

**Features**

- » Maintains Bias > ±1° of MAX
- » Includes Auto-reset
- » Small and Simple to Integrate Into System
- » Factory adjustable dither frequency and dither level
- » Customization Available

**Applications**

- » Optical Modulator Communications Systems
- » RF and Microwave Photonic Transmitters
- » Spectroscopy Systems
- » Optical Test Systems
- » Optical Modulator Component Evaluation
- » Optical Delay Lines

**PHOTONIC SYSTEMS INC.**

900 Middlesex Turnpike  
Building 5  
Billerica, MA 01821  
USA

Phone: 978-670-4990  
Fax: 978-670-2510  
E-mail: info@photonicsinc.com

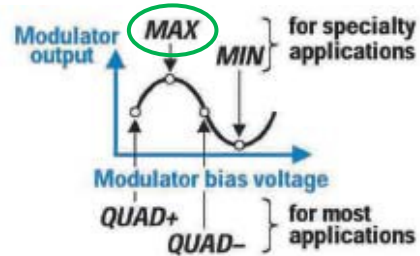
**Description**

The PSI-2011-33 mini optical modulator bias controller (MBC) offers comprehensive control of external optical modulators from a single, small form factor circuit board. The PSI-2011-33 provides automatic tracking of the MAX bias point as shown in Figure 1.

Using a standard dither tone set at 1 KHz, the PSI-2011-33 tracks the operating point to within +/- 1° accuracy. The dither tone amplitude is factory set to 1% for a modulator with nominal DC V<sub>pi</sub> of 5V. For best results please specify the optical modulator's nominal DC V<sub>pi</sub> at time of order to ensure the factory set dither signal level is set accordingly.

A high degree of bias point accuracy is maintained over a wide operating temperature range. The bias point accuracy is easily maintained over a >10dB range of optical power. The PSI-2011-33 can be plugged into a motherboard or connections can be made through discrete wiring to the appropriate input/output connector pins.

Along with this standard configuration, PSI can modify the PSI-2011-33 to meet system requirements. **Please contact PSI with your application needs.**

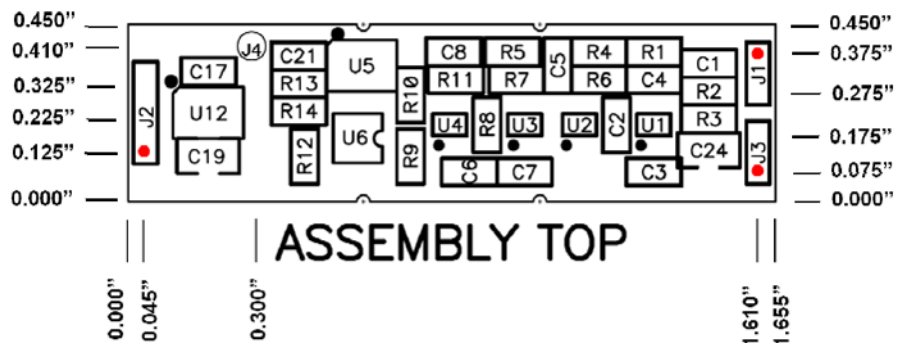


**Figure 1– Modulator Transfer Function**

**Ordering Information**

PSI Part Number	Description
PSI-2011-33	MAX Modulator Bias Controller
	<b>Note:</b> Please specify nominal modulator DC V <sub>π</sub> at time of order to ensure proper factory set-up

**Mechanical Information**



### Performance Characteristics

Parameter	Condition	Min	Typ	Max	Units
Modulating Signal	Small Signal				
Modulators Supported	LiNbO <sub>3</sub>				
Modulator/Bias-t Capacitance				0.2	μF
Output DC Bias Port Impedance			100		Ω
Output DC Bias Voltage	Less Than Supply Voltage		1.0		V
Dither Frequency			1.0		KHz
Dither Amplitude	Factory set per customer supplied modulator information	20		200	ppmV
Bias Point Error @ MAX	150 to 15 μA photocurrent	≥1° @ 1% of V <sub>π</sub>			
DC Supply Voltages		± 8	± 12	± 13	V
DC Operating Current				10	mA

### Environmental Characteristics

Parameter	Condition	Min	Typ	Max	Units
Operating Temperature	Within Specifications	0		50	°C
Operating Temperature	Degraded Accuracy (<± 3°)	-20		70	°C
Storage Temperature		-40		85	°C

### Pin-out Descriptions

Designator	Pin	Description
J1	1	Photodiode Cathode
	2	Photodiode Anode (Ground)
J2	1	+12 V <sub>DC</sub>
	2	Ground
	3	-12 V <sub>DC</sub>
J3	1	Modulator Bias Output Signal
	2	Ground
J4	1	Reset (Short to ground to reset MBC)