

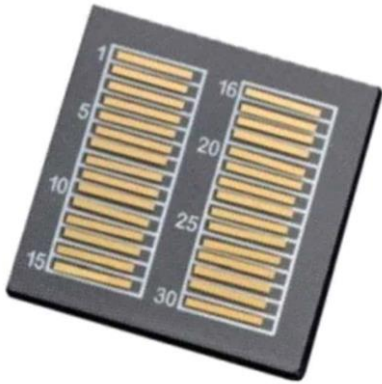
# Multimode Laser Diode Chips

780-980nm, 1W, 5W, 7W



DATASHEET

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We provide a wide range of premium laser diode chips for all application scenarios. These laser diode chips are produced using state-of-the-art quantum-well epitaxial layer growth and a reliable ridge waveguide structure. We offer these lasers in many configurations, with various back-face and front-face reflection options. Custom designs and production are also available. The chips are typically offered as metalized bar chips or on submount, with full testing and burn-in processes. Additionally, we provide packaging and fiber pigtail services.

## Features

- Edge-emitting
- High output power
- Cost Effective

## Applications

- Sensors
- Lasers

## Specifications

Parameter	Min	Typical	Max	Unit	
Central Wavelength		750	785	950	nm
Optical Output Power		5	7		W
Operation Mode		CW	CW		
Slope Efficiency		1.25	1.3		W/A
Threshold Current		0.7	1.3		A
Operating Current		4.8	6.5		A
Operating Voltage		1.75	1.75		V
Polarization		TM	TM		
Conversion Efficiency		60	60		%
Emitter Width		90	190		μm
Width		400	400		μm
Emitter Width		100	200		μm
Cavity Length		4	5		mm



**Note:** Applying current to a bare chip can damage the device. These maximum parameters should only be applied after the chip is properly bonded to a heat sink. Prolonged exposure to absolute maximum ratings may adversely affect the reliability of the device.

**Note:** The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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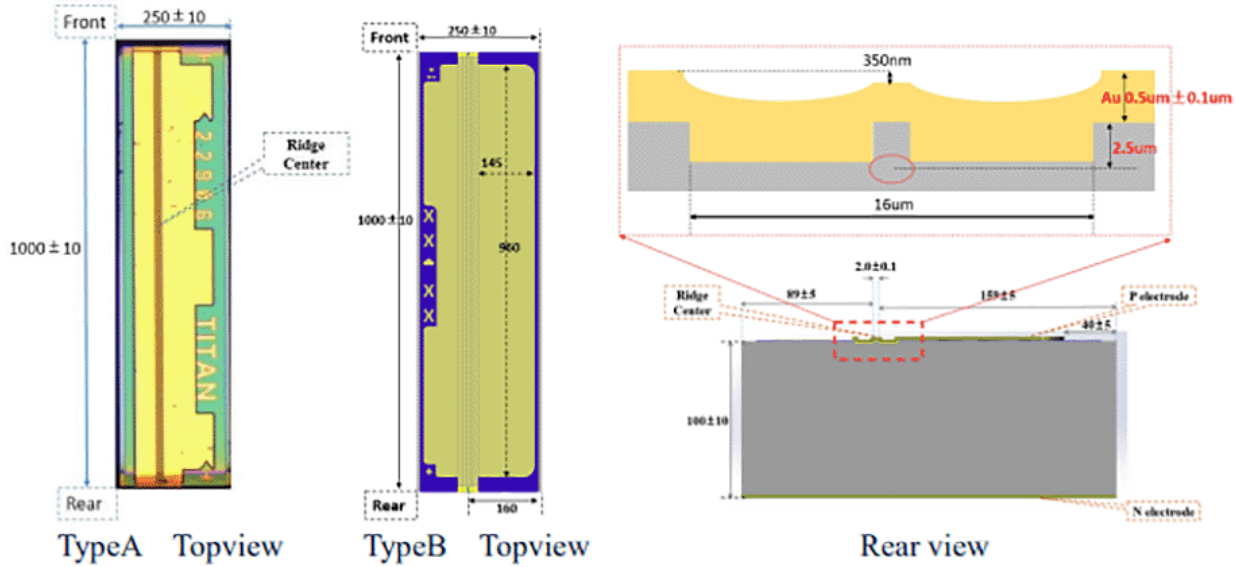
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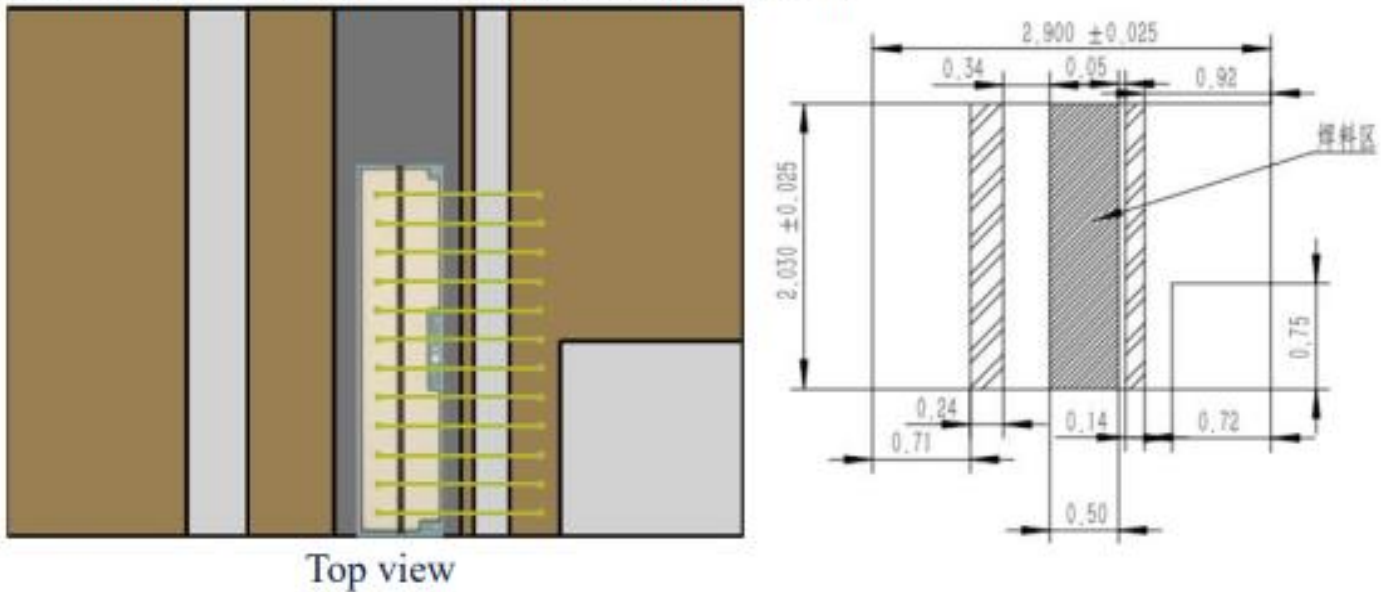
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### Mechanical Dimension (mm)

Chip Dimensions (W x L x H): 250  $\mu$ m x 1000 $\mu$ m x 100 $\mu$ m



COC Dimensions (w x l x h) = 2.90mm x 2.03mm x 0.5mm



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## Handling Procedures:

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The chips are inherently fragile and easily damaged. Special care is required when handling. Do not use tweezers; a vacuum tip with a flat surface is recommended. The facets should not be touched.

### Suggested bonding conditions:

- Eutectic AuSn solder
- Bonding temperature: 430°C (pulse heating)
- Bonding force: 25 grams
- Apply bonding force and temperature gradually
- Bonding time: 10 seconds

### Suggested burn-in conditions:

- Chip heatsink temperature: 85°C
- Current: 350 mA
- Time: 24 hours
- Pass criteria:  
Delta I<sub>th</sub> (T=55°C) ≤ 5%,  
Delta P (T=55°C) ≤ 9% @350 mA

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### ESD and EOS

Switching transients can cause electrical overstress (EOS) damage in a chip. EOS may result from improper ESD handling, incorrect power sequencing, a faulty power supply, or an intermittent connection.

#### Proper turn-on sequence:

1. All ground connections
2. Most negative supply
3. Most positive supply
4. All remaining connections

#### Proper turn-off sequence:

- Reverse the order of the turn-on process.

### Ordering Information

Prefix	Wavelength	Power	Mode	Package	Back Facet Reflectivity	Front Facet Reflectivity	1
LDCP-	770nm = 770 780nm = 780 785nm = 785 980nm = 980	1W = 1 2W = 2 3W = 3 5W = 5 7W = 7	Multi = 3 Special = 0	Bare = B Submount = S Special = 0	>95% = 1 >98% = 2 Special = 0	<5% = 5 <3% = 3 <1% = 1 >10% = A >20% = B >50% = C >70% = D	

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## Caution Electrostatic Sensitivity



- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots



## Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5  $\mu\text{m}$ .

Maximum power = 30 mW.



\*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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