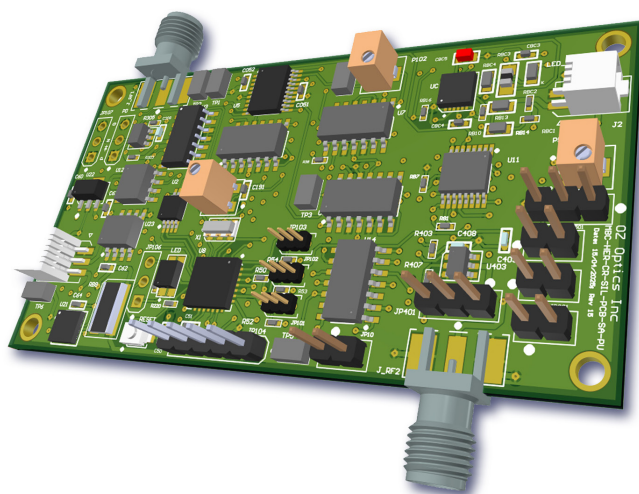




MODULATOR BIAS CONTROLLER – MINI-SIL

Features

- Designed to be used with either single LN MZ modulators or silicon based modulators
- User selectable locking slope (QUAD+ / QUAD-, NULL / PEAK)
- User selectable locking mode (Quad+/Quad- 1 Null/Peak)
- Bias Port can deliver current up to 250 mA (Note: Current limit is configurable per user request)
- Bias Port voltage adjustment capabilities from -10V to +10V
- RF Gating capabilities
- Pilot Tone Gating capabilities
- Two operation modes: calibration mode and locking mode
- Calibration off mode for quick system setup in locking mode
- Low profile (3.1" x 1.6" x 0.65")
- Access for external photodetector
- Stand alone
- Computer interface is not required
- PCB board Size (1.6" x 3" x 0.65")



MBC-MINI-SIL

Product Description

This full-function miniature OEM version Modulator Bias Controller (MBC) is designed to be used with either single LN MZ modulators or silicon based modulators for a single modulator general applications. The Modulator Bias Controller not only can be used to lock the working point of the modulator at the positive slope quadrature (quad+), negative slope quadrature (quad-), null or peak points of its working function. The locking modes and slopes are selectable by changing the jumper positions on the controller. The MBC Bias Port can deliver and configure current up to 250mA, which is required by silicon based modulators. A pigtailed photodetector is included. An external photo detector may also be used if the user prefers.

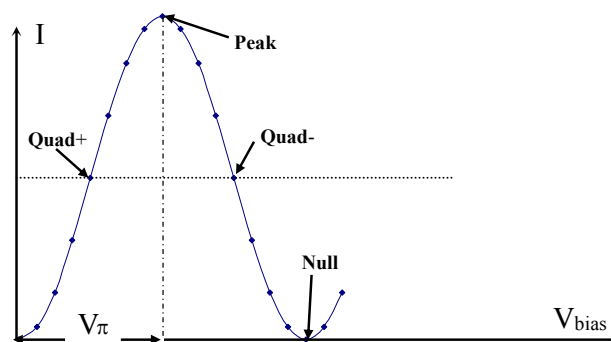


Figure 1. MZ modulator working function

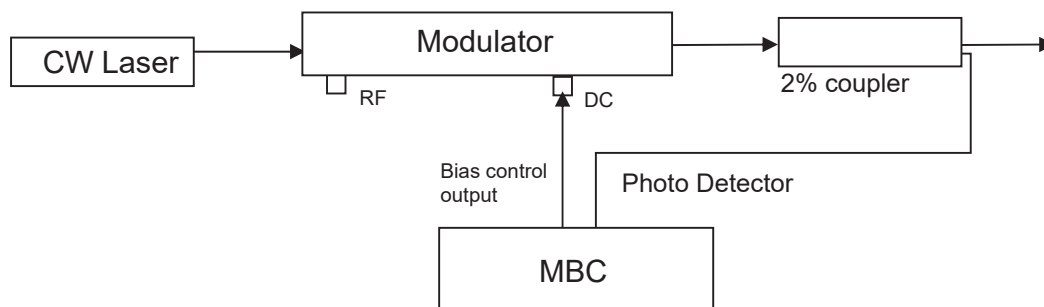


Figure 2. System Configuration for Modulator Bias Controller (MBC)

Specifications

Parameters	Min.	Typ.	Max.
Optical Performance			
Detector Input Power ¹ (dBm)	-30		-10
Optical Wavelength ² (nm)	1000–1650		
Electrical Performance			
Bias Voltage (V)	-10		10
Bias Current (mA) ⁵			250
Null Mode Extinction Ratio ³ (dB)		25	40
Locking Slope	Positive or Negative		
Locking Mode	Quad+ (Quad-) or Null (Peak)		
Pilot Tone			
Modulation Depth (QUAD) ⁴ (%)		1	2
Modulation Depth (Null) (%)			0.1
Pilot Tone Frequency (QUAD) (Hz)		1000	
Pilot Tone Frequency (NULL) (Hz)		2000	

Parameters	Min.	Typ.	Max.
Power Supplies			
Positive Power Voltage (V)	11.5	12	12.5
Negative Power Voltage (V)	-12.5	-12	-11.5
Positive Power Current (mA)		60	
Negative Power Current (mA)		40	
General			
Operating Temperature (°C)	0–70		
Storage Temperature (°C)	-40–85		
Dimension (inch)	1.6 x 3 x 0.65		
Weight (lb)	0.2		

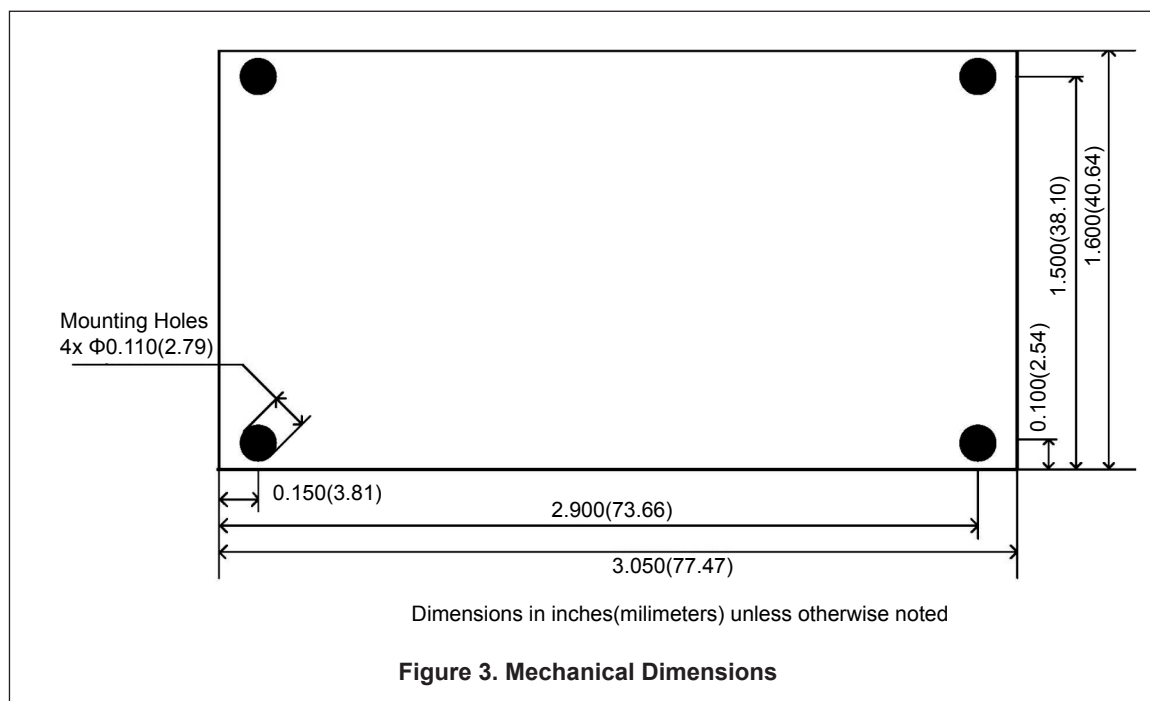
¹ For a given input, detection power refers to the coupled optical power to the photodiode of MBC when the modulator output is at its minimum attenuation (The detection power does not describe the detected power at locking status).

² The wavelength can be expanded with PDs for different wavelengths.

³ In this case, the modulator output power was greater than 0 dBm. 1% coupler was used. The extinction ratio will be close to but not exceed the extinction ratio of the modulator.

⁴ Optical Modulation Index = amplitude of modulation/ V_{π} .

⁵ Bias Current limit can be configured by manufacturer as per user request.



Part Number

MBC-MINI-SIL-PP-X

PP = Pigtailed Photodiode code:
PD = Pigtailed photodiode included
00 = Pigtailed photodiode not included
Leave connector code blank

X = Connector code:
3U = FC/UPC
3A = FC/APC
SCU = SC/UPC
SCA = SC/APC
LCU = LC/UPC
LCA = LC/APC