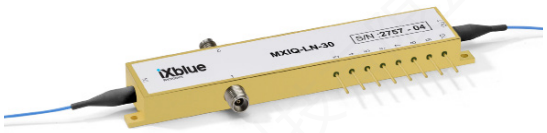
MXIQ-LN-30

1550 nm band wide bandwidth IQ Modulator

MODULATOR



The iXblue MXIQ-LN-30 is a wide bandwidth, low insertion loss Dual Parallel Mach-Zehnder Modulator. iXblue proprietary "Magic Junction" (patent n° US2008193077) confers it an unmatched low insertion loss, and its X-cut design guarantees high stability and zero chirp in a wide range of operational conditions.

The iXblue MXIQ-LN-30 modulator is a key device dedicated to complex modulation scheme such as QPSK, QAM and OFDM up to 56 Gbaud.

FEATURES

- Wide bandwidth
- X-cut for high stability
- Low insertion loss

APPLICATIONS

- QPSK, QAM, OFDM

RELATED EQUIPMENTS

- Analog driver DR-AN-HO
- MBC-IQ Automatic Bias Controller
- ModBox-IQ

MXIQ-LN-30 Performance Highlights

Parameter	Min	Typ	Max	Unit
Operating wavelength	1530	1550	1580	nm
Insertion loss	-	5	7	dB
Electro-optical bandwidth	25	30	-	GHz

Specifications given at 25 °C, 1550 nm

Electrical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Electro-optic bandwidth	S_{21}	RF electrodes, from 2 GHz	25	30	-	GHz
Ripple S_{21}	ΔS_{21}	RF electrodes	-	0.5	1	dB
Electrical return loss	S_{11}	RF electrodes, 0 - 25 GHz	-	-12	-10	dB
Vπ RF @50 kHz	$V\pi RF_{50\ kHz}$	RF_1 & RF_2 electrodes	-	5.5	7	V
Vπ $DC_{1,2}$ electrodes	$V\pi DC_{1,2}$	DC_1 & DC_2 electrodes	-	7	7.5	V
Vπ DC_3 electrodes	$V\pi DC_3$	DC_3 electrodes	-	9	12	V
Impedance matching	$Z_{in\text{-}RF}$	-	-	50	-	Ω
DC input impedance	$Z_{in\text{-}DC}$	-	1	-	-	MΩ

Optical Characteristics

Parameter	Symbol	Condition	Min	Typ		Unit
Crystal	-	-	Lithium Niobate X-Cut Y-Prop			
Operating wavelength	λ	-	1530	1550	1580	nm
Insertion loss	IL	Without connectors	-	5	7	dB
Optical return loss	ORL	-	-40	-45	-40	dB
Chirp	α	-	-0.1	0	-0.1	-

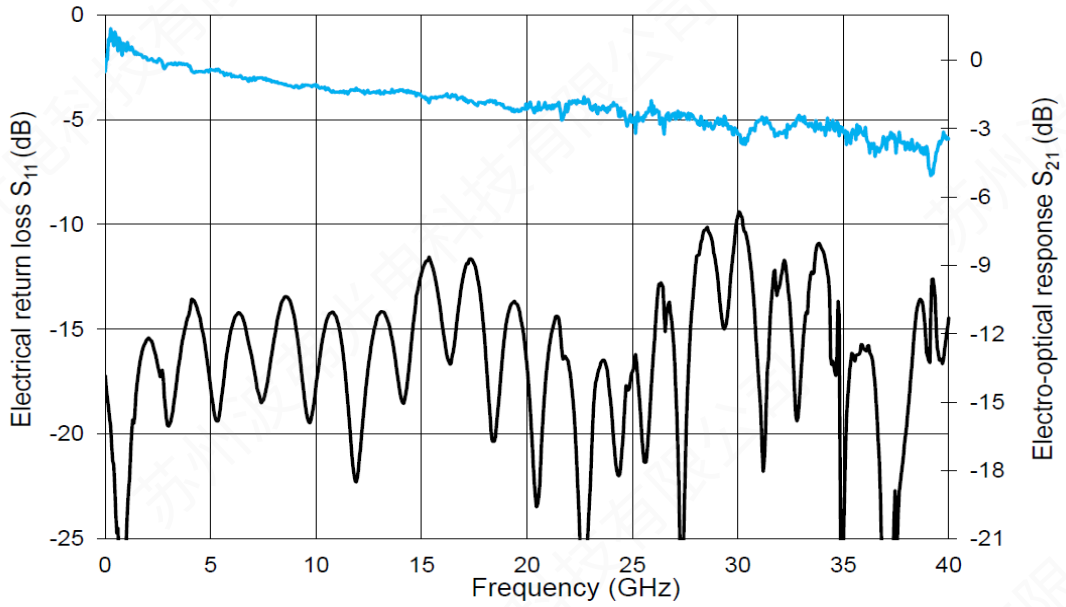
All specifications given at 25°C, 1550 nm, unless differently specified

Absolute Maximum Ratings

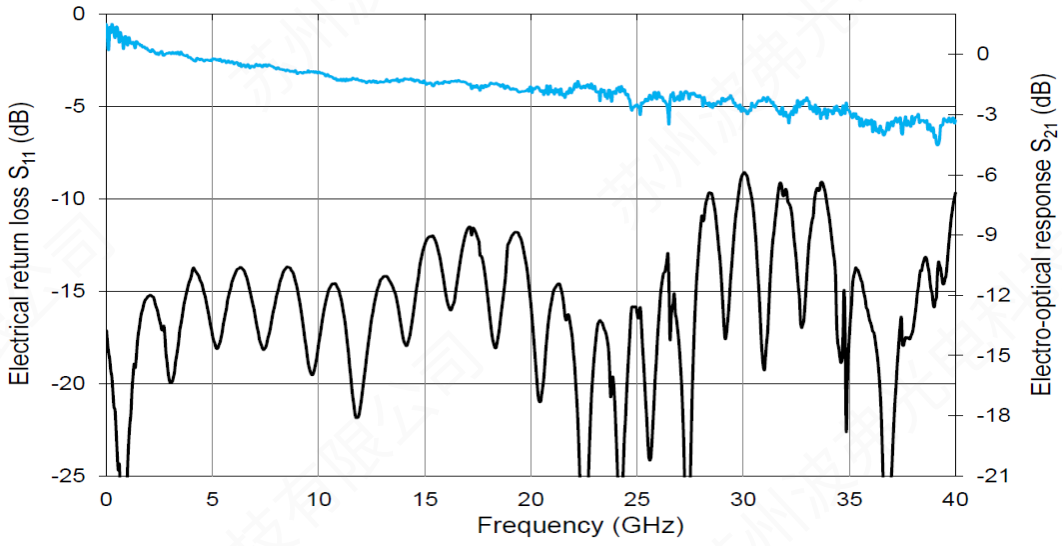
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute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

Parameter	Symbol	Min	Max	Unit
RF input power	EP_{in}	-	28	dBm
Bias voltage	V_{bias}	-20	+20	V
Optical input power	OP_{in}	-	20	dBm
Operating temperature	OT	0	+70	°C
Storage temperature	ST	-40	+85	°C

Typical Curve S_{21} & S_{11} from RF_1 Electrode

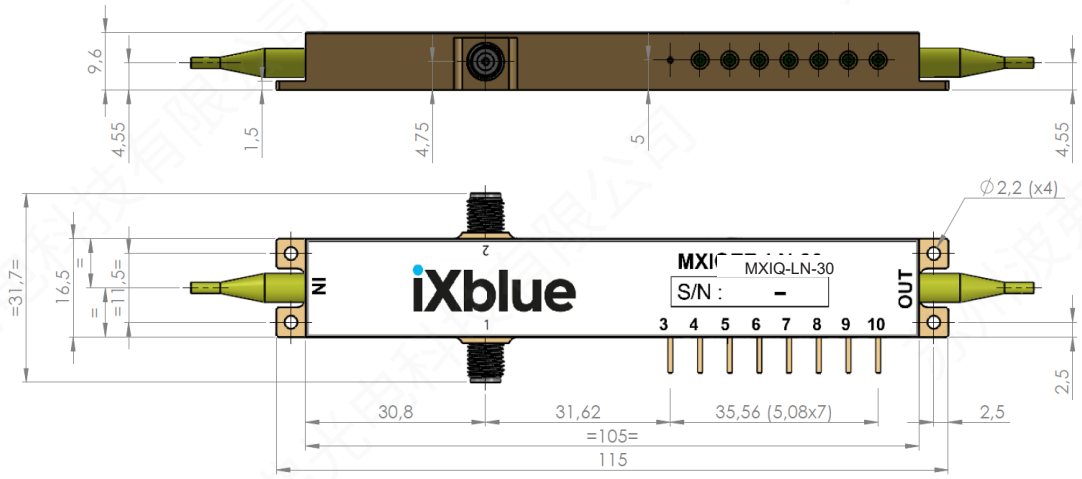


Typical Curve S_{21} & S_{11} from RF_2 Electrode



Mechanical Diagram and Pinout

All measurements in mm



Port	Function	Note
IN / OUT	Optical input port / Optical output port	Polarization maintaining 1550 nm Corning PM 15-U25D length: 1.5 meter, buffer diameter: 900 µm
1 / 2	RF_1 input port / RF_2 input port	Female K (SMA compatible)
3	Ground	Pin feed through diameter 1.0 mm
4 / 5 / 6	DC_2 / DC_1 / DC_3	Pin feed through diameter 1.0 mm
7 / 8	Photodiode 1 anode / cathode	Pin feed through diameter 1.0 mm
9 / 10	Photodiode 2 cathode / anode	Pin feed through diameter 1.0 mm

Ordering information

MXIQ-LN-30-PD-Y-Z-AB-CD

Y = Input fiber : P Polarisation maintening
Z = Input fiber : P Polarisation maintening S Standard single mode
AB = Output connector : 00 bare fiber FA FC/APC FC FC/SPC
CD = Output connector : 00 bare fiber FA FC/APC FC FC/SPC

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About us

iXblue Photonics produces specialty optical fibers and Bragg gratings based fiber optics components and provides optical modulation solutions based on the company lithium niobate ($LiNbO_3$) modulators and RF electronic modules.
iXblue Photonics serves a wide range of industries: sensing and instruments, defense, telecommunications, space and fiber lasers as well as research laboratories all over the world.

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