



The MZDD-LN-10 is a dual drive intensity modulator designed for optical communications at data rates up to 20 Gb/s and analog applications up to 20 GHz. The dual drive design of this Mach-Zehnder modulator confers it a unique combination of very low V_{π} , high bandwidth and low insertion loss, and makes it the intensity modulator of choice for a variety of state of the art applications.

FEATURES

- Low V_{π}
- Low insertion loss
- 2 μm specific design

APPLICATIONS

- Telecom
- R&D works

OPTIONS

- Higher modulation bandwidth

RELATED EQUIPMENTS

- Bias Controllers
- RF Amplifiers

MZDD-LN-10 Performance Highlights

Parameter	Min	Typ	Max	Unit
Operating wavelength	1530	1550	1580	nm
Electro-optical bandwidth	10	12	-	GHz
V_{π} RF @50 kHz	-	2.5	-	V
Insertion loss	-	4	-	dB

Specifications given at 25 °C, 50 Ω , 2050 nm

Modulator

MZDD-LN -10
10 GHz Intensity Modulator

Electrical Characteristics 50 Ω RF input

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Electro-optic bandwidth	S_{21}	from 2 GHz	10	12	-	GHz
Ripple S_{21}	S_{21}	up to 15 GHz	-	0.5	1	dB
Electrical return loss	ES_{11}	up to 15 GHz	-	-12	-10	dB
V_{π} RF @ 50 kHz	$V_{\pi RF_{50\text{ kHz}}}$	RF input, dual drive	-	2.3	2.8	V
Impedance matching	Z_{in-DC}	RF input	-	50	-	Ω
V_{π} DC electrodes	DC	Differential drive	-	2.3	2.8	V

Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Crystal	-	-	Lithium Niobate Z-Cut Y-Prop			
Waveguide process	-	-	APE			
Operating wavelength		-	1530	1550	1580	nm
Insertion loss	IL	Without connectors	-	4	5	dB
Optical return loss	ORL	-	-40	-45	-	dB

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

Absolute Maximum Ratings

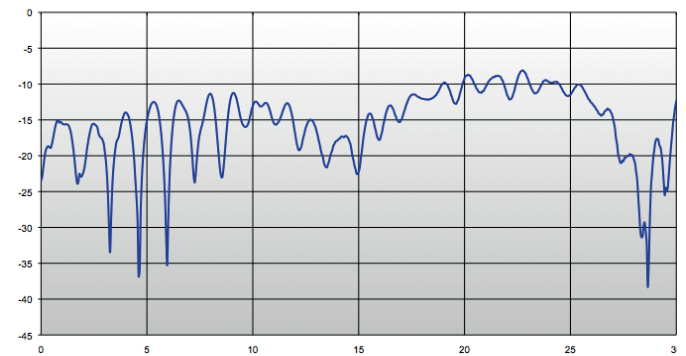
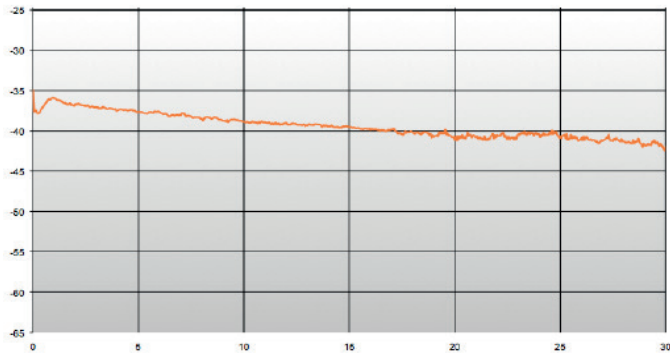
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute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

Parameter	Symbol	Min	Max	Unit
Modulation voltage range	EVin	-20	20	V
Optical input power	OP _{in}	-	20	dBm
Operating temperature	OT	0	+70	°C
Storage temperature	ST _{www}	-40	+85	°C

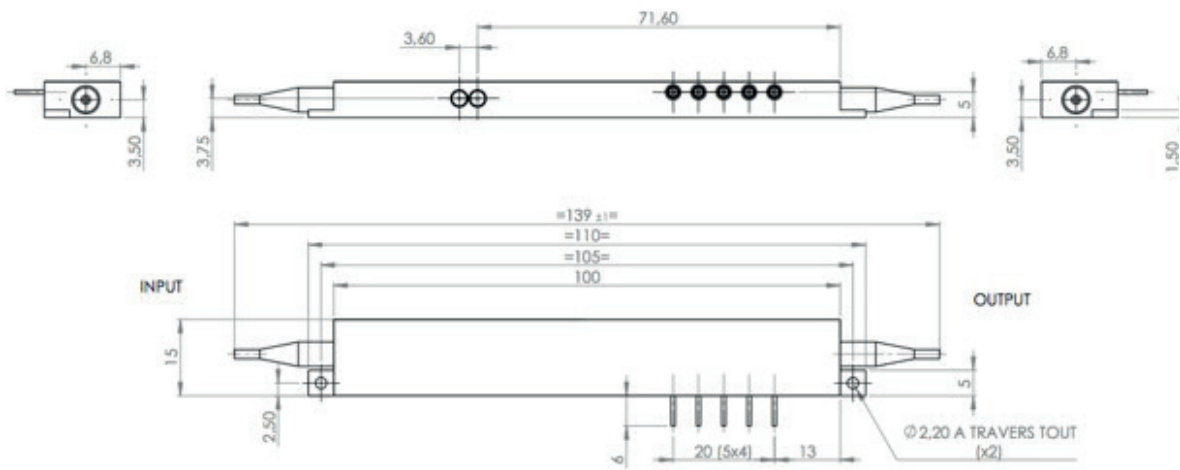
Modulator

MZDD-LN-10 Typical S_{21} Curve

MZDD-LN-10 Typical S_{11} Curve



Mechanical Diagram and Pinout All measurements in mm



Port	Function	Note
IN	Optical input port	Polarization maintaining fiber 1550 nm Corning PM 15-U25D length : 1.5 meter, buffer diameter : 900 μ m
OUT	Optical output port	Polarization maintaining fiber 1550 nm Corning PM 15-U25D length : 1.5 meter, buffer diameter : 900 μ m
RF	RF input ports	two GPPO female connectors
DC & PD	DC and PD ports	pins

Ordering information

MZDD-LN-10-Y-Z-AB-CD

Y = Input fiber : **P** Polarization maintaining **S** Standard single mode

Z = Output fiber : **P** Polarization maintaining **S** Standard single mode

AB = Input connector : **00** bare fiber **FA** FC/APC **FC** FC/SPC

CD = Output connector : **00** bare fiber **FA** FC/APC **FC** FC/SPC

Note : optical connectors are Senko with narrow key or equivalent

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About us

Photline is a brand of the **iXBlue** group of companies and a provider of Fiber Optics Modulation Solutions based on the company LiNbO_3 modulators and high-speed electronics modules. Photline 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 Photline 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.

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