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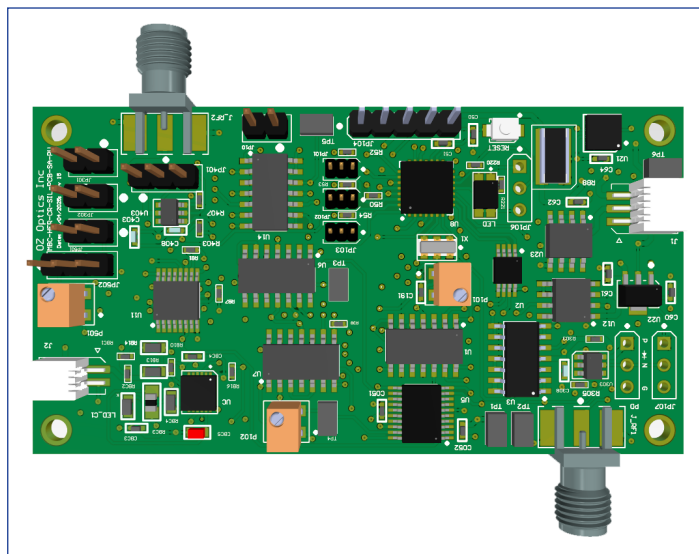
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MODULATOR BIAS CONTROLLER - HIGH EXTINCTION RATIO MINI WITH BIAS CURRENT DRIVE AND RF GATING CAPABILITIES

Features

- For high-extinction ratio applications
- PCB level
- Stand alone
- No computer interface required
- User selectable locking slope (QUAD+ H QUAD-, NULL H PEAK)
- User selectable locking mode (Quad+/Quad- H Null/Peak)
- Two operation modes: calibration mode and locking mode
- Bias Port can deliver current up to 250mA
- Bias Port voltage adjustment capabilities
- RF Gating capabilities
- Pilot Tone Gating capabilities
- Calibration off mode for quick system setup in locking mode
- Access for external photo-detector
- Locking priority selectable



Product Description

This high-extinction ratio 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 high extinction ratio 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, but also features an extremely small pilot tone which allows for an exceptionally high extinction ratio of > 45 dB, depending on the limits of the modulator. The locking modes and slopes are selectable by changing the jumper positions on the controller. The MBC Bias Port can deliver current up to 250mA, which is required by siliconbased modulators. A pigtailed photodetector is included. An external photodetector may also be used if the user prefers.

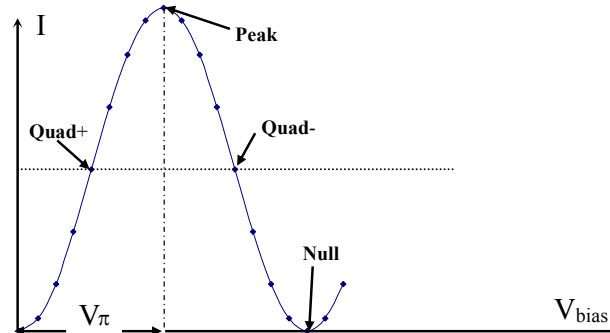


Figure 1. Modulator Working Function

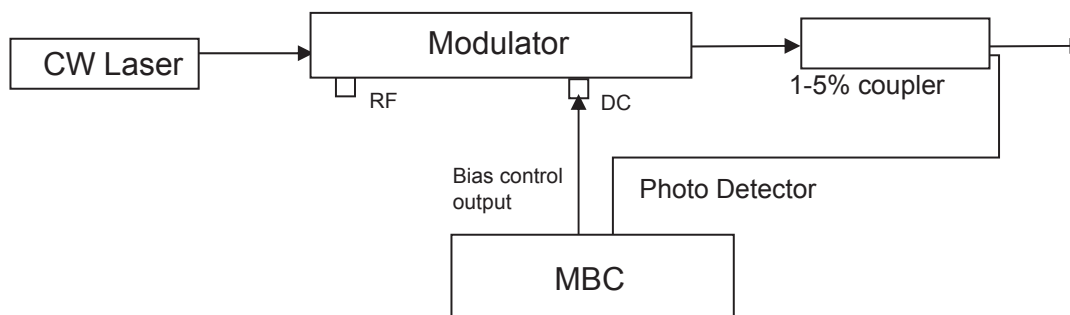


Figure 2. System Configuration for Modulator Bias Controller

Specification

Parameters		Min	Typ	Max
Optical Performance				
Detector Input Power ¹ (dBm)	Peak, Null mode	-30	-10	
	Quad mode	-20	-10	
Optical Wavelength ² (nm)		1000–1650		
Electrical Performance				
Bias Voltage (V)		-13.5		13.5
Bias Current (A)				0.25
Null Mode Extinction Ratio ³ (dB)			30	53
Locking Slope		Positive or Negative		
Locking Mode		Quad+ (Quad-) or Null (Peak)		
Pilot Tone				
Modulation Depth (QUAD) ⁵ (%)			1	2
Pilot Tone V _{pp} (Null) (mV)			6	
Pilot Tone Frequency (QUAD) (Hz)			1000	
Pilot Tone Frequency (NULL) (Hz)			2000	

Parameters	Min	Typ	Max
Power Supplies			
Positive Power Voltage (V)	14.5	15	15.5
Negative Power Voltage (V)	-14.5	-15	-15.5
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 3.05 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 range can be expanded with PDs of 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 User must choose one.

⁵ Optical Modulation Index = amplitude of modulation/V_{pp}.

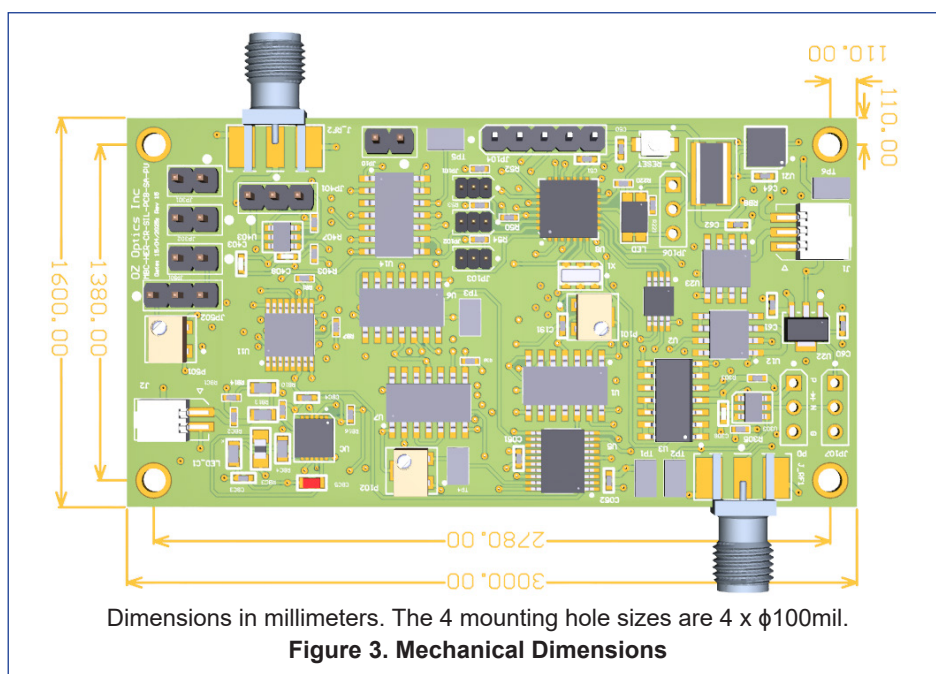


Figure 3. Mechanical Dimensions

Part Number

MBC-HER-PP-CR-SIL-X-LV

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

LV = 0 = 0 V priority
 8 = 8 V priority

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