V	I _R	-	-	10.0	uA
Peak wavelength	I _F =350mA	λ _p	650	-	750	nm
Half width *2	I _F =350mA	Δλ	-	15	-	nm
Radiant Power *3	I _F =350mA	P _o	250	-	-	mW

Note:

- *1 I_F : DC Forward current V_R : Reverse voltage
- *2 Value of Half width is only for reference
- *3 Luminous Intensity 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:

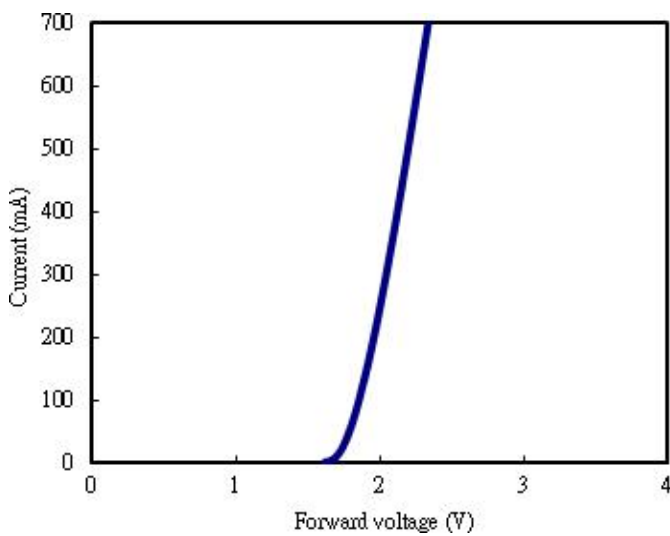


Fig.1 The I-V characteristics (0-700mA)

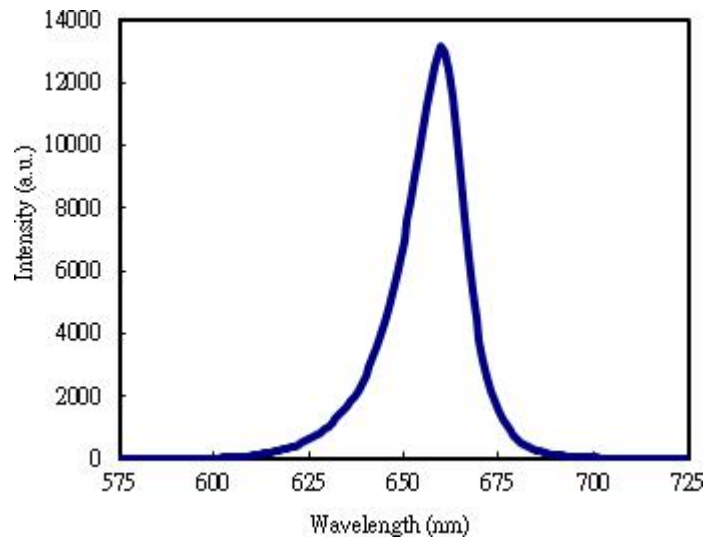


Fig.2 The EL spectrum

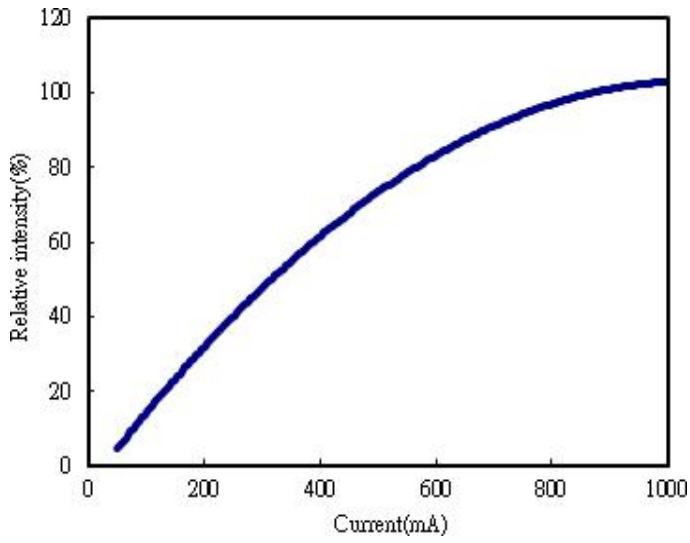


Fig.3 Relative intensity vs forward current

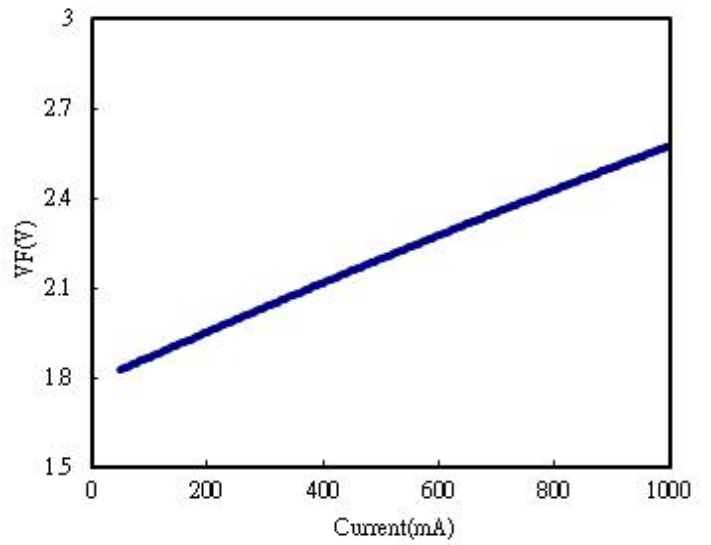


Fig.4 The V-I characteristics (0-1000mA)

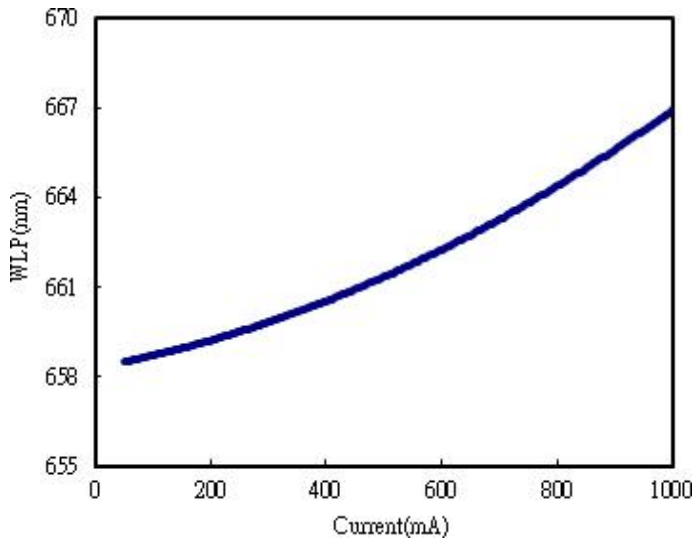


Fig.5 The WLP shift vs forward current

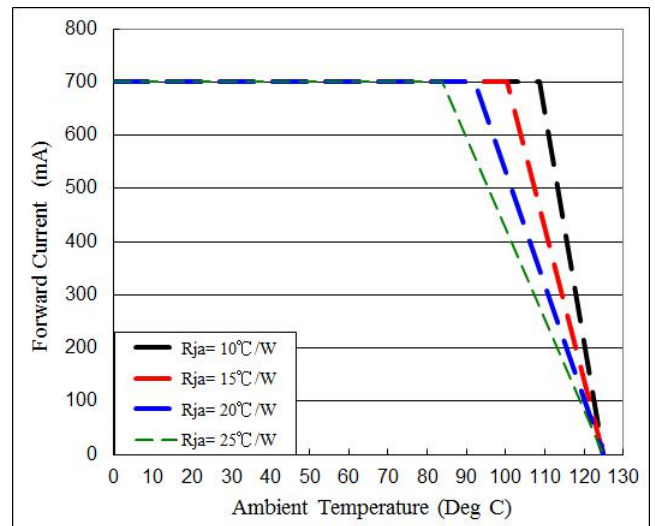


Fig.6 Derating curve based on $T_j(\text{max})=125^\circ\text{C}$

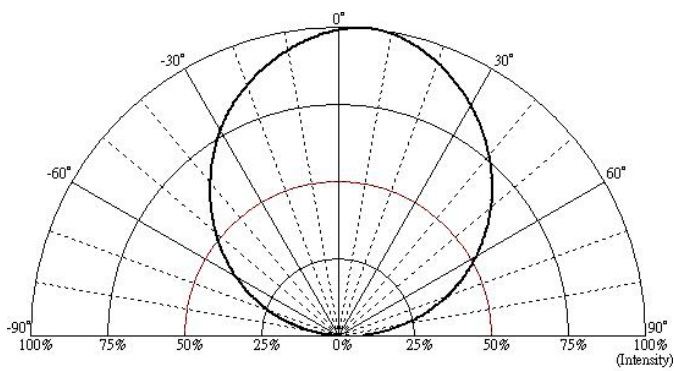


Fig.7 Light pattern and view angle of bare chip

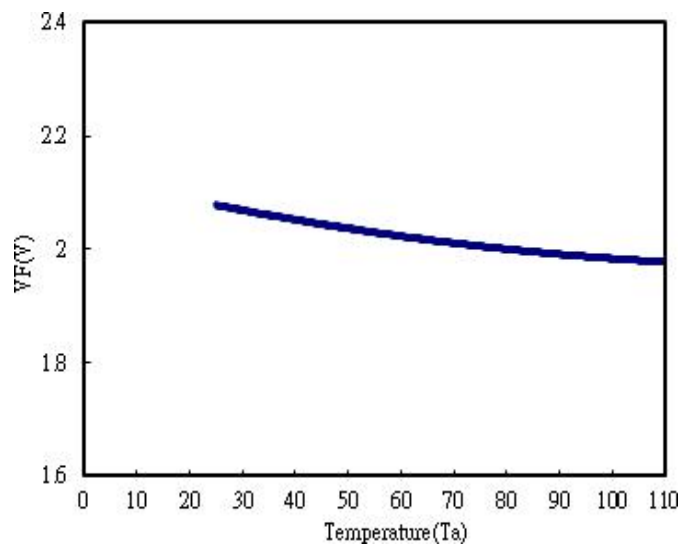


Fig.8 The forward voltage vs $T_a(^{\circ}\text{C})$

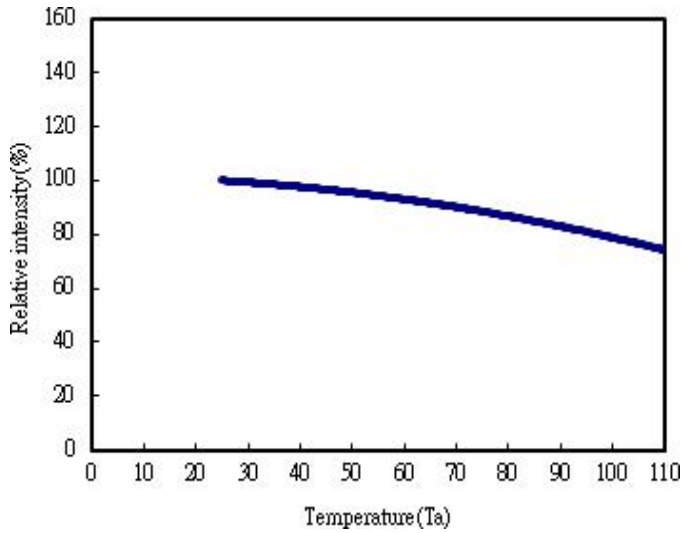


Fig.9 Relative intensity vs Ta(°C)

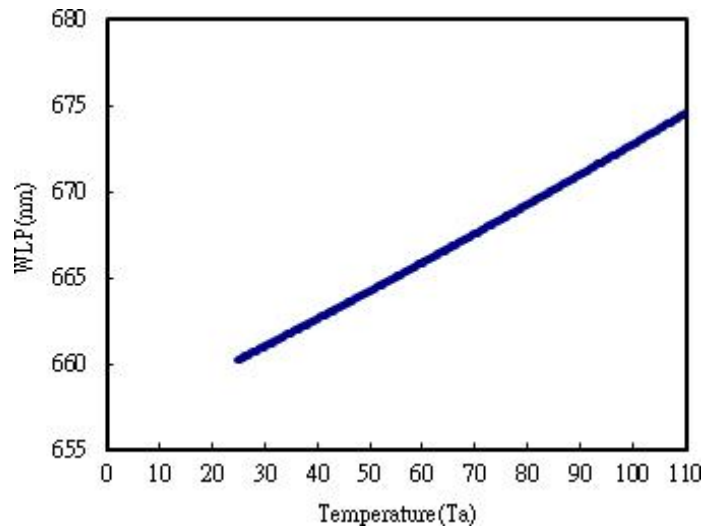


Fig.10 The WLP shift vs Ta(°C)

6. Absolute Maximum Ratings(Ta=25°C):

Parameter	Symbol	Condition	Rating
DC Forward Current	I _F	Ta=25°C	≤ 700mA
Peak Pulsing Current	I _{peak}	1/10 duty cycle @ 1kHz	≤ 1000mA
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.