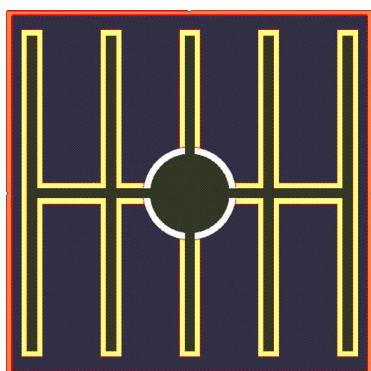


# 024MR-U-FB0

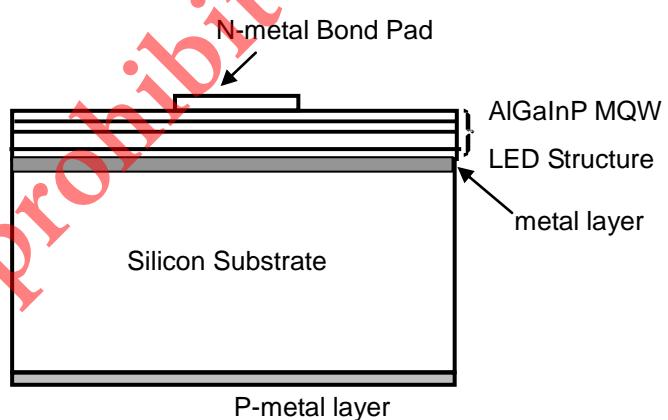
## 1. Descriptions:

024MR-U is a reddish-orange LED chip made from Aluminum Gallium Indium Phosphide (AlGaNp) MOCVD process and bonded with Silicon. It is fabricated by the HPO's proprietary metal Bonding mechanism, 024MR-U is featured by homogeneous and high light output at all sides with superior beam pattern. Excellent performance under sunlight and reliable life-long stability make 024MR-U ideal for both lighting and outdoor applications.

## 2. Chip Diagram:



Chip pattern



Chip Side view

## 3. Chip characteristics:

Substrate	Si
Emitting material	AlGaNp
p-pad electrode	Au-alloy
n-pad electrode	Au-alloy
Chip size	620±25um x 620±25um
Chip thickness	225±25um
Pad Diameter	100±15um

#### 4. Electrical and Optical Characteristics( $T_a=25^{\circ}\text{C}$ ):

Parameter	Condition *1	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F=150\text{mA}$	$V_{F1}$	1.8	2.1	2.6	V
Threshold voltage	$I_F=10\text{uA}$	$V_{F3}$	1.3	1.5	1.8	V
Reverse current	$V_R=5\text{V}$	$I_R$	-	-	10.0	$\text{uA}$
Peak wavelength	$I_F=150\text{mA}$	$\lambda_p$	620	-	650	nm
Dominant wavelength	$I_F=150\text{mA}$	$\lambda_p$	615	-	640	nm
Half width *2	$I_F=150\text{mA}$	$\Delta\lambda$	-	15	-	nm
Luminous Intensity	$I_F=150\text{mA}$	LOP	3000	-	-	mcd

Note:

\*1 IF : DC Forward current VR : 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:

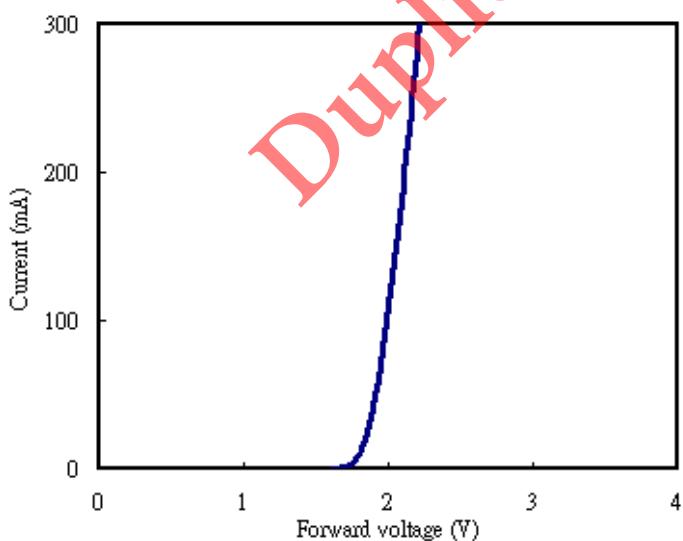


Fig.1 The I-V characteristics (0-300mA)

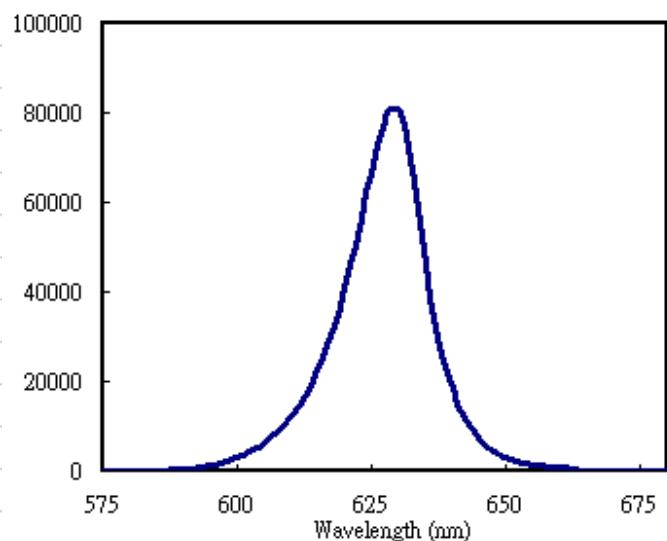


Fig.2 The EL spectrum

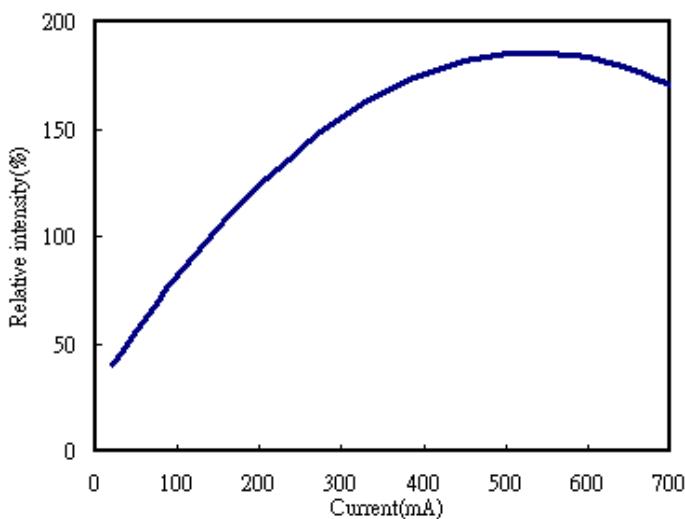


Fig.3 Relative intensity vs forward current

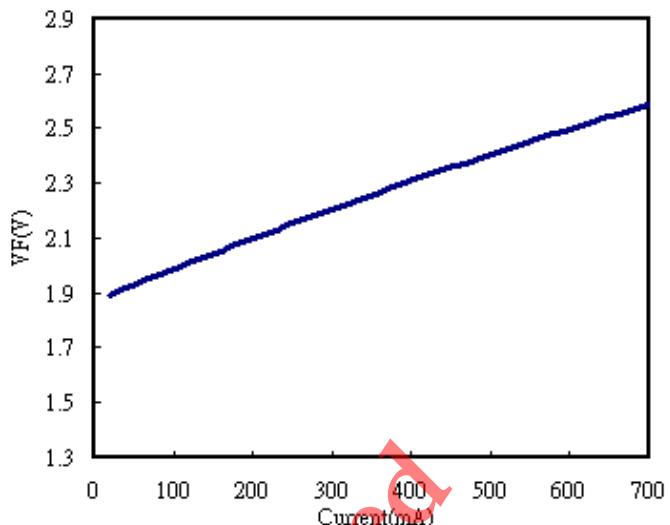


Fig.4 The V-I characteristics (0-700mA)

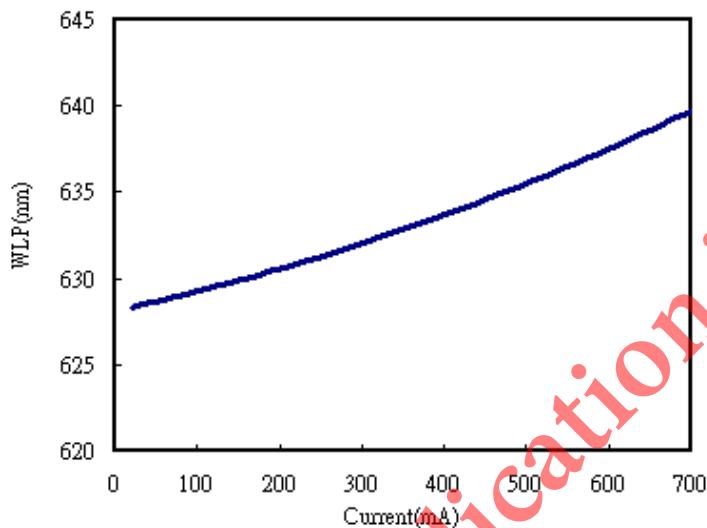


Fig.5 The WLP shift vs forward current

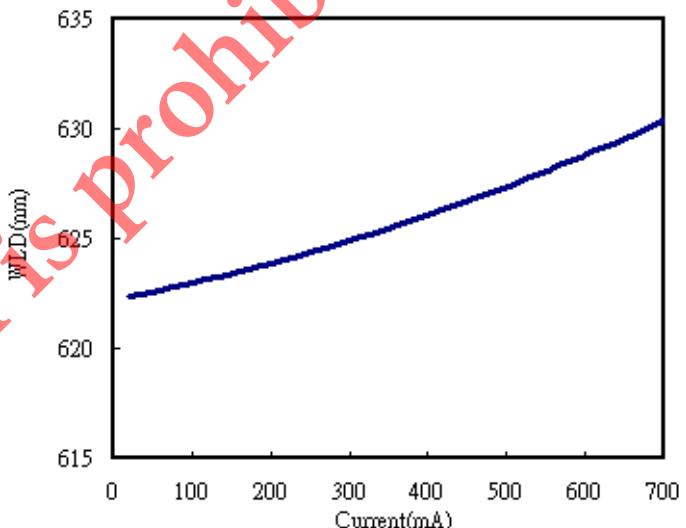


Fig.6 The WLD shift vs forward current

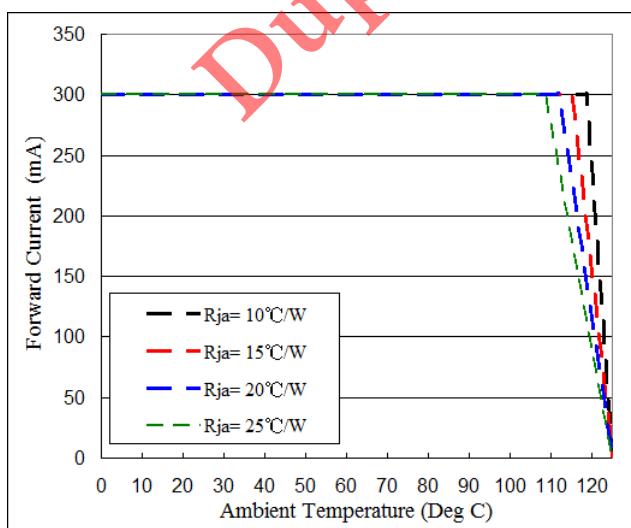


Fig.7 Derating curve based on  $T_j(\max)=125^\circ\text{C}$

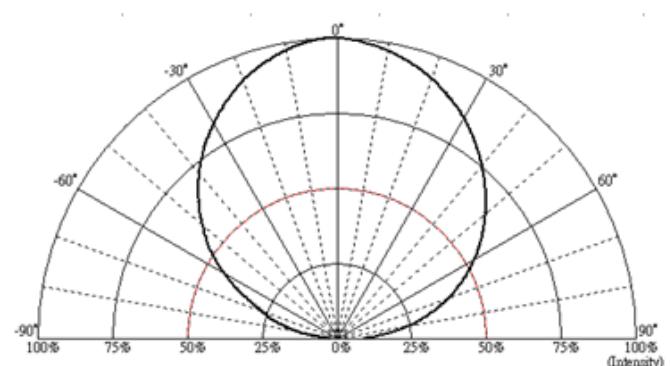


Fig.8 Light pattern and view angle of bare chip

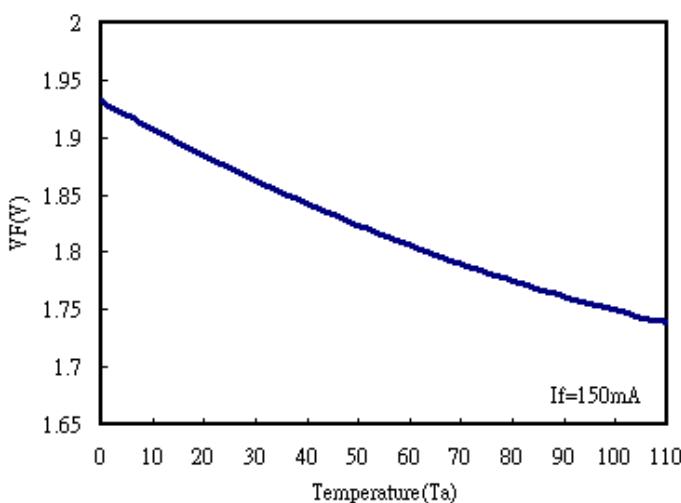


Fig.9 The forward voltage vs Ta(°C)

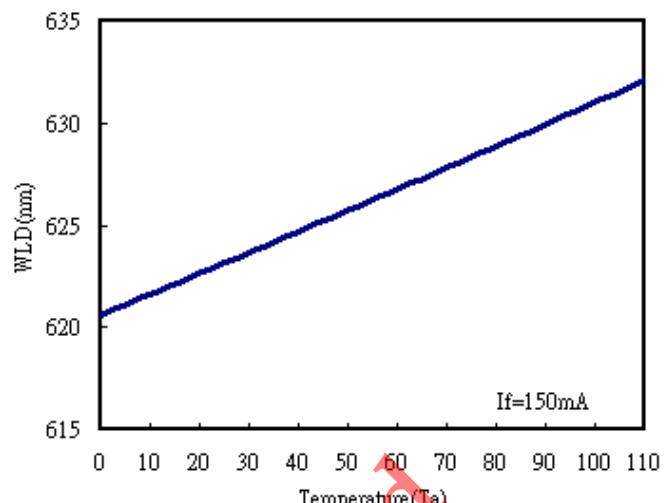


Fig.10 The WLD shift vs Ta(°C)

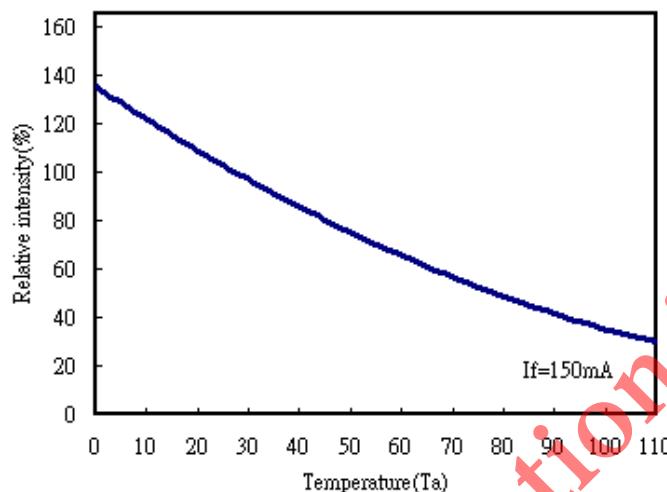


Fig.11 Relative intensity vs Ta(°C)

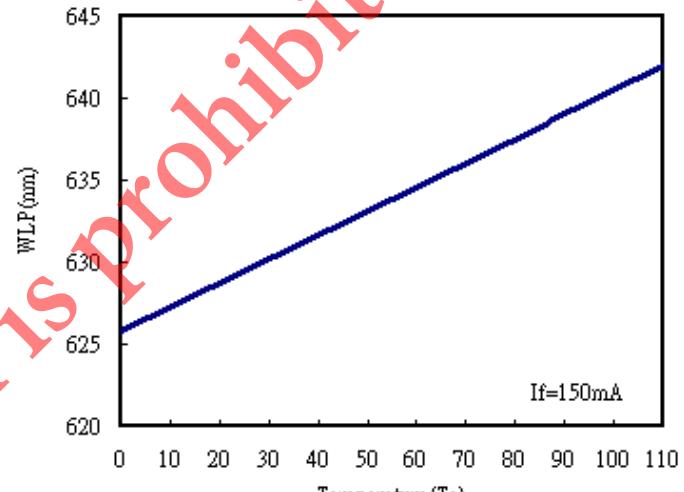


Fig.12 The WLP shift vs Ta(°C)

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

Parameter	Symbol	Condition	Rating
DC Forward Current	I <sub>F</sub>	Ta=25°C	≤300mA
Peak Pulsing Current	I <sub>peak</sub>	1/10 duty cycle @ 1kHz	≤500mA
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.