

650nm Laser Diode

EK SMA OPTICS

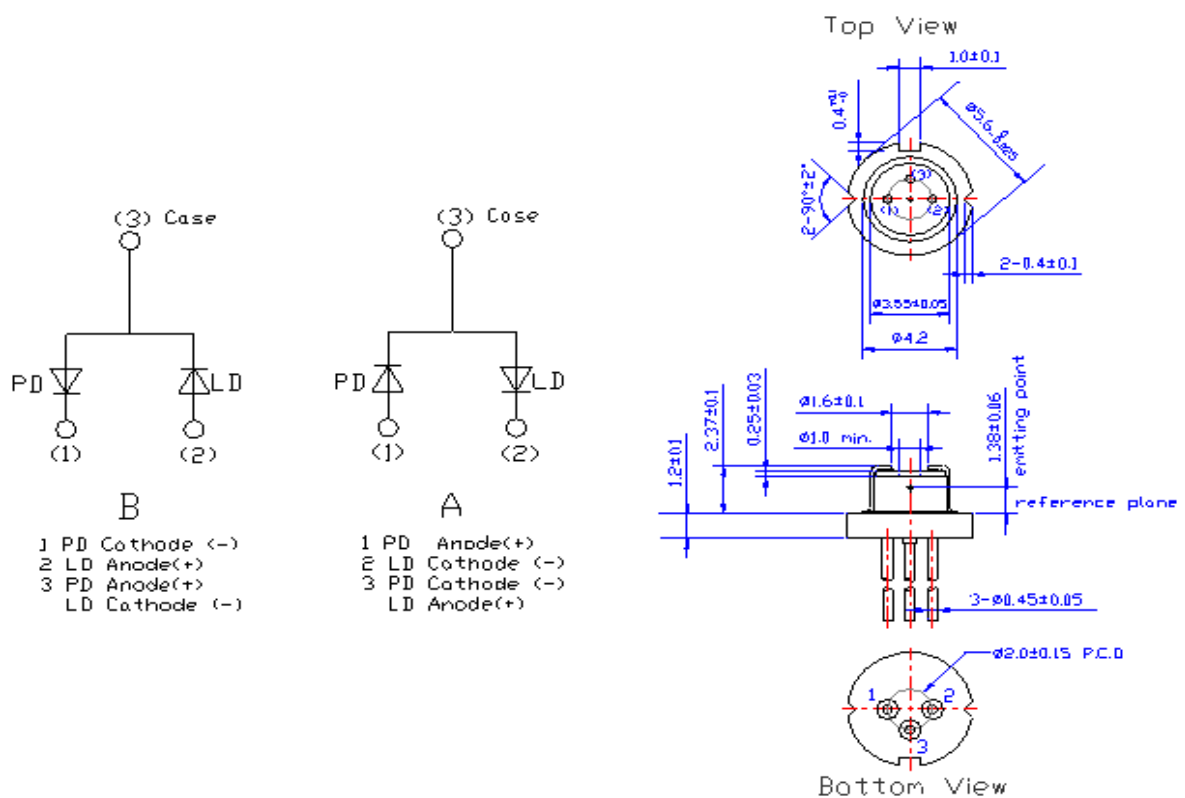
650nm Red Laser Diode

EO-LD-650541A/B

■ Specifications

- (1) Device: Laser Diode
(2) Structure: TO-18(dia 5.6mm), With Pb free glass cap, PD

■ External dimensions(Unit : mm)



■ Absolute Maximum Ratings($T_c=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Optical Output	P_o	5	mW
Reverse Voltage	Laser	V_r	2 V
	PIN PD	$V_r(\text{PIN})$	30 V
Operating Temperature	T_{op}	-10 ~ +40	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-15 ~ +85	$^{\circ}\text{C}$

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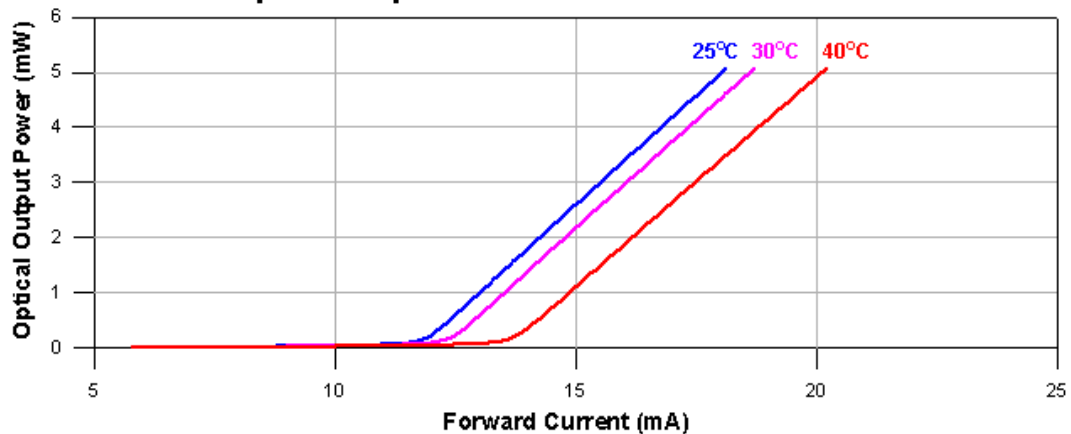
■Electrical and Optical Characteristics(Tc=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Threshold Current	I _{th}	P _o =5mW	-	12	25	mA	
Operating Current	I _{op}	P _o =5mW	-	18	25	mA	
Operating Voltage	V _{op}	-	-	2,1	2,5	Volt	
Slope Efficiency	η	4mW-1mW	0,4	0,8	-	mW/mA	
		14mW-11mW					
Monitor Current	I _m	P _o =5mW	0,05	0,3	0,5	mA	
Beam Divergence (FWHM)	Parallel	θ//	P _o =5mW	5	9	12	deg.
	Perpendicular	θ⊥	P _o =5mW	30	36	42	deg.
Lasing Wavelength	λ	P _o =5mW	640	655	660	nm	

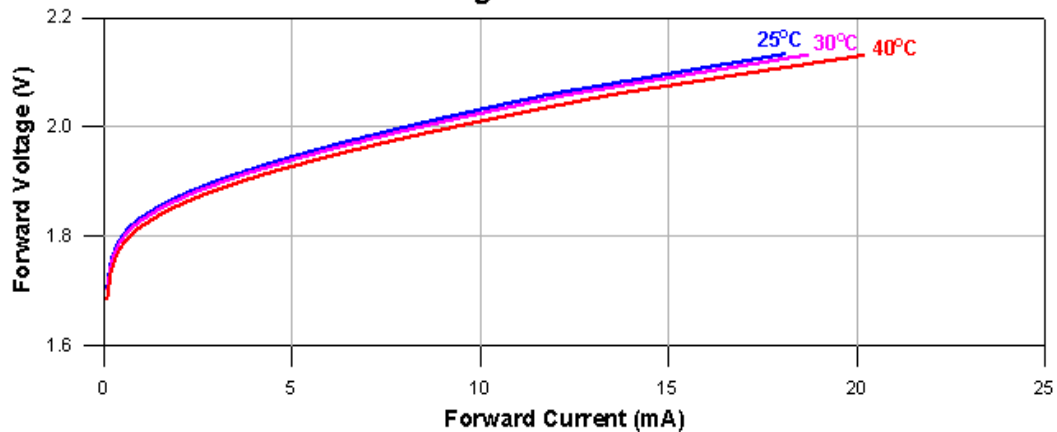
⊙θ// and θ⊥ are defined as the angle within which the intensity is 50% of the peak value.

■Typical characteristic curves

Optical Output Power v.s. Forward Current

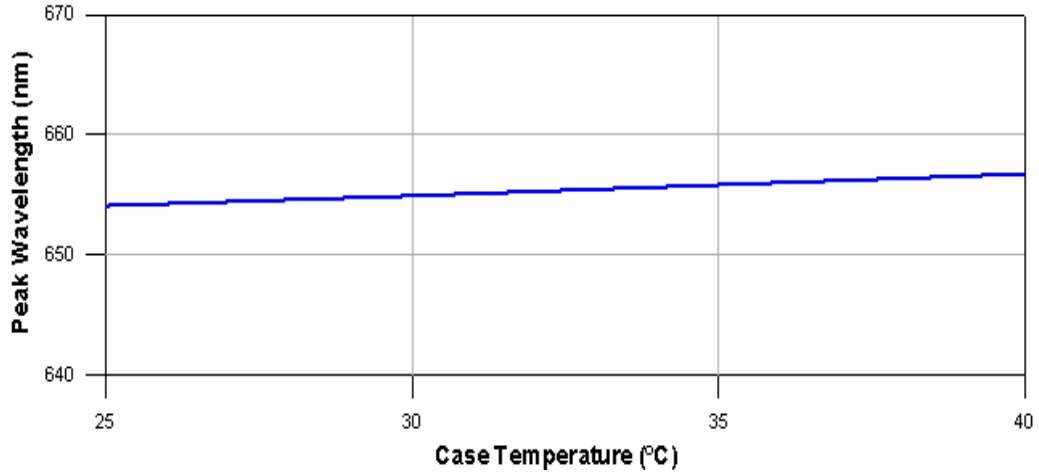


Forward Voltage v.s. Forward Current

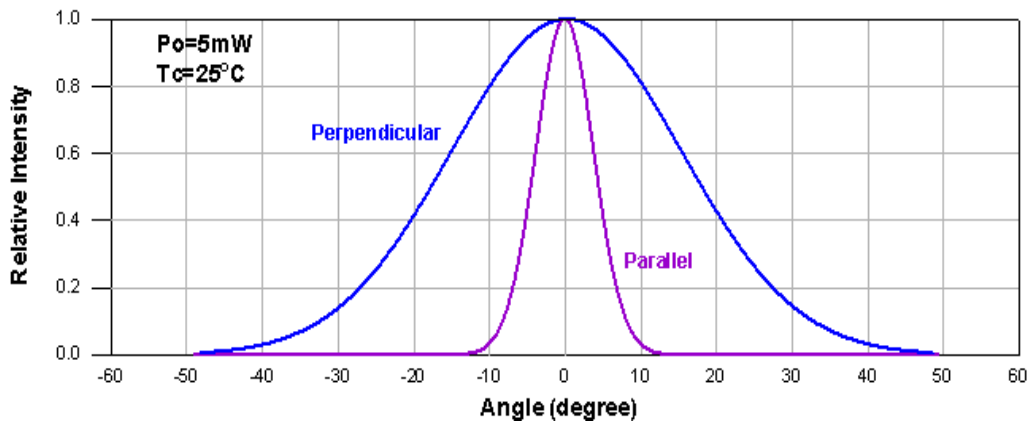


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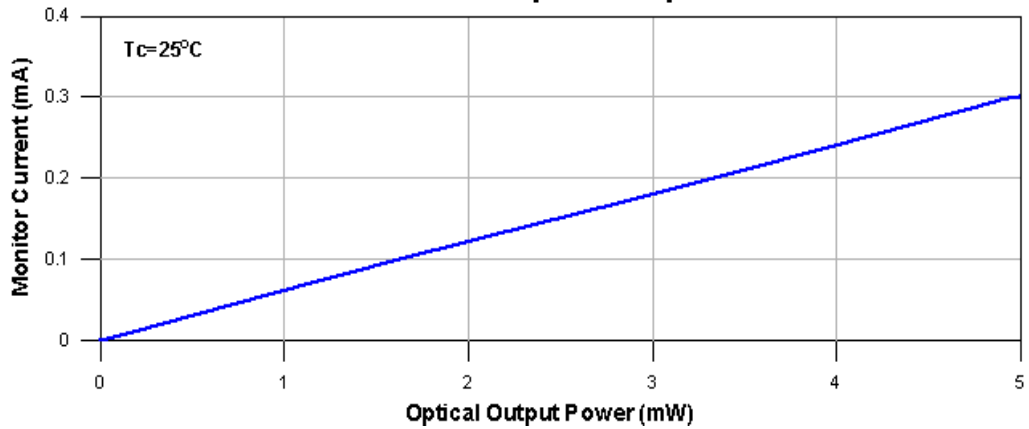
Peak Wavelength v.s. Case Temperature



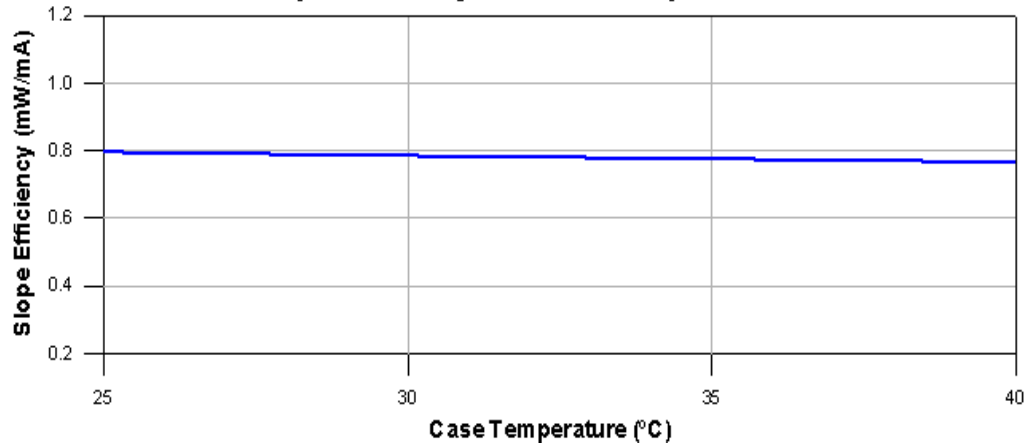
Far-Field Pattern



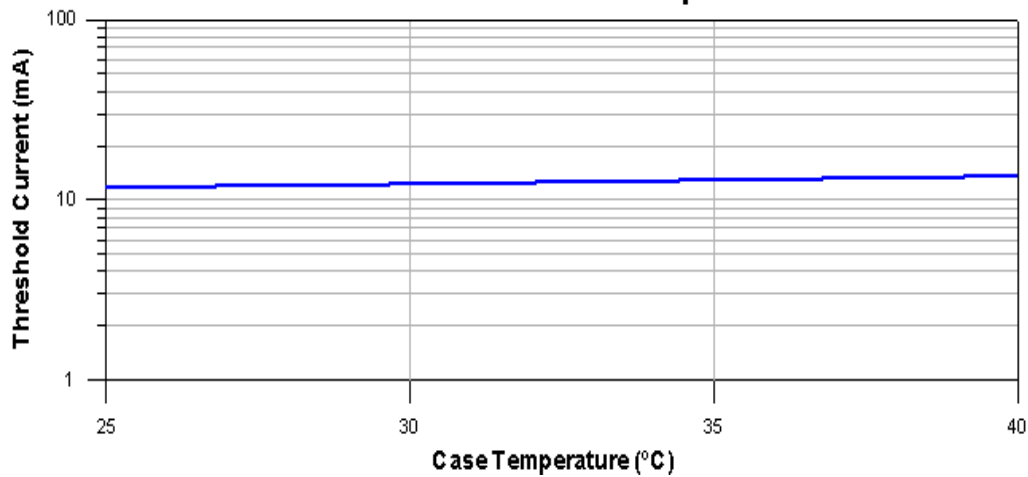
Monitor Current v.s. Optical Output Power



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 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 laser chip or LD does not cause any accident 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.