Laser Driver

SY88982L/782L/ 932L Evaluation Board

General Description

This evaluation board is designed for fast electrical evaluation of the SY88982L, SY88782L, and SY88932L laser drivers. A picture of the board loaded with SY88932L is shown below.

All datasheets and support documentation can be found on Micrel's web site at: www.micrel.com.

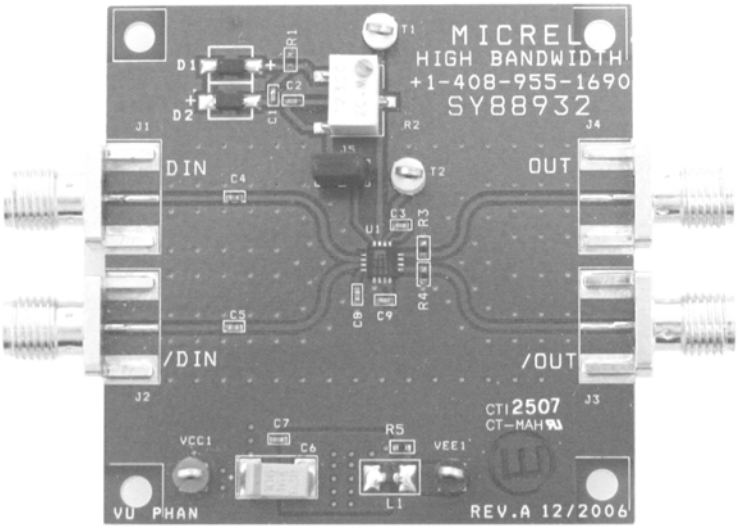
Features

- Single 3.3V supply voltage
- AC-coupled inputs
- DC-coupled outputs
- Positive ground to allow for DC-coupling outputs to test equipment, such as 50-ohm oscilloscope
- AC/DC compliance voltage evaluation

Related Documentation

- SY88982L, 3.3V, 2.7Gbps High Current Low Power Laser Driver for FP/DFB Lasers
- SY88782L, 3.3V, 1.25Gbps High Current, Low Power Laser Driver
- SY88932L, 3.3V, 3.2Gbps High Current, Low Power Laser Driver

Evaluation Board



Evaluation Board Description and Set-up Instructions

The evaluation board consists of a four-layer board. The inputs of the driver are AC-coupled and are accessible through SMA connectors. The board has a positive ground (V_{CC} is the ground) that conveniently allows for DC-coupling the driver's outputs to a 50Ω-terminated oscilloscope.

Board Operation

1. Connect a signal to the driver's inputs via SMA connectors J1-J2.
2. Install a jumper on J5 for normal operation.
3. Connect the power supply between V_{CC} (red post) and V_{EE} (black post).
4. Connect the driver's outputs J3-J4 to a 50Ω-terminated scope.
5. Adjust the modulation current with potentiometer, R2.

The modulation current (I_{MOD}) can be measured with one of the following methods:

a. Measure the output swing on the scope and divide it by the load (33 // 50Ω).

$$I_{MOD} = \frac{\text{Output amplitude (Volts)}}{20\ \Omega}$$

b. Measure the IM_SET (or V_{CNTRL}) voltage at test point, T1 and use the modulation gain curves below to deduce I_{MOD}.

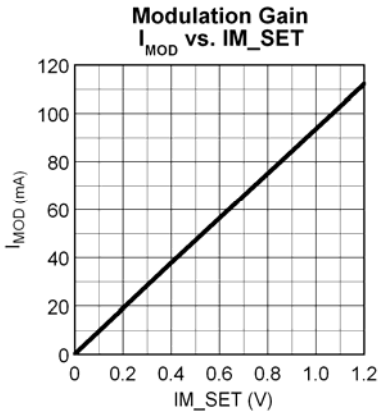


Figure 1. Modulation Gain vs. IM_SET for SY88982L

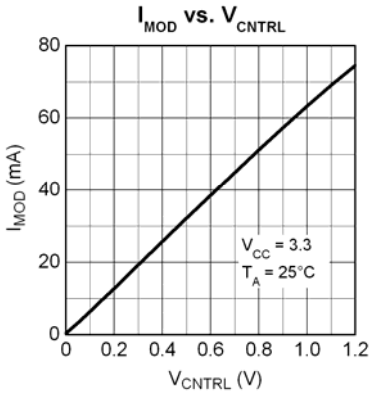
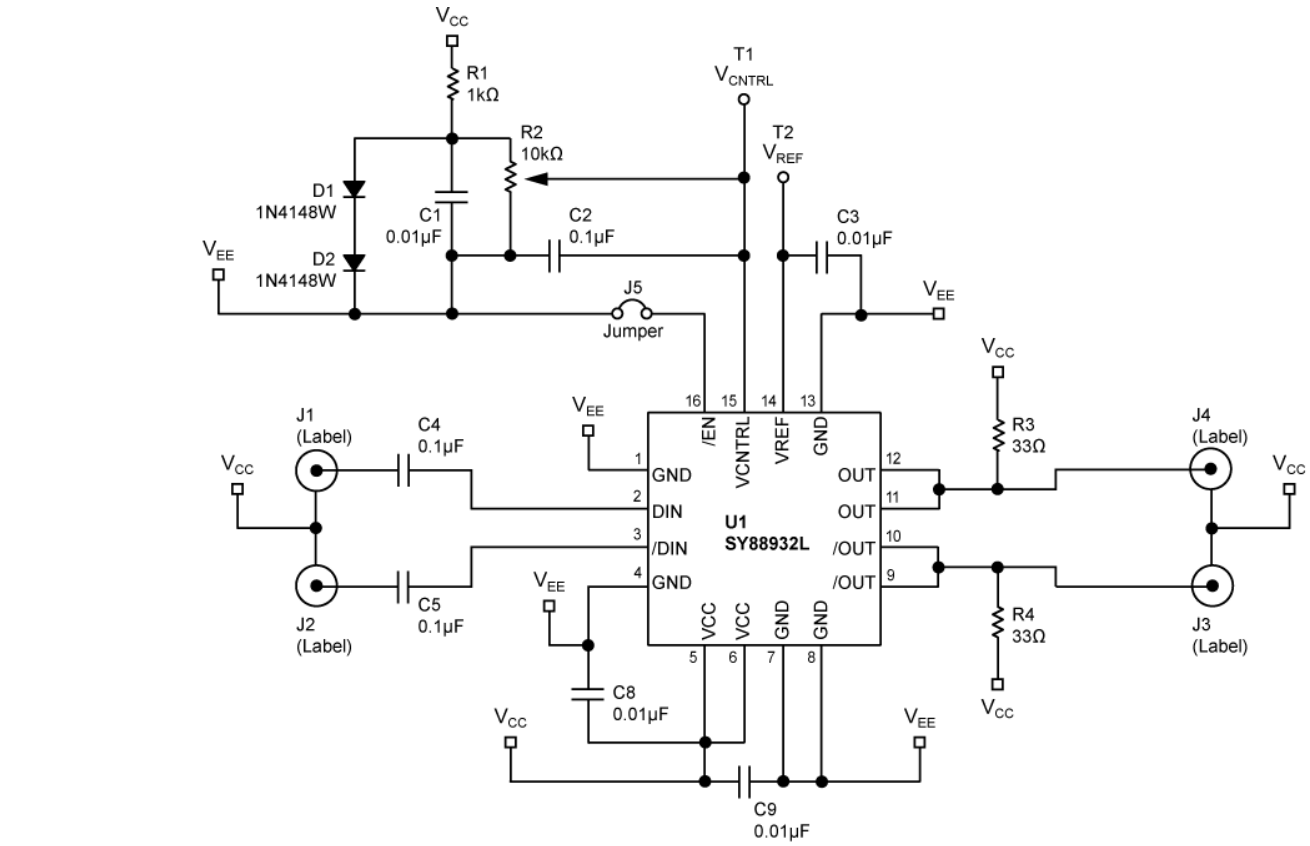


Figure 2. Modulation Gain vs. V_{CNTRL} for SY88932L

OFF Modulation Current Measurement

1. Remove jumper from J5 to disable the driver.
2. Measure the modulation current using methods described in step 5 of Board Operation Section.

Evaluation Board Schematic



Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C6	ECSH0GY106R	Panasonic[1]	10µF, Y, Tantalium Solid Electrolytic Capacitor	1
C2, C4-5	VJ0402Y104KXXA	Vishay[2]	0.1µF, Ceramic Capacitor, Size 0402	3
C1, C3, C7-9	VJ0402Y103KXXA	Vishay[2]	0.01µF, Ceramic Capacitor, Size 0402	5
J1-J4	142-0711-821	Johnson Components[3]	SMA End Launch Receptacle Connector	4
J5	TSW-1-4-07-G-S	Samtec[4]	2 Position Header	1
L1	BZ0603-222-10	Vishay[2]	1.2µH Ferrite Bead Inductor	1
R3, R4	CRCW040233R0F	Vishay[2]	33Ω, 1% Resistor	2
R2	3269	Bourns[5]	10kΩ Potentiometer	1
R1	CRCW04021001F	Vishay[2]	1kΩ, 1% Resistor	1
R5	CRCW040249R9F	Vishay[2]	50Ω	1
D1, D2	1N4148W-7-F	Diodes, Inc [6]	Surface Mount Fast Switching Diode	2
T1, T2	5014	Keystone[7]	Color Coded PCB Test Point (Yellow)	2
V_{CC}, V_{EE}	5010/5011	Keystone[7]	Color Coded PCB Test Point (Red/Black)	2
U1	**SY88932L/782L/982L**	**Micrel, Inc.**[8]	**3.3V High Current, Low Power Laser Driver**	1

Notes:

1. Panasonic: **www.panasonic.com**.
2. Vishay: **www.vishay.com**.
3. Johnson Components: **www.johnsoncomponents.com**.
4. Samtec: **www.samtec.com**.
5. Bourns: **www.bourns.com.**
6. Diodes, Inc: **www.diodes.com**
7. Keystone: **www.keystone.com**.
8. **Micrel, Inc**.: **www.micrel.com**.

HBW Support

Hotline: 408-955-1690

Email Support: **HBWHelp@micrel.com**

Application Hints and Notes

For application notes on high speed termination on PECL and LVPECL products, clock synthesizer products, SONET jitter measurement, and other High Bandwidth products go to Micrel Inc., website at: http://www.micrel.com/. Once in Micrel's website, follow the steps below:

3. Click on "Product Info".
4. In the Applications Information Box, choose "Application Hints and Application Notes."

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