

**Switchable Constant Current Laser Diode Driver**

The **HY6340 Laser Diode Driver** is designed for applications requiring high constant current drive for the operation of laser diodes such as pump sources for EDFA's and diode pumped semiconductors. The HY6340 provides selectable drive current from zero to 1 ampere (1.5 amperes with forced air cooling). The HY5640 includes outputs for monitoring and control of over-current and laser diode over-temperature conditions. The HY6340 comes in a 22 pin dual in-line ceramic package. An aluminum heat spreader is included as a part of the package for heat sinking the device.



**Features:**

- ◆ Analog input, DC to 1MHz
- ◆ Adjustable modulation current to 1.5 amps
- ◆ Patented "backmatched" thermal management
- ◆ Enable pin for switching
- ◆ Overtemp and over-current alarms
- ◆ Common anode isolated laser diodes
- ◆ Thru-hole or surface-mount packaging

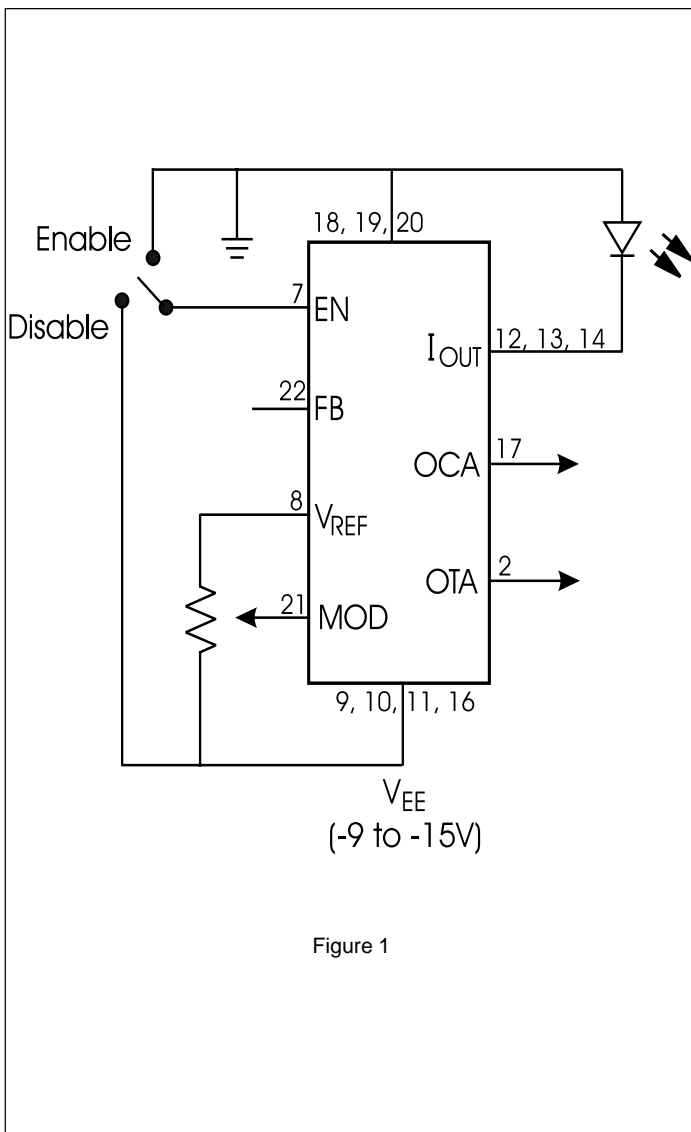


Figure 1

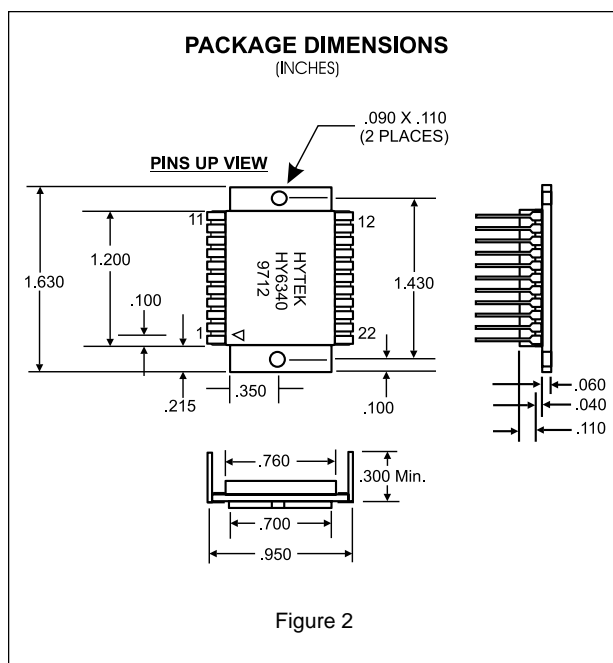


Figure 2

### Input Specifications

Power Supply Input (V <sub>EE</sub> ): <b>Pins 9,10, 11, 16</b>	–9 to –15V @ 1 amp max. (1.5 amp with forced air cooling)
Drive Enable (EN): <b>Pin 7</b>	V <sub>EE</sub> (off, disable), Ground or Open (on, enable)
Modulation (MOD): <b>Pin 21</b>	10 to 1000mA for input voltage V <sub>EE</sub> to (V <sub>EE</sub> + 3V) (10 to 1500mA with forced air cooling)
Ground (GND): <b>Pins 18, 19, 20</b>	Power supply ground
Feedback-Optical (FB): <b>Pin 22</b>	FB<MOD increases I <sub>OUT</sub> , FB>MOD decreases I <sub>OUT</sub> V <sub>EE</sub> < FB < V <sub>EE</sub> + 5V
Over-Temperature Alarm Input (OTI+): <b>Pin 1</b>	with V <sub>EE</sub> < OTI+ < V <sub>EE</sub> + 5V
Over-Temperature Alarm Input (OTI-): <b>Pin 5</b>	with V <sub>EE</sub> < OTI+ < V <sub>EE</sub> + 5V
Over-Current Alarm Input (OCI-): <b>Pin 6</b>	
Temperature Alarm Hysteresis: <b>Pin 4</b>	Use to increase temperature hysteresis
Temperature Alarm Hysteresis: <b>Pin 3</b>	Use to increase temperature hysteresis

### Output specifications

Laser Diode Current Drive (I <sub>OUT</sub> ): <b>Pins 12, 13, 14</b>	0 to 1 amp (1.5 amp with forced air cooling)
Reference Output (V <sub>REF</sub> ): <b>Pin 8</b>	= V <sub>EE</sub> +5V at < 100mA
Over-Temperature Alarm Output (OTA): <b>Pin 2</b>	V <sub>EE</sub> (Alarm condition; normally grounded)
Over-Current Alarm Output (OCA): <b>Pin 17</b>	V <sub>EE</sub> (Alarm condition; normally grounded)

### Environmental conditions

Operating Temperature	–20°C to +100°C (case)
Storage Temperature	–65°C to +150°C (case)

### Signal descriptions

<b>V<sub>EE</sub></b>	Input power supply (–9 to –15 VDC).
<b>GND</b>	Ground return for V <sub>EE</sub> (input power supply)
<b>MOD</b>	The modulation voltage programs the laser diode drive current, I <sub>OUT</sub> . When the input is at V <sub>EE</sub> the modulation current is zero. Maximum modulation current occurs when the voltage at MOD is +5.0 V with respect to the V <sub>EE</sub> input. The current is set by the voltage at the modulation input.
<b>V<sub>REF</sub></b>	The Reference voltage is a precision voltage reference with an output voltage of V <sub>EE</sub> + 5V <sub>DC</sub> . The Reference voltage supplies a voltage for the adjustment of the current. It can also be used to power a resistive bridge input to the over-temperature alarm, and to provide an adjustable reference voltage to the current alarm input.
<b>EN</b>	The Enable pin is used to enable/disable the output. When the Enable pin is connected to ground, or left open, the output is enabled, allowing current to flow to the laser diode. When this pin is connected to V <sub>EE</sub> the laser current is disabled.
<b>I<sub>OUT</sub></b>	The Output provides drive current to the laser diode (cathode/negative; connect anode to ground).
<b>FB</b>	This high input impedance, voltage feedback, input is used with a photodetector to control Output Current.
<b>OTI+</b>	Positive over-temperature alarm input.
<b>OTI–</b>	Negative over-temperature alarm input.
<b>OCA</b>	Over-current alarm output. Alarm: V <sub>EE</sub> ; No alarm: Ground
<b>OCI</b>	Over-current input. OCI controls the set point for the over-current alarm detector. V <sub>EE</sub> <V <sub>OCI</sub> < V <sub>EE</sub> +5V
<b>OTA</b>	Over-temperature alarm output. Alarm: V <sub>EE</sub> ; No alarm: Ground
<b>RH</b>	Resistor connected between pins 3 and 4 to vary the temperature detector hysteresis from 1 to 10%.