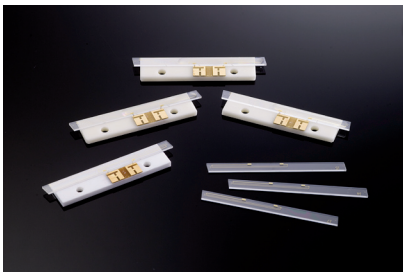
Photline TECHNOLOGIES

DeliveringModulationSolutions

Y-JPX-LN series

Polarizing Y-Junction Phase Modulator

Modulator



Photline Technologies Y-JPX-LN series Integrated Optical Circuits are high performance optical devices designed for Fiber Optics Gyros.

The proprietary Y optical splitting junction (patent US7577322, FR2886414, JP2008542806, WO2006129035) offers a low insertion loss over several tens of nanometers. The Y-JPX-LN IOCs are produced with a Proton Exchange waveguide process that provides a highly polarized light at the outputs of the devices. They can be used in harsh environments and are available as bare chips, pigtailed chips and packaged devices.

FEATURES

- Superior polarization rejection rate
- Low drive voltage
- Low insertion loss

APPLICATIONS

- Fiber Optic Gyroscopes
- Sagnac Interferometers based sensors

OPTIONS

- Chip on submount
- Pigtailed chip on submount
- Packaged devices
- Short form factor
- 830 nm devices

Chip on submount - Performance Highlights

Parameter	Min	Typ	Max	Unit
Operating wavelength	1500	-	1560	nm
Insertion loss	-	6.5	-	dB
Polarization rejection rate	55	60	-	dB
Electro-optical bandwidth	0	-	30	MHz
Vπ	-	1.4	-	V
Optical return loss	-	-	-60	dB

Specifications given at 25 °C, 1550 nm

Y-junction chip general specifications

Optical Characteristics

All specifications given at 25°C, 1550 nm, unless differently specified

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Crystal	-	-	Lithium Niobate X-Cut Y-Prop			
Waveguide process	-	-	Proton exchange			
Operating wavelength	λ	-	1500	-	1560	nm
Cut-off wavelength	-	-	-	1460	1480	nm
Insertion loss (single pass)	IL	Including 3dB Y-junction splitter loss	-	6.5	7.5	dB
Split ratio	-	-	45	50	55	%
Polarization rejection rate	-	bare chip	55	60	-	dB
Optical return loss	ORL	-	-	-	-60	dB

Electrical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Electro-optical bandwidth	S21	-	0	-	30	MHz
Vπ	-	Push and single pass	-	5.7	6	V
	-	Push pull and double pass	-	1.4	1.5	V

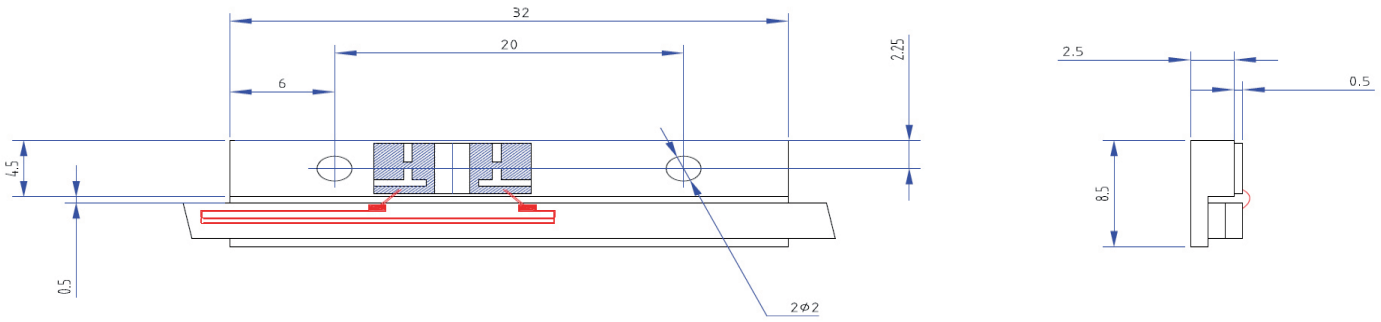
Recomended Operating Condition and Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating temperature	OT	-	-40	-	+85	°C
Storage temperature	ST	-	-40	-	+85	°C
Optical input power	OP_{in}	-	-	-	20	mW
Peak voltage	EV_{in}	-	-	15	30	V
Shock proof	Sp	During 0.5 ms	-	2000	-	g
Vibration proof	Vp	From 5 to 2000 Hz	-	10	-	g

Mechanical Diagram

All measurements in mm



Chip and submount mechanical specifications

Parameter	Condition	Min	Typ	Max	Unit
Chip dimensions	-		38 x 3 x 1		mm^3
End faces angle	Top view, see mechanical drawing	-	10	-	Degree
Output waveguide spacing	-	-	400	-	µm
Submount dimensions	-		32 x 8.5 x 2.5		mm^3

Fiber specifications (for pigtailed chip only)

Parameter	Condition	Min	Typ	Max	Unit
Input fiber type	-	Polarization maintaining 1550 nm RCSM15-PS-U17C Diameter 80 µm			-
Output fiber type	-				-
Fiber orientation	Guided polarization	Slow axis parallel to crystal Z axis			-
Insertion loss	Fiber to fiber	-	6.5	7.5	dB
Fiber length	-	-	2	-	m

Ordering Information

Y-JPX-LN-Z-ZZ

Z = Input fiber, P : Polarisation maintaining, omit if no fiber
ZZ = Output fiber, PP : Polarisation maintaining, omit if no fibers

About us

Photline Technologies is a provider of Fiber Optics Modulation Solutions based on the company $LiNb0_3$ modulators and high-speed electronics modules. Photline Technologies offers high speed and high data rate modulation solutions for the telecommunication industry and the defense, aerospace, instruments and sensors markets. The products offered by the company include : comprehensive range of intensity and phase modulators (800 nm, 1060 nm, 1300 nm, 1550 nm, 2000 nm), RF drivers and modules, transmitters and modulation units.

V1, PT-December 2012

ZI Les Tilleroyes - Trépillot
16, rue Auguste Jouchoux - 25 000 Besançon - FRANCE
tél. : +33 (0) 381 853 180 - fax : + 33 (0) 381 811 557