

1550nm Diamond-Shaped Semiconductor Ring Laser

Description

BinOptics 155R-00I-Lxx11 Series Products are 1550 nm diamond-shaped semiconductor ring laser diodes. These products utilize BinOptics' patented Etched Facet Technology. Ring lasers have the unique ability to provide traveling wave operation, as opposed to standing wave operation that is characteristic of Fabry-Perot lasers. Ring lasers operate in clockwise (cw), counter-clockwise (ccw), or mixture of both. They readily switch to cw or ccw with suitable injection of light or back-reflection of the laser's own light. The devices have two output ports, each port being accessible in two axes allowing input to or output from the laser. The lasers are designed with a 90° angle between axes at each port, allowing simplified usage. Product is available as tested die.

Key Features

- 1550nm wavelength
- Traveling wave operation
- Two optical ports
- Two access axes separated by 90° at each port
- Wide operational temperature range, -40 to 85°C

Applications

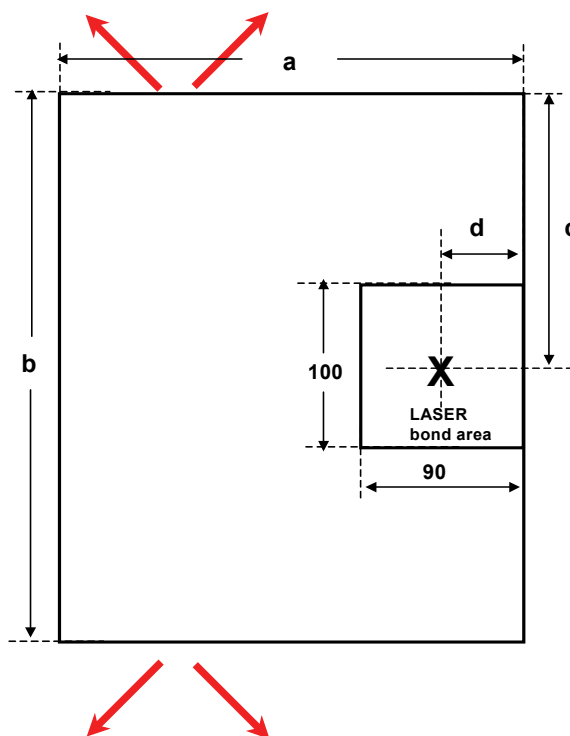
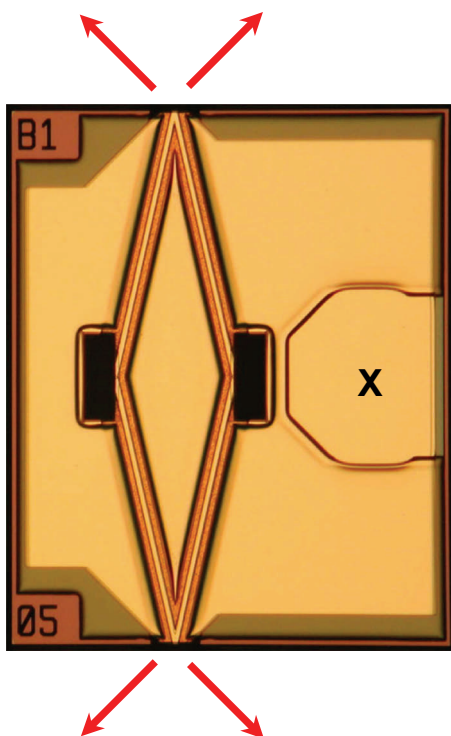
- Injection-locking experiments
- Switching experiments
- Digital photonic logic experiments

ELECTRO-OPTICAL CHARACTERISTICS (20°C)					
Parameter	Symbol	Min.	Typ.	Max.	Unit
Optical Output Power per Port	P ₀	1	2	5	mW
Threshold Current	I _{th}	40	45	50	mA
Center Wavelength	λ _c	1540	-	1570	nm
Ratio of Outputs Corresponding to cw and ccw Modes (without reflection back into the laser)	R _{cw/ccw}	-5	±3	+5	dB

ABSOLUTE MAXIMUM RATINGS						
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Submount Temperature		T	-40	-	85	°C
Storage Temperature		T _{st}	-40	-	100	°C
Optical Output Power	CW	P _o	-	-	5	mW

PHYSICAL CHARACTERISTICS				
Parameter	Min	Typ.	Max	Unit
Bonding Pad		100 x 90		μm
Chip Thickness		100		μm

AVAILABLE IN THREE CAVITY LENGTHS				
Cavity Length L (μm)	a (μm)	b (μm)	c (μm)	d (μm)
500	300 \pm 5	250 \pm 5	125 \pm 5	55 \pm 5
700	300 \pm 5	350 \pm 5	175 \pm 5	55 \pm 5
1000	300 \pm 5	500 \pm 5	375 \pm 5	55 \pm 5



ORDERING INFORMATION	
Part Number	Description
155R-00I-LCG11-S01	1550 FP, Ring laser, 500 μm cavity, CW operation, Industrial Temp (-40 to 85°C), GelPack
155R-00I-LCG11-701	1550 FP, Ring laser, 700 μm cavity, CW operation, Industrial Temp (-40 to 85°C), GelPack
155R-00I-LCG11-901	1550 FP, Ring laser, 1000 μm cavity, CW operation, Industrial Temp (-40 to 85°C), GelPack