

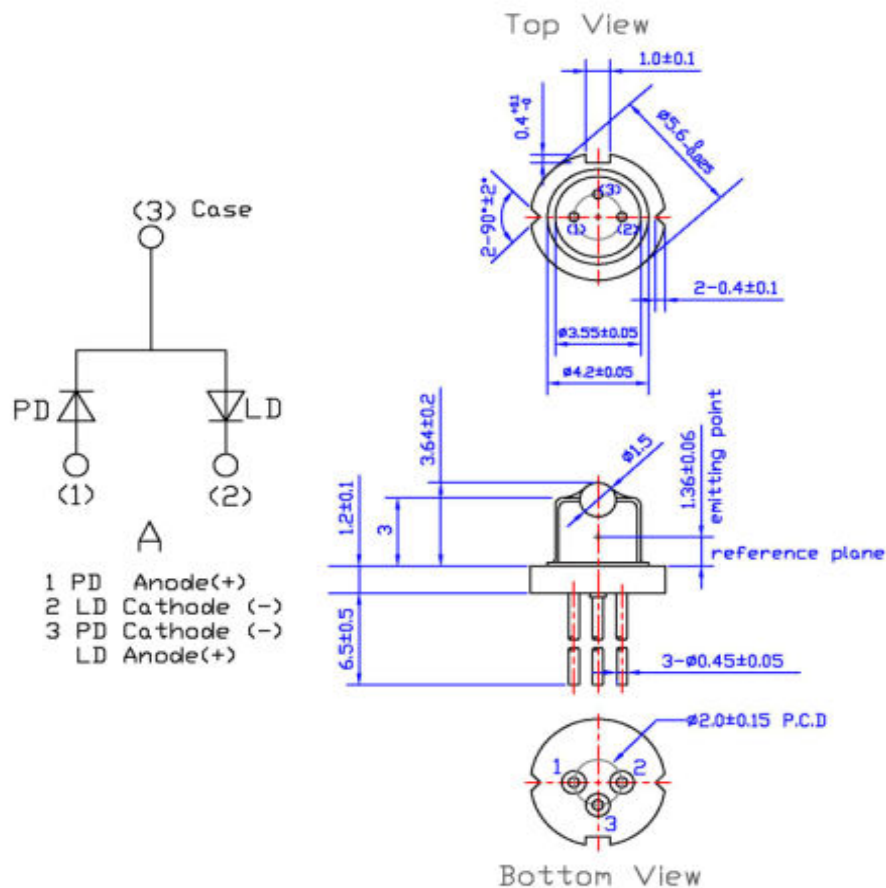
**650nm Laser Diode**

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**EO-LD-650578A-preliminary**

■ Specifications

- (1) Device: Laser Diode
- (2) Structure: TO-18( dia 5.6mm) , With ball lens cap (D=1.5mm), PD

■ External dimensions(Unit : mm)



■ Absolute Maximum Ratings (Tc=25°C)

Parameter	Symbols	Ratings	Units
Optical Output	Po	7	mW
LD Reverse Voltage	V <sub>R(LD)</sub>	2	V
PD Reverse Voltage	V <sub>R(PD)</sub>	30	V
Operation Temperature	Top	-10 ~ +70	°C
Storage Temperature	Tstg	-40 ~ +85	°C

**650nm Laser Diode**

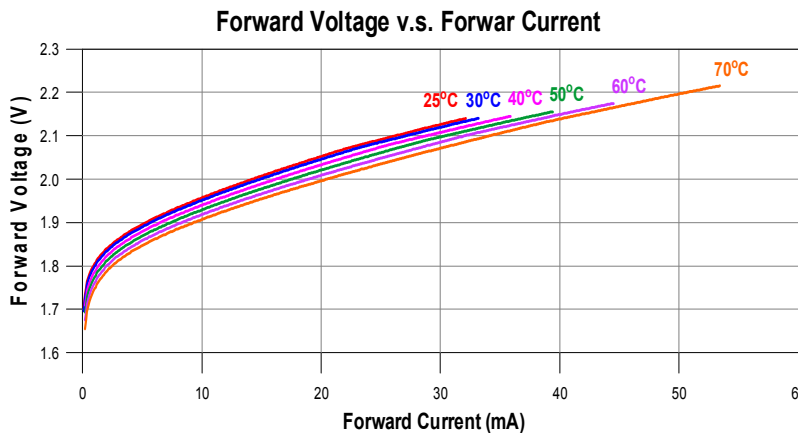
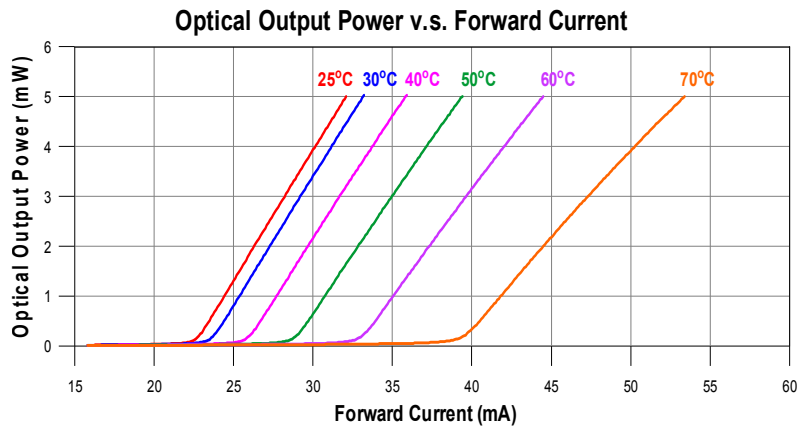
**EK SMA OPTICS**

**Electrical and Optical Characteristics**

(Tc=25°C)

Parameter	Symbols	Conditions	Min.	Typ.	Max.	Units	
Threshold Current	I <sub>th</sub>	-	-	<b>24</b>	<b>30</b>	mA	
Operation Current	I <sub>op</sub>	P <sub>o</sub> =5mW	-	<b>32</b>	<b>40</b>	mA	
Operation Voltage	V <sub>op</sub>	P <sub>o</sub> =5mW	-	<b>2,2</b>	<b>2,5</b>	Volts	
Slope Efficiency	η	3mW-1mW	<b>0,3</b>	<b>0,5</b>	-	mW/mA	
		I <sub>3mW</sub> -I <sub>1mW</sub>					
Monitor Current	I <sub>m</sub>	P <sub>o</sub> =5mW	<b>0,1</b>	<b>0,2</b>	<b>0,4</b>	mA	
Beam Divergence (FWHM)	Parallel	θ//	P <sub>o</sub> =5mW	-	<b>3</b>	<b>6</b>	deg.
	Perpendicular	θ⊥	P <sub>o</sub> =5mW	<b>4</b>	<b>8</b>	<b>12</b>	deg.
Lasing Wavelength	λ	P <sub>o</sub> =5mW	<b>645</b>	<b>655</b>	<b>665</b>	nm	

**Typical characteristic curves**

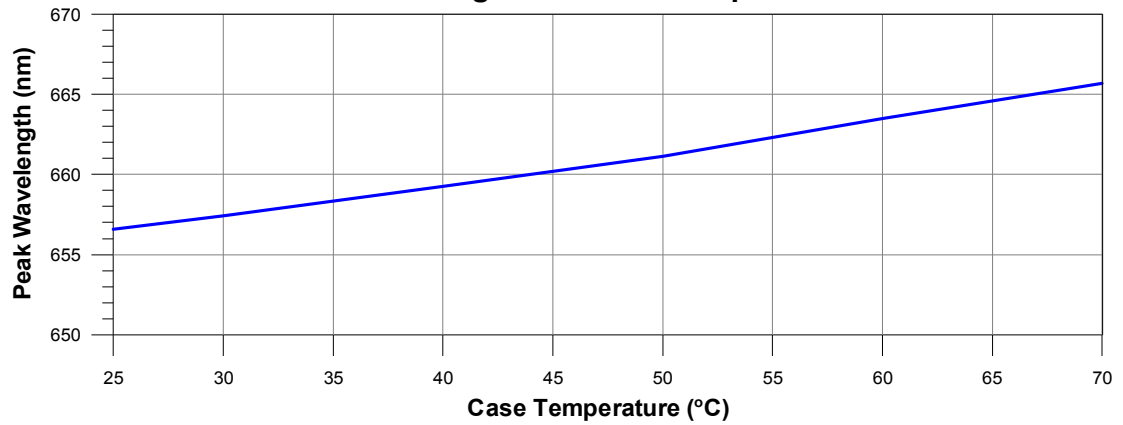


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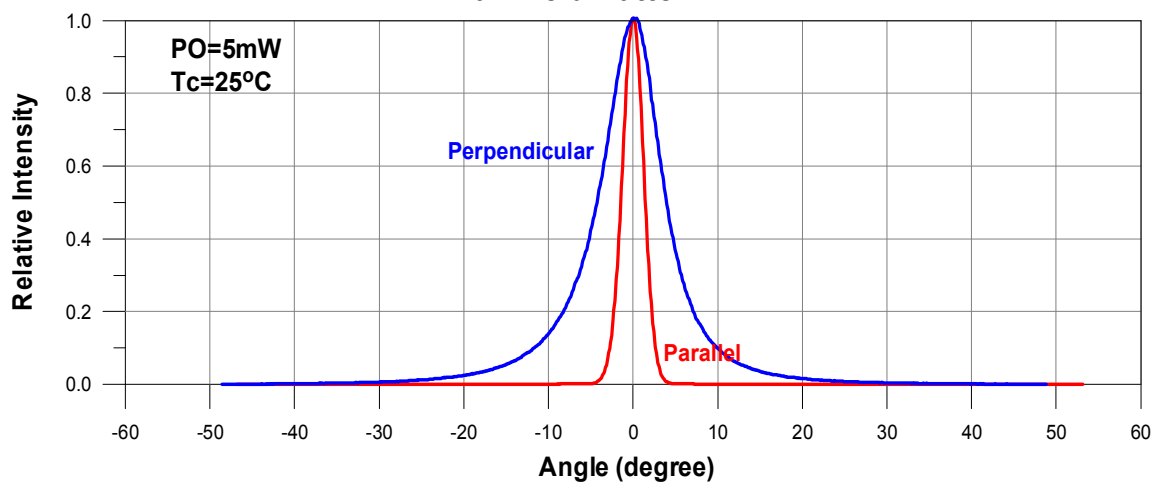
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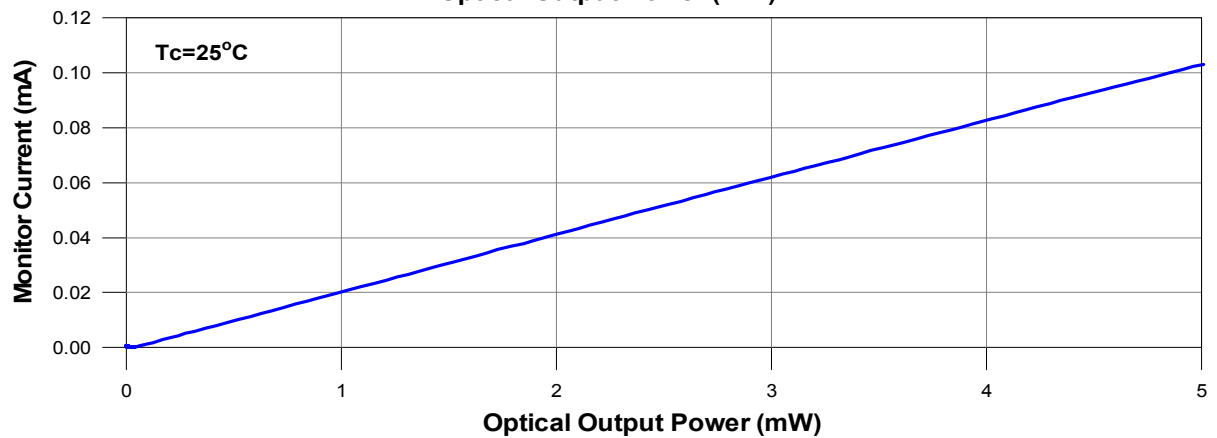
**Peak Wavelength v.s. Case Temperature**



**Far-Field Pattern**



**Optical Output Power (mW)**

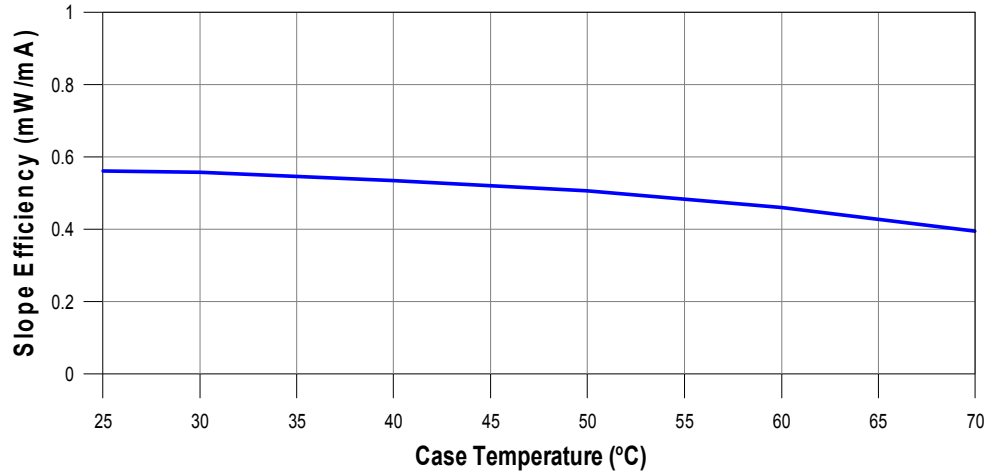


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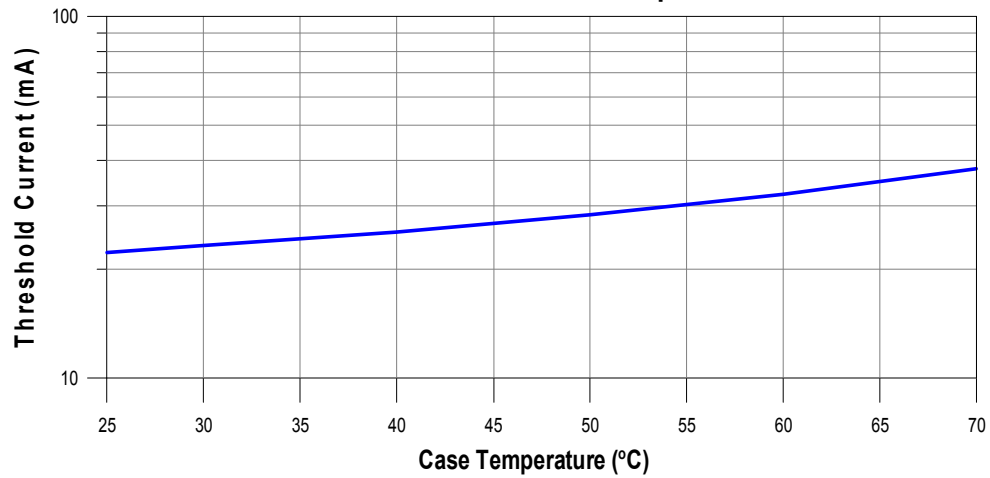
**650nm Laser Diode**

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**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 EKSMA OPTICS control and hence no guarantee on the characteristics and the reliability at all after the shipment. Also, EKSMA OPTICS 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 EKSMA OPTICS 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 laser chip or LD in the systems requiring high safety, customer is requested to confirm safety of entire systems with customer's own testing.

### SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

The information provided by EKSMA OPTICS, including but not limited to technical specifications, recommendations, and application notes relating to laser chip or laser diode TO-CAN (LD) is believed to be reliable and accurate and is subject to change without notice. EKSMA OPTICS reserves the right to change its assembly, test, design, form, specification, control, or function without notice.