LMC-50

DEVICE

50 GHz Lightwave Modulator with Bias Control

OVERVIEW

The Optilab LMC-50 is a high-performance Lightwave Modulator Board designed for analog photonics applications from DC to 50 GHz. This unit includes a 31 GHz optical intensity modulator and an Automatic Bias Control (ABC) board with four different operating modes. The external laser source can be any polarization maintaining device, such as a tunable laser or narrow linewidth laser, making it a versatile solution for OEM-based system integration. Contact Optilab for more information.

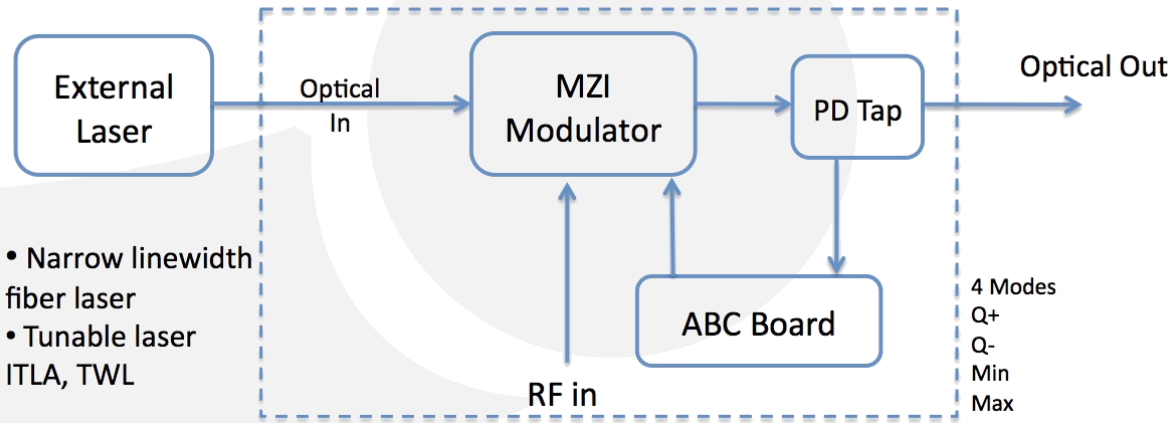
FEATURES

- 1520 nm to 1610 nm wavelength range
- Automatic Bias Control w/ 4 mode operation
- Customizable Options:
  - Low Drive Voltage
  - PM output
  - High Extinction Ratio (> 30 dB)
  - Temp. Qualified (-55°C to +75°C)

USE IN

- Picosecond pulse generation
- Optical communications to 43 Gb/s
- Active mode lock (PM version)
- Analog photonics
- 50 GHz RFoF transmission
- RF/IF signal distribution
- Satellite communication

FUNCTIONAL DIAGRAM



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SPECIFICATIONS

GENERAL

Operating Wavelength	1520 nm to 1610 nm
Laser Source	User's external input
Optical Input Level	+20 dBm max.
RF Return Loss	≤ -10 dB @ 20 GHz
Impedance	50Ω
Operating Frequency Range	DC to 50 GHz
Input RF Voltage	27 dBm max.
Optical Output Level	6.5 dBm typ. With 20 mW DFB
S21 Bandwidth	29 GHz typ. @ -3 dB, 51 GHz typ. @ -6 dB
Modulator Bias Mode	4 Automatic bias control modes, selectable by software
Extinction Ratio	25 dB typ.; > 30 dB (HE version)
Modulator Voltage V_{PI}	3 V typ. @ 10 GHz typ

MECHANICAL

Operating Temperature (standard)	-30 °C to +60 °C
Operating Temperature (TQ version)	-55 °C to +75 °C
Storage Temperature	-60 °C to +90 °C
Power Supply Requirements	± 5 V DC, 1 A max.
Optical Connector	FC/APC
Fiber Type	PANDA input, SMF-28 output; PANDA input/output (PM version)
RF Input Connector	V or GPPO
Power Connector	4 Pin Molex
Remote Control	USB 2.0 software included
Alarm	LED bias mode status
Dimensions	241 mm x 152 mm x 41 mm

BIAS CONTROL MODE

Mode	Operation Conditions
Q+	Set to quadrature point of positive slope for linear analog modulation
Q-	Set to quadrature point of negative slope for linear analog modulation
Min.	Set to min. point of operation for pulse generation or digital modulation
Max.	Set to max. point of operation for pulse generation or digital modulation

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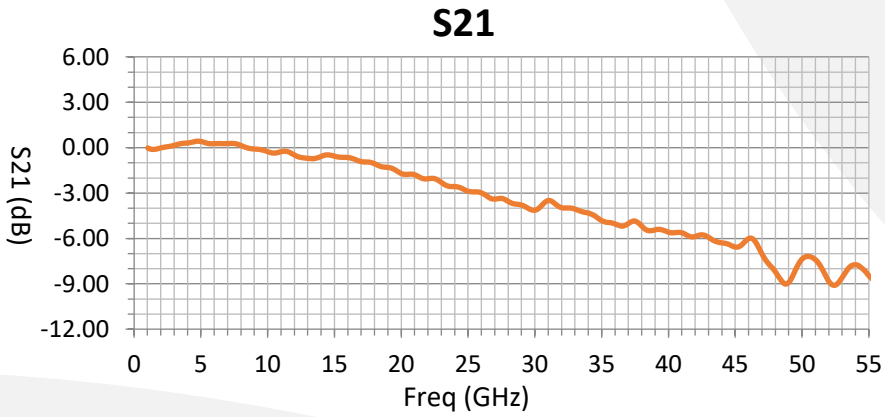
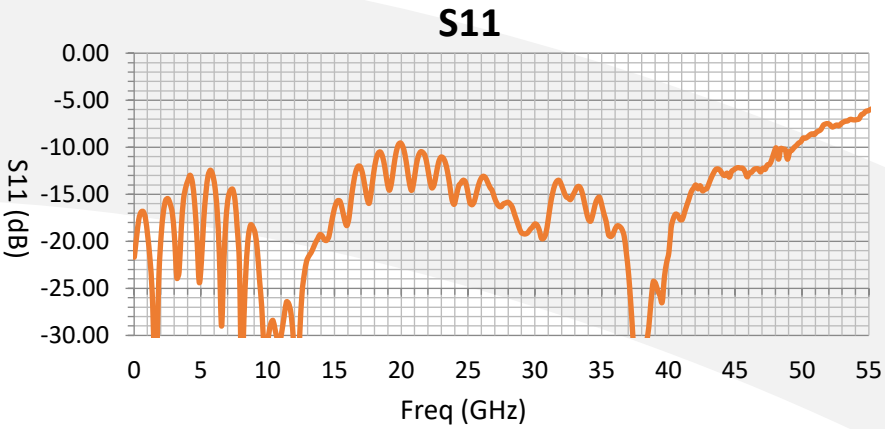
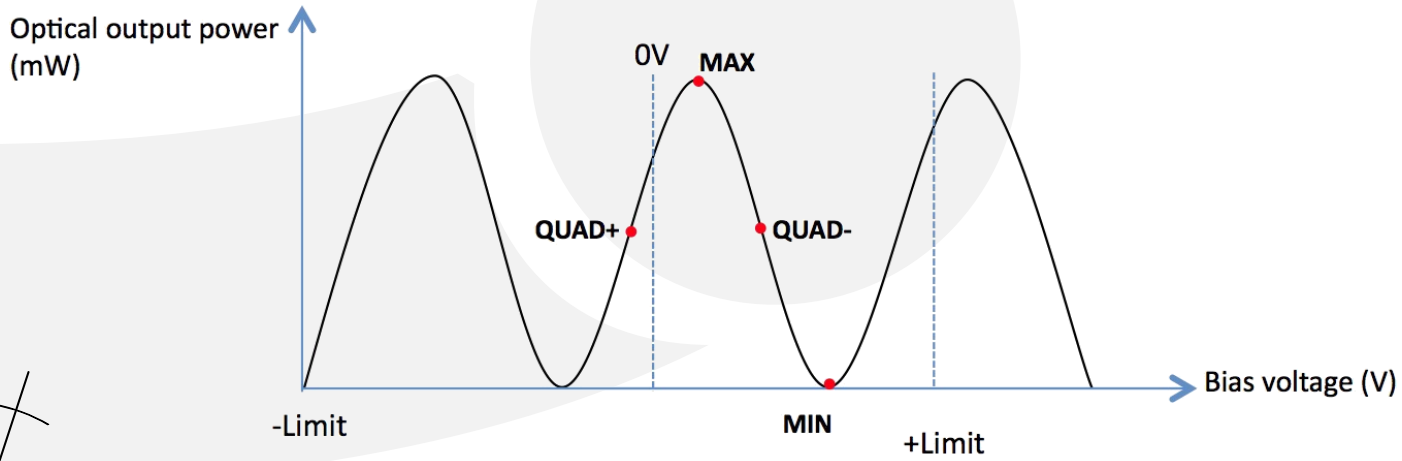
TYPICAL S21 AND S11 BANDWIDTH





BIAS SETTING MODES FOR LMB

Based on sophisticated phase measurement of this small dither signal, LMC-50 provides four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad -), minimum (Min), or maximum (Max) points.



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ORDERING OPTIONS **LMC-50-XX-YY**

XX	LD: Low Drive Voltage PM: Polarization Maintaining HE: High Extinction Ratio
YY	DC: DC +/- 5V Power Supply (Option 1) AC: AC 100/240 VAC (Option 2)

Option 1 : DC +/- 5V

Option 2 : 100/240 VAC