

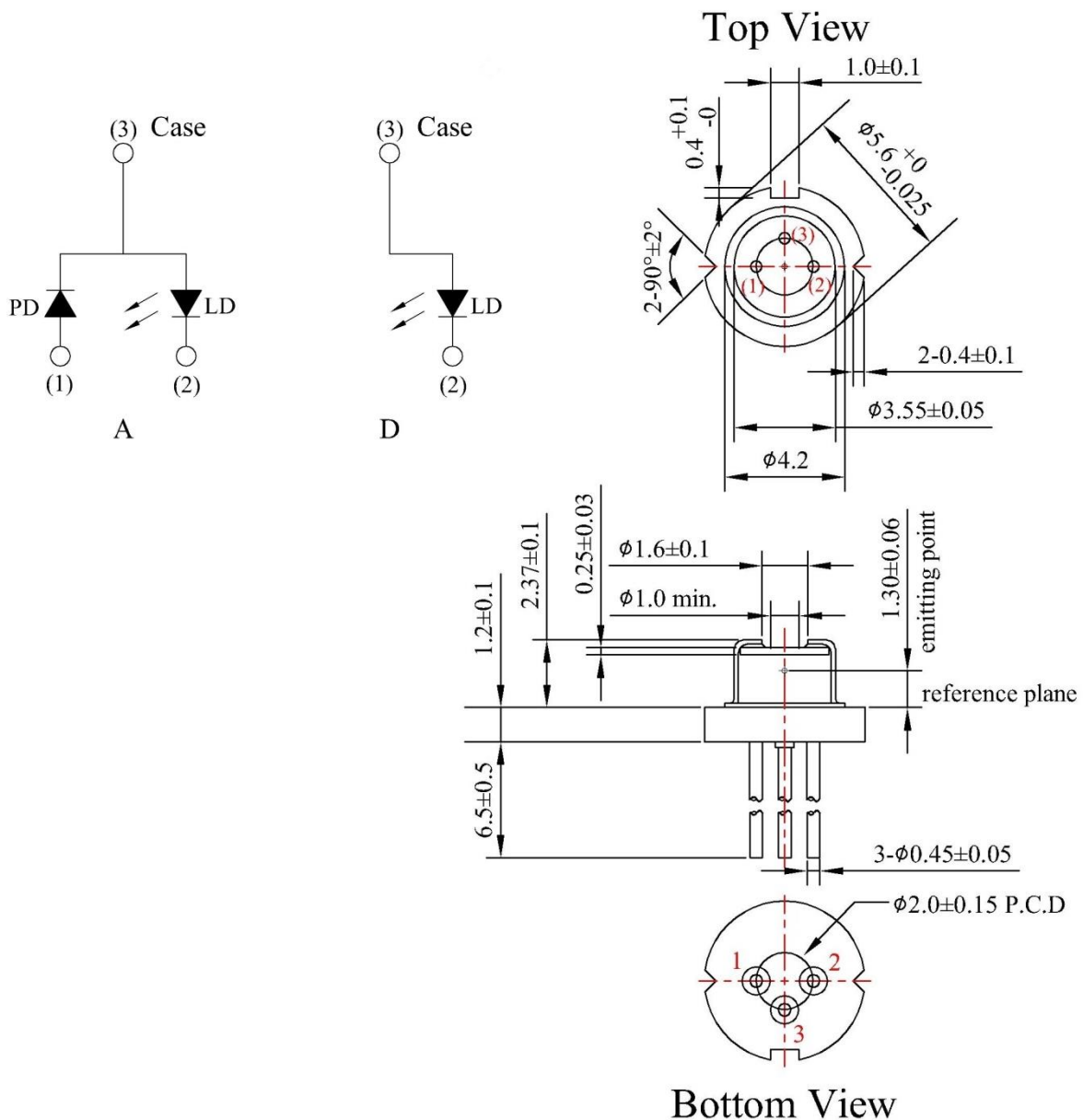
## ■ Features

1. Peak wavelength at 25°C : 650 nm (typical)
2. Standard light output : 5mW (CW)
3. TO-18 (φ 5.6mm) Packaged, cap window with flat Pb-free lens.

## ■ Applications

1. Medical equipment
2. Bar Code Scanner
3. Laser Module

## ■ External dimensions(Unit : mm)



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## ■ Absolute Maximum Ratings(Tc=25°C)

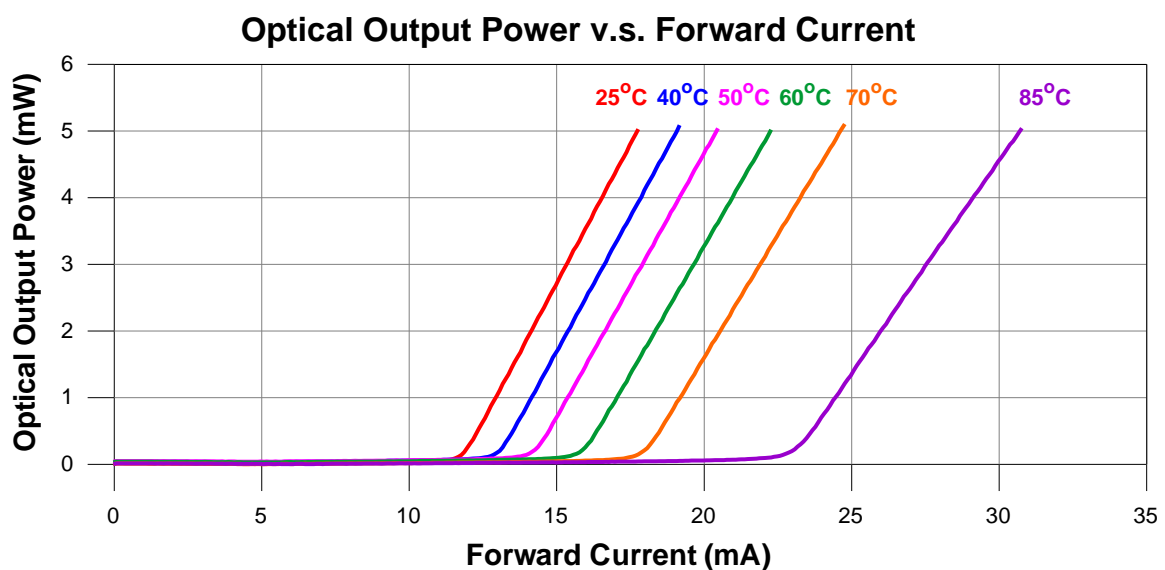
Parameter	Symbol	Rating	Unit
Optical Output	Po	<b>5</b>	mW
Reverse Voltage	Vr	<b>2</b>	V
Operating Temperature ( Case )	Top	-10~+70	°C
Storage Temperature	Tstg	-40~+85	°C

## ■ Electrical and Optical Characteristics(Tc=25°C)

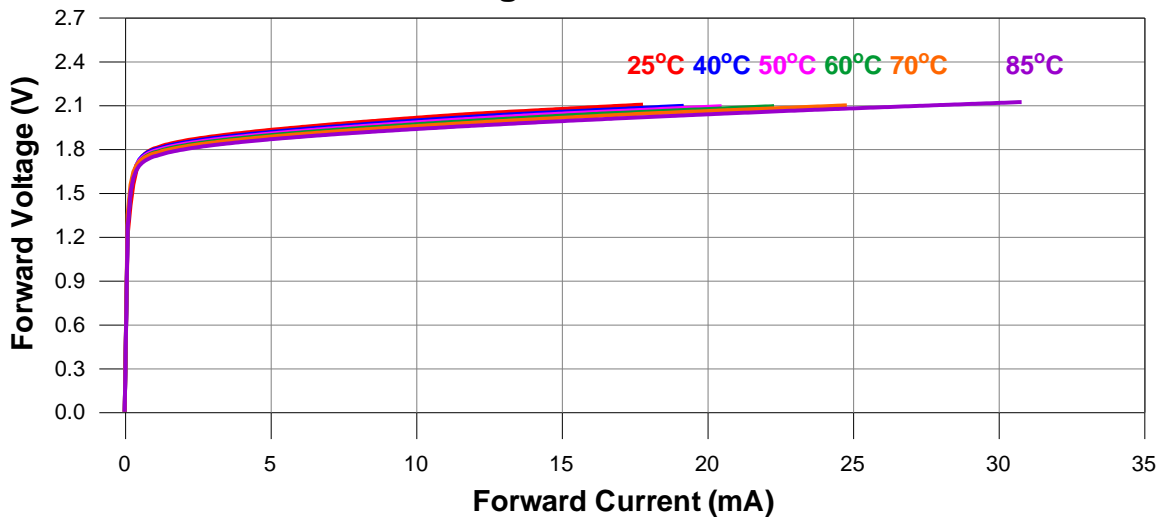
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Threshold Current	Ith	Po=5mW	-	<b>12</b>	<b>15</b>	mA	
Operating Current	Iop	Po=5mW	-	<b>18</b>	<b>22</b>	mA	
Operating Voltage	Vop	Po=5mW	-	<b>2.1</b>	<b>2.5</b>	Volts	
Slope Efficiency	$\eta$	Po=1.25-3.75mW	<b>0.5</b>	<b>0.8</b>	-	mW/mA	
Monitor Current	Im	Po=5mW	<b>0.05</b>	<b>0.2</b>	<b>0.5</b>	mA	
Beam Divergence (FWHM)	Parallel	$\theta_{//}$	Po=5mW	<b>5</b>	<b>8</b>	<b>12</b>	deg.
	Perpendicular	$\theta_{\perp}$	Po=5mW	<b>30</b>	<b>36</b>	<b>42</b>	deg.
Lasing Wavelength	$\lambda$	Po=5mW	<b>640</b>	<b>650</b>	<b>660</b>	nm	

©  $\theta_{//}$  and  $\theta_{\perp}$  are defined as the angle within which the intensity is 50% of the peak value.

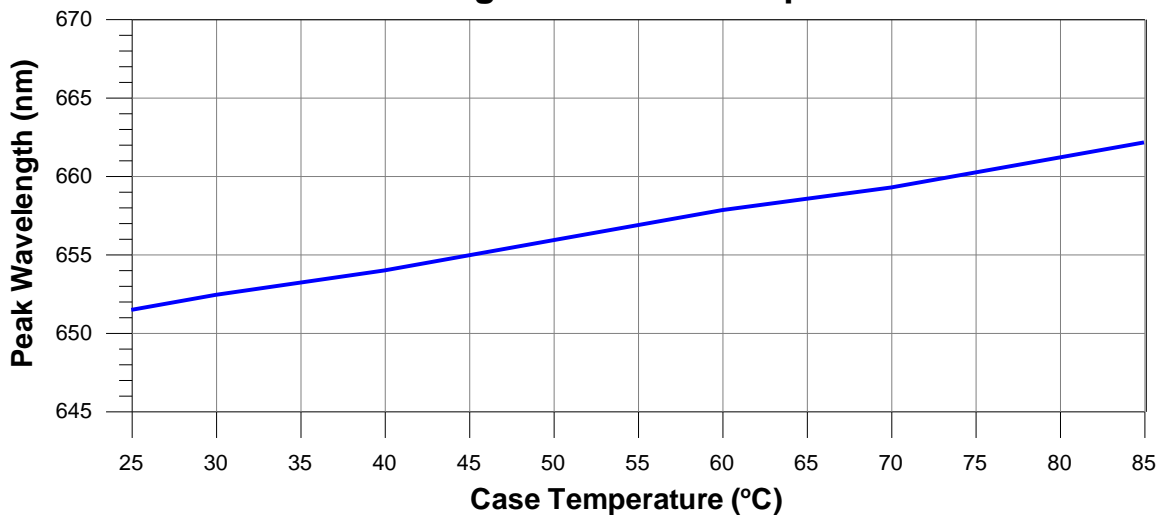
## ■ Typical characteristic curves



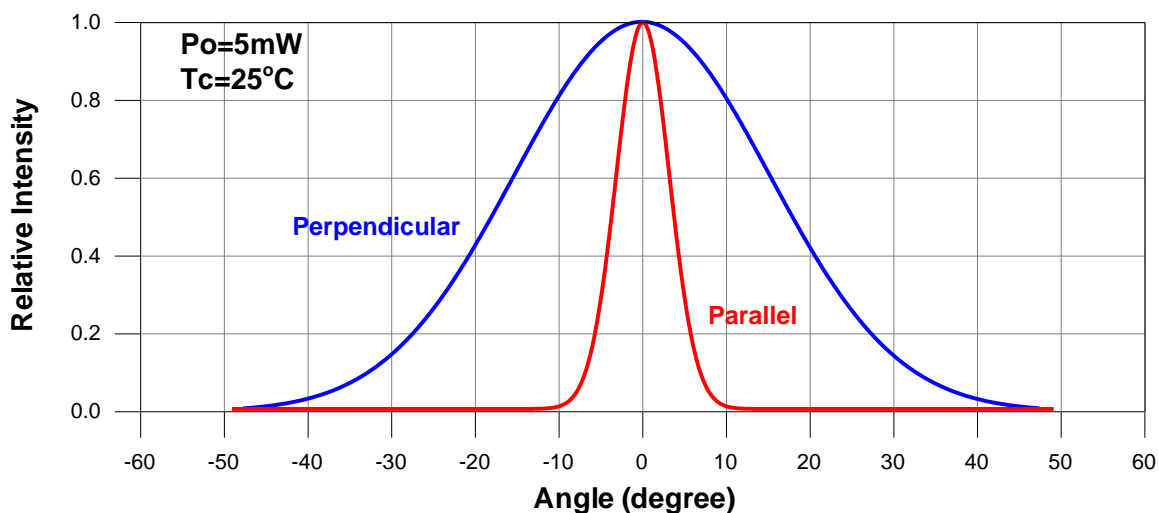
**Forward Voltage v.s. Forward Current**



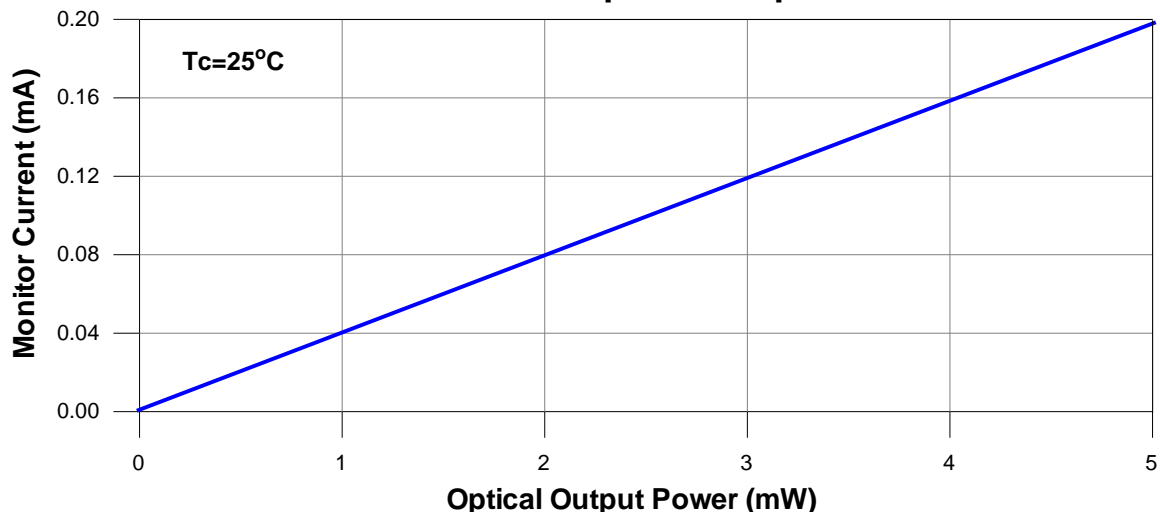
**Peak Wavelength v.s. Case Temperature**



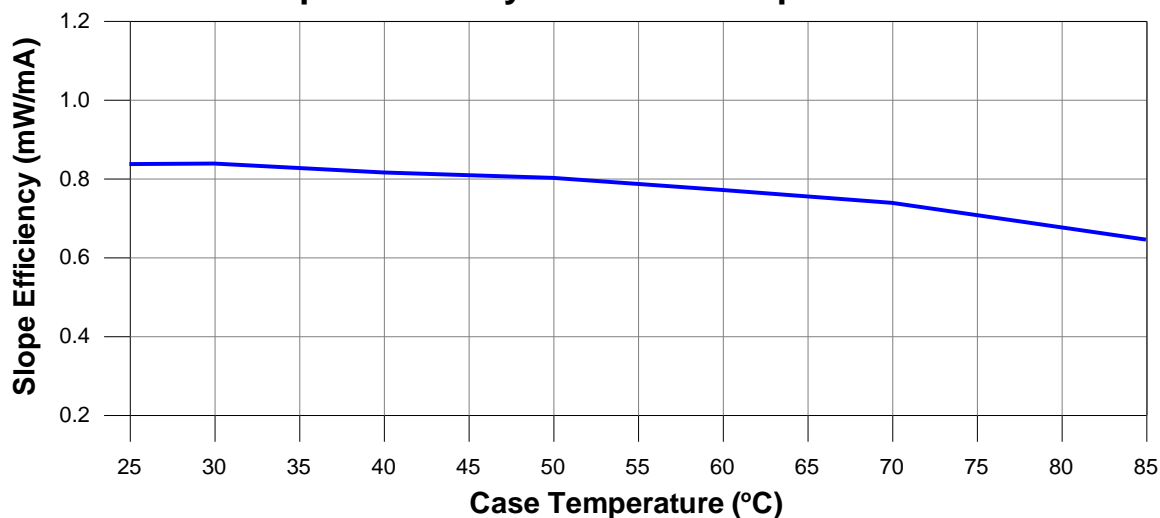
**Far-Field Pattern**



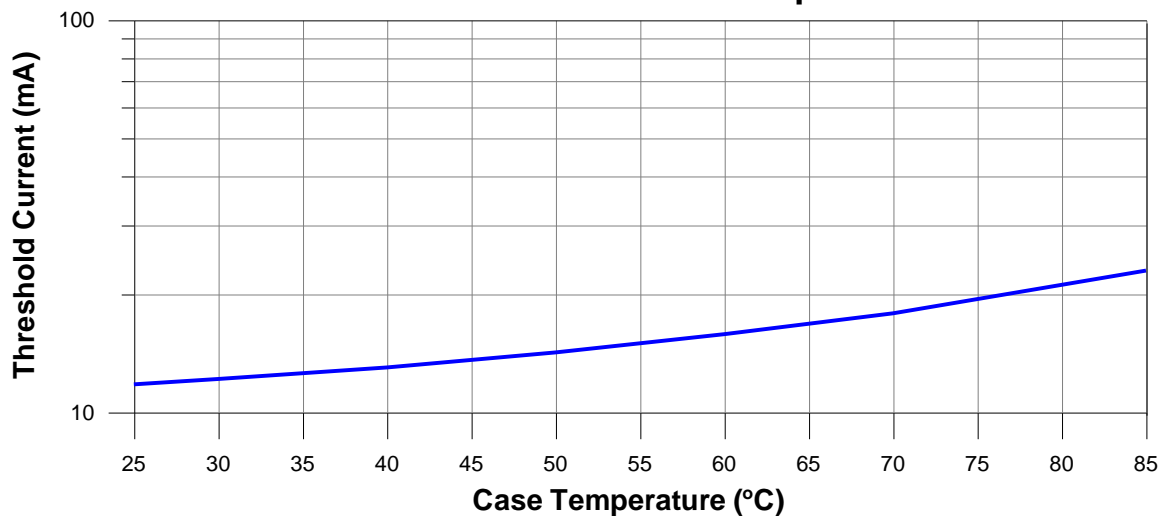
## Monitor Current v.s. Optical Output Power



## Slope Efficiency v.s. Case Temperature



## Threshold Current v.s. Case Temperature



## ■ Precautions

### QUALITY ASSURANCE

After any processing of laser chip or laser diode TO-CAN (LD) by the customer, the performance, yield and reliability of the product, in which the chip or LD is applied, are subject to change due to customer's handling, assembly, testing, and processing. Because laser chip and LD are strongly affected by environmental conditions, physical stress, and chemical stresses imposed by customer that are not in Union Optronics Corp. (UOC) control and hence no guarantee on the characteristics and the reliability at all after the shipment. Also, UOC does not have any responsibility for field failures in a customer product. When attaching a heat sink to laser chip or LD, be careful not to apply excessive force to the device in the process.

### SAFETY PRECAUTIONS

Although Union Optronics Corp. (UOC) keeps improving quality and reliability of its laser chip and laser diode TO-CAN (LD), semiconductor devices in general can malfunction or fail due to their intrinsic characteristics. Hence, it is required that the customer's products are designed with full regard to safety by incorporating the redundancy, fire prevention, error prevention so that any problems or error with UOC laser chip or LD does not cause any accidents resulting in injury, death, fire, property damage, economic damage, or environmental damage. In case customer wants to use UOC laser chip or LD in the systems requiring high safety, customer is requested to confirm safety of entire systems with customer's own testing.

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