



WAVELENGTH
ELECTRONICS

January, 2013

WLD3393

WLD3343 Laser Diode Driver Evaluation Board

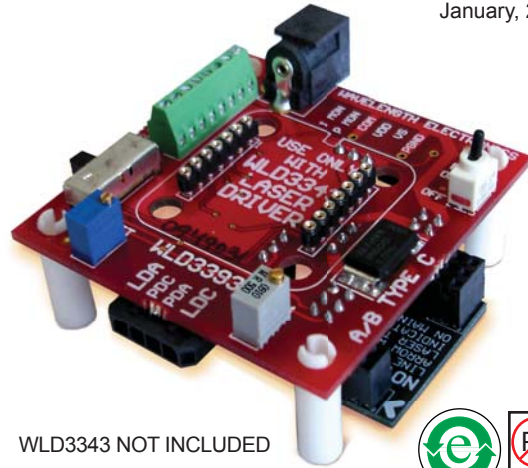
GENERAL DESCRIPTION:

Use the WLD3393 Evaluation Board to rapidly prototype a complete laser diode control system using the cutting edge technology of the WLD3343 Laser Diode Driver. Onboard switches, connectors, and trimpots make configuration and operation simple. Input and output cables are also included.

Operate in either constant current (CC) or constant power (CP) mode. An onboard 12-turn trimpot allows fine adjustment of laser diode forward current (CC Mode) or monitor photodiode current (CP Mode). Another trimpot sets the laser diode forward current limit. The input cable allows easy connection to your power supply and monitoring equipment while the output cable quickly connects to your laser diode and monitor photodiode.

High power applications can use the onboard fan connector to power a WXC303 or WXC304 (+5 VDC or +12 VDC) fan attached to a WHS302 heatsink.

The prior revision of the board was black. Click <http://www.teamwavelength.com/downloads/datasheets/wld3393b.pdf> for the datasheet for that revision.



WLD3343 NOT INCLUDED



FEATURES:

- Operates all Laser Diode Pin Configurations
- Two Configurable Output Current Ranges (200 mA or 2.0 Amps)
- Constant Current or Constant Power Operation
- Onboard Current Setpoint Trimpot
- Adjustable Current Limit
- Enable/Disable Switch and LED
- Includes Input/Output Cable Set
- Includes a Fan Connection
- Easily Connects to an External Control Potentiometer or Voltage Source
- Includes 2.5 mm jack input for use with PWRPAK power supplies

Ordering Information

WLD3393	2 A Evaluation Board for WLD3343
WLD3343	2.2 A Laser Diode Driver
WLD3343HB	2.2 A Li+ Battery-Compatible Driver
WLD3343-2L	2.2 A Lower Noise Laser Diode Driver
WLD3343-3A	3 A Laser Diode Driver
WLD3343-3L	3 A Lower Noise Laser Diode Driver
PWRPAK-5V	5 V Power Supply
PWRPAK-7V	7 V Power Supply
PWRPAK-9V	9 V Power Supply

Figure 1: Top View

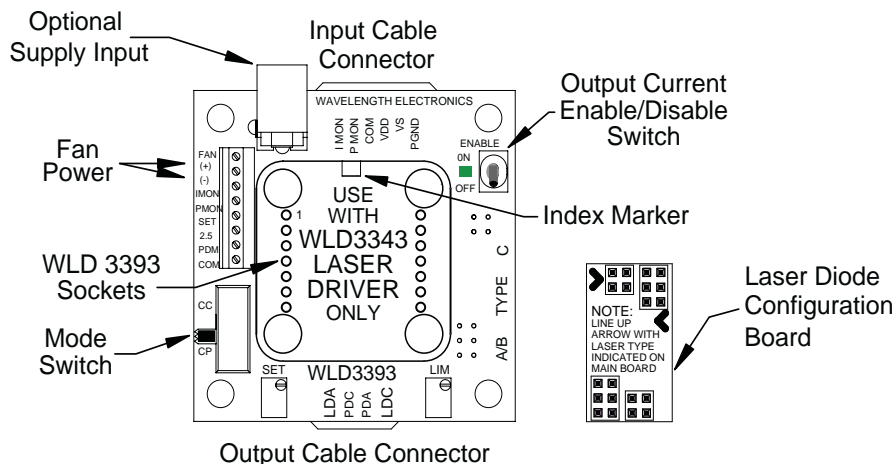
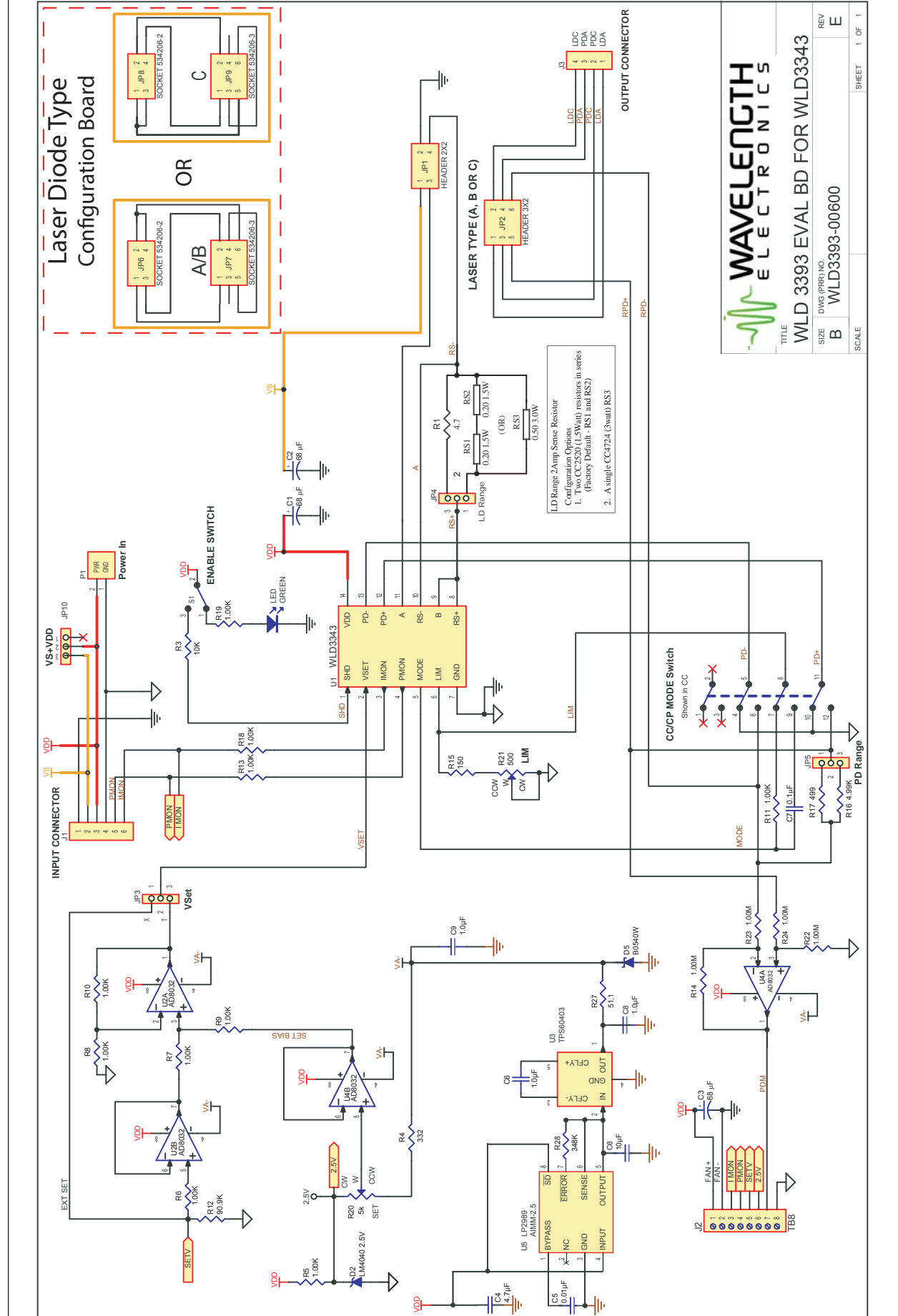


Figure 2: WLD3393 Schematic



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WLD 3393 EVAL BD FOR WLD3343

TITLE	WLD 3393 EVAL BD FOR WLD3343	REV	E
SIZE	B	DWG (P/R) NO.	WLD3393-00600
SCALE		SHEET	1 OF 1

WLD3393

ABSOLUTE MAXIMUM RATINGS			
RATING	SYMBOL	VALUE	UNIT
Supply Voltage (Voltage on Pin 14)	V _{DD}	+4.5 to +12.5	Volts DC
Output Current (See SOA Chart)	I _{LD}	2.2 or 3	Amperes
Power Dissipation, T _{AMBIENT} = +25°C	P _{MAX}	9	Watts [1]
Operating Temperature, case [2]	T _{OPR}	- 40 to + 85 [3]	°C
Storage Temperature	T _{STG}	- 65 to +150	°C
Weight	WLD3343	0.6	oz

PARAMETER	TEST CONDITIONS	WLD3343-2A	WLD3343-3A	UNITS
OUTPUT				
Current, peak, see SOA chart		2.2	3	Amps
Compliance Voltage, Laser Diode Load	I _{LD} = 100 mA, 5 V	3.6		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 1.0 Amp, 5 V	3.5		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 2.0 Amps, 5 V	3.0		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 3.0 Amps, 5 V		3.0	Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 100 mA, 12 V	10.6		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 1.0 Amp, 12 V	10.4		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 2.0 Amp, 12 V	10.1		Volts
Compliance Voltage, Laser Diode Load	I _{LD} = 3.0 Amp, 12 V		10.0	Volts
Rise Time	I _{LD} = Full Scale	460		nsec
Fall Time	I _{LD} = Full Scale	320		nsec
Bandwidth	Constant Current, Sine Wave	2.0		MHz
Bandwidth	Constant Power	(Depends on PD BW)		
Slow Start - Delay		0.24		Seconds
Slow Start - Ramp		0.01		Seconds
Leakage Current [4]		0		mA
CONSTANT CURRENT CONTROL				
Short Term Stability, 1 hour	T _{AMBIENT} = 25°C	200	200	ppm
CONSTANT POWER CONTROL				
Short Term Stability, 1 hour	T _{AMBIENT} = 25°C	0.01		%
Long Term Stability, 24 hours	T _{AMBIENT} = 25°C	0.05		%

Notes:

[1] In the WLD3343 and WLD3343-2L models, internal power dissipation is 1.2 W (without heatsink), 2 W (with heatsink), and 9 W (with heatsink and fan). In the WLD3343-3A and WLD3343-3L models, internal power dissipation is 2 W (without heatsink), 3 W (with heatsink), and 10 W (with heatsink and fan).

[2] With Revision D forward of the WLD3343, an internal thermostat has been added to activate Shutdown (SHD) when the internal temperature exceeds 105°C. The output will be re-enabled after a 250 to 300 msec slow-start once the internal temperature drops below 95°C.

[3] Max ambient operating temperature of the WLD3343-3A and WLD3343-3L is 45°C.

[4] Leakage current specification is based on full current set by R_{SENSE}. See page 9 for information on setting the current range. Minimum turn on current in the 200 mA range is 350 µA. Minimum turn on current in the 2 A range is 12 mA. This specification applies to Rev. E forward.

Noise: To further reduce noise, the WLD3343-2L and WLD3343-3L models are available. Both are about 2.5 times lower noise than the WLD3343 and WLD3343-3A, respectively. Constant Power (CP) mode is not available in these models.

PARAMETER	TEST CONDITIONS	WLD3343-2A	WLD3343-3A	UNITS
INPUT				
Offset Voltage, initial, I_{mon}	Pin 2, $T_{AMBIENT} = 25^{\circ}C$, $V_{CM} = 0 V$		1	mV
Bias Current (based on input Res of op amp)	Pin 2, $T_{AMBIENT} = 25^{\circ}C$, $V_{CM} = 0 V$		20	nA
Common Mode Range	Pin 2, Full Temp. Range		$0 - V_{DD}$	V
Common Mode Rejection, Set point	Full Temperature Range		85	dB
Power Supply Rejection	Full Temperature Range		80	dB
VSET (Pin 2) Damage Threshold			$> V_{DD} + 0.5$ or < -0.5	V
THERMAL				
Heatspreader Temperature Rise	$T_{AMBIENT} = 25^{\circ}C$		30	$^{\circ}C/W$
Heatspreader Temperature Rise	With WHS302 Heat sink, WTW002 Thermal Washer		21.5	$^{\circ}C/W$
Heatspreader Temperature Rise	With WHS302 Heat sink, WTW002 Thermal Washer and 3.5 CFM fan		3.4	$^{\circ}C/W$
Pin Solderability	Solder temp @260 $^{\circ}C$		10	Seconds
POWER SUPPLY				
Voltage, V_{DD}			5-12	Volts
Current, V_{DD} supply, quiescent			10	mA
MONITOR ACCURACY				
Monitor Voltage versus Expected Output Current, based on transfer function			0.5	%
PD Monitor versus Actual			3.3	%
Setpoint versus Actual			3.5	%

SAFE OPERATING AREA & HEATSINK REQUIREMENTS

Caution:

Do not exceed the Safe Operating Area (SOA). Exceeding the SOA voids the warranty.

An online tool is available for calculating Safe Operating Area at:

<http://www.teamwavelength.com/support/calculator/soa/soald.php>.

To determine if the operating parameters fall within the SOA of the device, the maximum voltage drop across the controller and the maximum current must be plotted on the SOA curves.

These values are used for the example SOA determination:

$$\left. \begin{array}{l} V_S = 12 \text{ volts} \\ V_{\text{Load}} = 5 \text{ volts} \\ I_{\text{Load}} = 1 \text{ amp} \end{array} \right\} \text{ These values are determined from the specifications of the laser diode.}$$

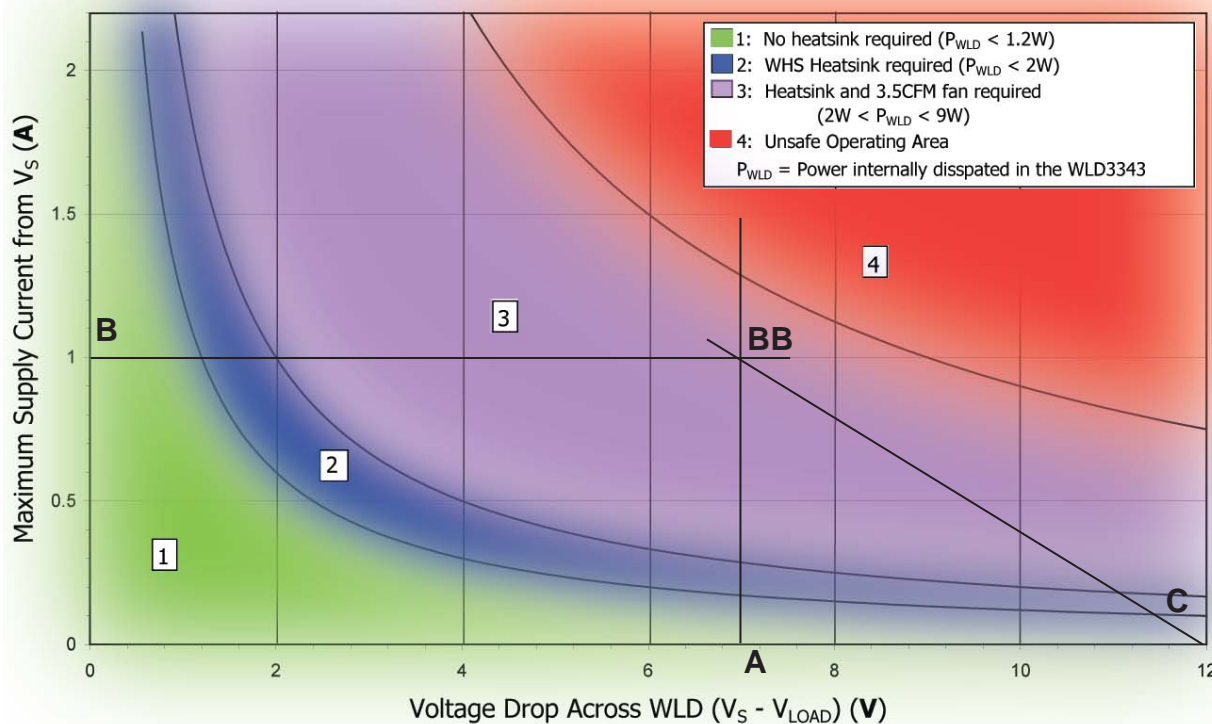
Follow these steps:

1. Determine the maximum voltage drop across the driver, $V_S - V_{\text{Load}}$, and mark on the X axis.
Example: 12 volts - 5 volts = 7 volts, Point A)
2. Determine the maximum current, I_{Load} , through the driver and mark on the Y axis:
(1 amp, Point B)
3. Draw a horizontal line through Point B across the chart. (Line BB)
4. Draw a vertical line from Point A to the maximum current line indicated by Line BB.
5. Mark V_S on the X axis. (Point C)
6. Draw the Load Line from where the vertical line from point A intersects Line BB down to Point C.

Refer to the chart shown below and note that the Load Line is in the Unsafe Operating Areas for use with no heatsink (1) or the heatsink alone (2), but is outside of the Unsafe Operating Area for use with heatsink and Fan (3).

WLD3343 or WLD3343-2L Safe Operating Area

Graphs assume:
25°C Ambient
75°C Case



SETUP INFORMATION

To set up the WLD for your project, you'll need a few pieces of information. Here's a handy list of what you'll need to know before you start wiring [it's also good to have this information if you need to call for technical support].

Description	Value in your application	Notes
Laser Diode Configuration	A B or C	See Figure 5 for schematics. If you have no photodiode, follow instructions for Type A laser diodes.
Power Supply Voltage (5 - 12 V)		If greater than 5 V, make sure to check the SOA curve in the WLD3343 datasheet and use a Thermal Solutions kit (Fan, Heatsink, and Thermal Washer) or equivalent. An online tool for calculating the WLD3343 Safe Operating Area is available at: http://www.teamwavelength.com/support/calculator/soa/soald.php
Laser Diode Max Current		Damage threshold for laser diode
Operating LD Current		If greater than 200 mA, make sure to check the SOA curve in the WLD3343 datasheet and use a Thermal Solutions kit (Fan, Heatsink, and Thermal Washer) or equivalent
Operating Mode	CP or CC	Constant Current: Laser diode current is fixed, power varies. Constant Power: Laser diode current varies. Photodiode current is fixed. Power output is fixed.
Operating PD Current		Only necessary if output power will be monitored

Follow the next ten steps sequentially to safely operate the WLD with your laser diode. Complete steps 1 through 4 before applying power to the board.

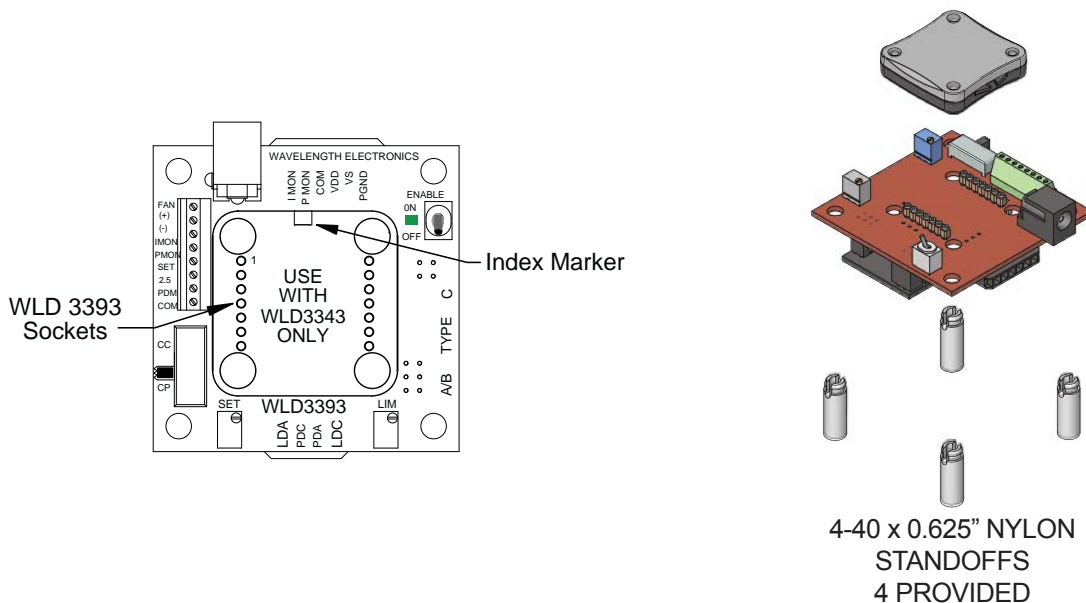
STEP 1: DETERMINE WLD3393 OPERATING RANGE

Before proceeding with configuration of the WLD3343 and WLD3393, it is critical that you verify that the driver will be within the Safe Operating Area. (Reference page 5.)

STEP 2: INSTALL THE WLD3343 ON THE EVALUATION BOARD

Match up the notch in the WLD3343 with the index marker shown in Figure 3. Align the WLD3343 pins with the WLD3393 sockets ensuring that all pins are lined up. Press firmly to seat the WLD3343. **Make sure that none of the pins of the WLD3343 were bent during insertion before continuing.**

Figure 3: Location of Index Marker and sockets; Standoff assembly



STEP 3: CONFIGURE JUMPERS

Jumper positions are shown in Figure 4. Factory default locations are noted.

LD CURRENT RANGE & PD CURRENT RANGE

The two modes of operation supported by the WLD3393 are constant current and constant power mode. **It is very important to note that the WLD3393 should be configured for either constant current or constant power mode BEFORE power is applied. Changing operating mode while the WLD3393 is operating can result in damage to your laser diode.** In constant current mode, VSET correlates directly to the laser diode current, regardless of laser diode power intensity. In constant power mode, the WLD controls the laser diode using the photodiode to achieve a laser intensity that is directly proportional to VSET.

Constant Current mode ignores the laser's photodiode. The WLD3393, however, is designed to allow you to monitor the laser's photodiode while running in this mode. Monitor the voltage at the PDM pin on the terminal block on the top side of the WLD3393. Before powering the unit on to operate in constant current mode, make sure that the Mode Switch is in the CC position (see Figure 1). Select the output current range by setting the LD RANGE jumper on the back of the WLD3393 to either the 200 mA or the 2 A position.

Constant Power mode utilizes the laser's photodiode to regulate the intensity of the laser in proportion to VSET. While the unit is NOT powered, make sure the Mode Switch is in the CP position to configure the WLD3393 for constant power mode (see Figure 1). Set the PD RANGE jumper on the bottom of the WLD3393 to either the 200 μ A or the 2 mA range, depending on the specifications of your photodiode. See Figure 4 for the location of the PD Current Range jumper. It is important to make sure that the correct PD current range is selected as the WLD3393 may overdrive the laser if the PD range is configured incorrectly, resulting in permanent damage to the laser. Use the LD RANGE jumper to select between the 200 mA and 2 A range based on the rating of the laser load.

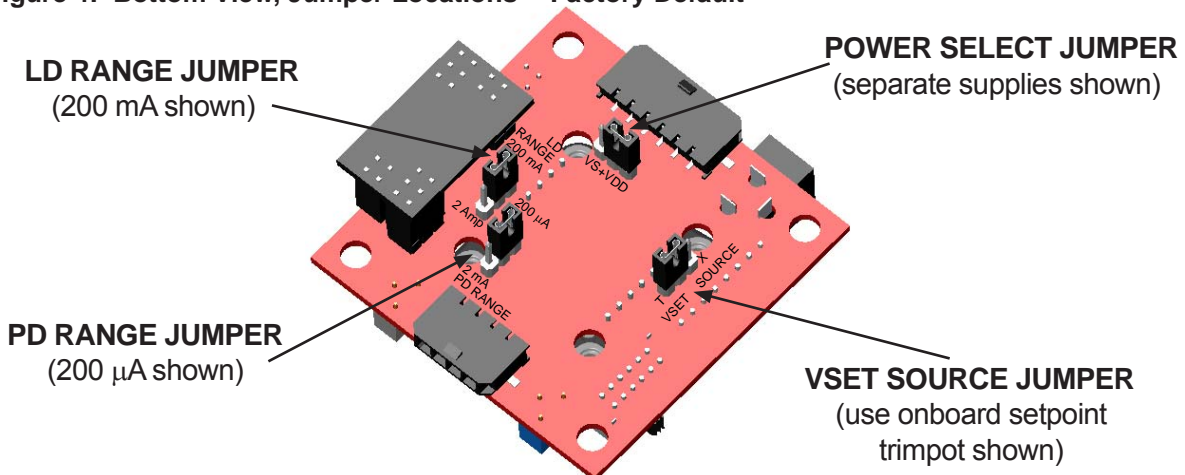
POWER SELECT JUMPER

The factory default is to separate the V_S and V_{DD} power supply inputs. V_S drives the laser diode while V_{DD} powers the control electronics. You can tie these together instead by moving the Power Select Jumper to the " $V_S + V_{DD}$ " position. Note that when in this position, V_S on the input connector pin will be at the same potential as the V_{DD} pin.

VSET SOURCE JUMPER

The factory default is to use the onboard setpoint trimpot to generate the setpoint voltage ("T" position). To use an external signal, move this jumper to the "X" position.

Figure 4: Bottom View, Jumper Locations -- Factory Default



CONFIGURING THE EVALUATION BOARD

STEP 4: INSTALL THE LASER DIODE CONFIGURATION BOARD

CAUTION: If the WLD3393 is configured incorrectly for the type of laser diode you are using, damage can result to your laser diode and/or the WLD3393. Refer to Figure 5 to determine the type of laser diode being used. To configure the WLD3393 for your laser diode type, connect the configuration board to the bottom of the WLD3393 so that the arrow on the protruding edge of the configuration board points to either A/B or C. Refer to Figure 6 for example installation.

Figure 5: Laser Diode Type Schematics: A/B or C

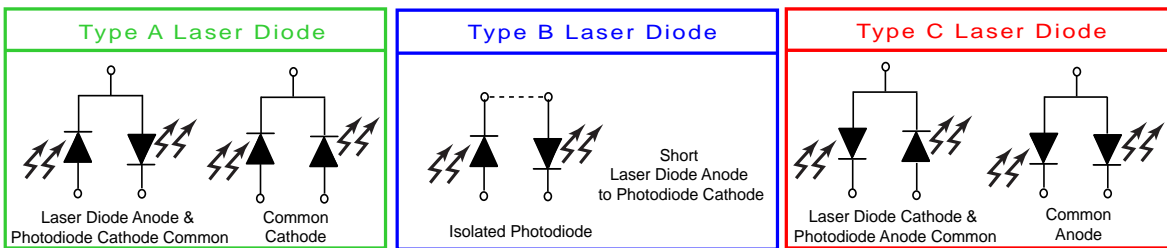
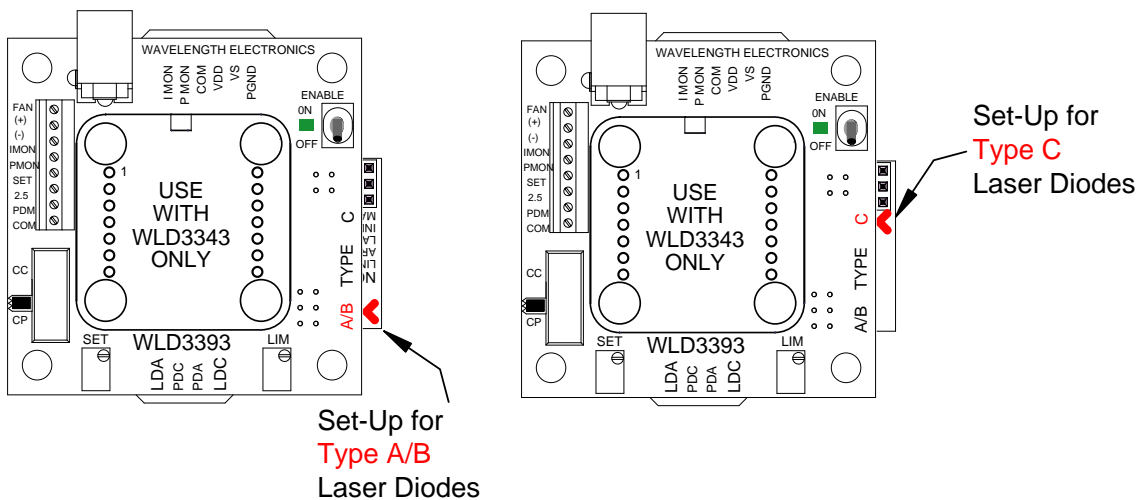


Figure 6 - Examples of proper alignment of Laser Diode Configuration Board



CONFIGURING THE EVALUATION BOARD

STEP 5: ATTACH THE HEATSINK AND FAN
(optional for less than +5 V, 500 mA operation)

HEATSINK REQUIREMENTS. The WLD3343 is designed to handle currents as high as 2.2 A. Attach a heatsink -- Wavelength P/N WHS302 -- when the WLD3343 will operate between 500 mA and 1.0 A output current. Attach a fan -- Wavelength P/N WXC303 [+5 VDC] or WXC304 [+12 VDC] -- to the heatsink for output currents exceeding 1.0 A. If using Wavelength accessories, refer to the WHS302, WTW002, WXC303, and/or the WXC304 datasheets for assembly instructions.

FAN CONNECTIONS. Connect the fan leads to the (+) and (-) fan power positions on the terminal block and secure with a small flat head screwdriver. The fan connects to the V_{DD} supply, not V_S , so care must be exercised to ensure that the proper fan is selected, either +5 VDC or +12 VDC, when using dual power supplies. Optionally, for lower noise operation, the fan leads may be connected directly to a separate power supply compatible with the fan.

STEP 6: ATTACH THE V_{DD} AND V_S POWER SUPPLIES

Before connecting the power supply, it is critical that you verify that the WLD will be within the Safe Operating Area. (Reference page 5.)

The WLD3393 has two power supply connections, V_S and V_{DD} . V_S provides power for driving the laser (minimum current capacity greater than limit current setting). V_{DD} provides power to the control electronics (minimum 100 mA). V_{DD} can range from +5 to +12 V. V_S can range from +4.5 to +12 V. For simple operation tie V_{DD} to V_S . V_S and V_{DD} can be connected using the Power Select Jumper. See Step 3 for location. Use PGND for the power return. The common (COM) terminal on the WLD3393 is not intended to act as a power connection, but as the low noise ground reference for connecting an external VSET source, and for monitoring the IMON, PMON, and PDM signals.

A separate V_S power supply allows the output current stage to operate below the minimum 5 V required for the control electronics or up to the +12 V maximum (for multiple laser diodes in series). Select V_S approximately 2.0 volts above the maximum voltage drop across the laser diode to reduce the power dissipation in the WLD3343 component and minimize your heatsinking requirements. Note that for type C laser diodes in Constant Power mode V_{DD} must be greater than or equal to V_S to keep the photodiode signal in range.

The 2.5 mm input power jack attaches to V_{DD} . You can use the Wavelength PWRPAK power supplies with this jack. Use either the power jack or the power inputs on the connector harness, not both.

CONFIGURING THE EVALUATION BOARD

STEP 7: SET THE LASER DIODE CURRENT LIMIT

The WLD3393 LIM trimpot adjusts the laser diode current limit from zero to the full 200 mA or 2.2 A, depending on the laser diode current range selected. For accurate laser diode current limit configuration follow these steps sequentially:

1. Connect a test load across the LDA and LDC terminals of the WLD3393. Wavelength recommends using a power resistor: calculate the resistor value using these two equations.

$$R_{\text{LOAD}} = \frac{V_S - 2.5}{I_{\text{LIM}}} \quad R_{\text{LOAD}} \text{ power rating} = I_{\text{LIM}}^2 * R_{\text{LOAD}}$$

Example calculation: $V_S = +12 \text{ V}$, $I_{\text{LIM}} = 2 \text{ A}$; $R_{\text{LOAD}} = (12-2.5)/2 = 4.75 \ \Omega$; $2^2 * 4.75 = 19 \text{ W}$

Another example: $V_S = +9 \text{ V}$, $I_{\text{LIM}} = 0.5 \text{ A}$; $R_{\text{LOAD}} = (9-2.5)/0.5 = 13 \ \Omega$; $(0.5)^2 * 13 = 3.25 \text{ W}$

Connect a voltmeter across the resistor. This voltmeter will be used to monitor the output current while setting the current limit. Refer to the datasheet for your laser diode and find the manufacturer's recommended current limit, then calculate the V_{LIMIT} value as follows:

$$V_{\text{LIMIT}} = I_{\text{LIMIT}} / R_{\text{LOAD}}$$

2. Configure the evaluation board for Constant Current (CC) mode operation. See Step 3.
3. Turn the SET trimpot fully counter clockwise (OFF). Adjust the LIM trimpot fully clockwise (ON).
4. Apply power to the WLD3393 and enable the output current by switching the enable switch to the "ON" position. See Figure 1 to locate the switch.
5. Adjust the SET trimpot clockwise until the voltmeter displays the V_{LIMIT} value calculated in number 1 above. Next, turn the LIM trimpot counter-clockwise until the displayed voltage just begins to decrease. Finally, turn the SET trimpot fully counter-clockwise to zero the output current.
6. Disable the output current by switching the enable switch to the "OFF" position. Remove power from the WLD3393.
7. Return the Mode Switch to CC or CP, according to your application.

STEP 8: CONNECT THE LASER DIODE AND MONITOR PHOTODIODE

With power removed from the WLD3393 board, connect the output (4 wire cable) to your laser diode as indicated in Table 1. Firmly press the output cable into the output connector.

Table 1: Output Cable Color Code

PIN #	Wire Color	Function
1	RED	LDA
2	GREEN	PDC
3	WHITE	PDA
4	BLACK	LDC

CONFIGURING THE EVALUATION BOARD

STEP 9: MONITOR THE LASER DIODE AND PHOTODIODE CURRENTS

The input connector includes three signals for externally monitoring the WLD3343 laser driver output. IMON, PMON, and PDM allow for monitoring of laser diode current and power intensity depending on the selected mode of operation. The voltages at IMON, PMON, and PDM are all referenced to the common terminal (COM) on the input connector.

Table 2: Input Cable Color Code

PIN #	Wire Color	Function
1	BLUE	PGND
2	ORANGE	VS
3	RED	VDD
4	BLACK	COM
5	WHITE	P MON
6	GREEN	I MON

IMON provides a mechanism for externally monitoring the laser diode current. IMON is available at all times in both CC and CP modes. In the 200 mA range, V_{IMON} has a transfer function of 106 mA / V. In the 2.0 A range, V_{IMON} has a transfer function of 1.2 A / V. Table 3 summarizes this data.

PMON provides an external indication of the laser diode intensity by measuring photodiode current. Since PD+ and PD- on the WLD3343 are shorted together in CC mode, PMON will only monitor photodiode current in CP mode. When operated in the 200 μA range, V_{PMON} has a transfer function of 100 μA / V. When operated in the 2 mA range, V_{PMON} has a transfer function of 1 mA / V. Table 4 summarizes this data.

PDM provides a mechanism for monitoring photodiode current in either CC or CP mode. While PMON monitors the feedback used by the control electronics to maintain constant power of the laser, PDM is an external monitor that is independent of the control electronics of the WLD3343. The transfer function for V_{PDM} to I_{PD} is the same as for the PMON signal. PDM is accessible on the terminal block.

Table 3: Convert IMON Voltage to Laser Diode Current

200 mA Range	2.0 Amp Range
$\text{LDI} = V_{\text{IMON}} * 106 \text{ [mA]}$	$\text{LDI} = V_{\text{IMON}} * 1.2 \text{ [AMPS]}$

Table 4: Convert PMON or PDM Voltage to Photodiode Current

200 μA Range	2 mA Range
$\text{PDI} = V_{\text{PMON}} * 100 \text{ [} \mu\text{A]}$	$\text{PDI} = V_{\text{PMON}} \text{ [mA]}$

CONFIGURING THE EVALUATION BOARD

STEP 10: ADJUST THE SETPOINT VOLTAGE

The setpoint controls the output of the WLD3343. In constant current mode the setpoint is directly proportional to the laser diode current. In constant power mode the setpoint is directly proportional to photodiode current, allowing for control of the power of the light emitted from the laser diode.

The setpoint voltage can be adjusted either by using the onboard SET trimpot, by applying an external setpoint voltage, or by summing an external setpoint voltage with the setpoint dialed in using the SET trimpot. The sum of the external setpoint voltage and the value dialed in using the SET trimpot can be adjusted from 0 to 2.5 V.

To use only the onboard SET trimpot, place the VSET SOURCE jumper on the bottom of the WLD3393 evaluation board in the “T” position, and do not connect an external voltage source to the SET terminal on the terminal block. The SET trimpot will allow the setpoint to be adjusted from 0 V to 2.5 V. Figure 4 shows the jumper location.

To use an external voltage source summed with the setpoint voltage from the onboard SET trimpot, place the VSET SOURCE jumper on the bottom of the WLD3393 to the “T” position. Connect an external voltage source to the SET terminal on the terminal block on the top of the WLD3393 evaluation board. The resulting setpoint voltage will be the sum of the voltage dialed in using the SET trimpot, and the voltage applied to the SET terminal. Figure 4 shows the jumper location.

To use only an external voltage source for the setpoint, place the VSET SOURCE jumper on the bottom of the WLD3393 board to the “X” position and connect the external setpoint voltage source to the SET terminal on the terminal block on the top side of the WLD3393 evaluation board. When the SET SOURCE jumper is in the “X” position, the voltage dialed in using the SET trimpot on the WLD3393 is ignored. Figure 4 shows the jumper location.

In case an external voltage source is not available, but setpoint adjustment needs to be external, a remotely located potentiometer can easily be connected to the WLD3393 to adjust the setpoint. To use a remote potentiometer, connect the CW lead of the potentiometer to the terminal position marked 2.5 on the terminal block on the top of the WLD3393 board. Connect the CCW lead of the potentiometer to the COM terminal and connect the wiper to the SET terminal and ensure that the VSET SOURCE jumper on the bottom of the board is set to the “X” position. See Figure 7 for external potentiometer wiring.

Table 5: Laser Diode Current (LDI) vs. V_{SET}

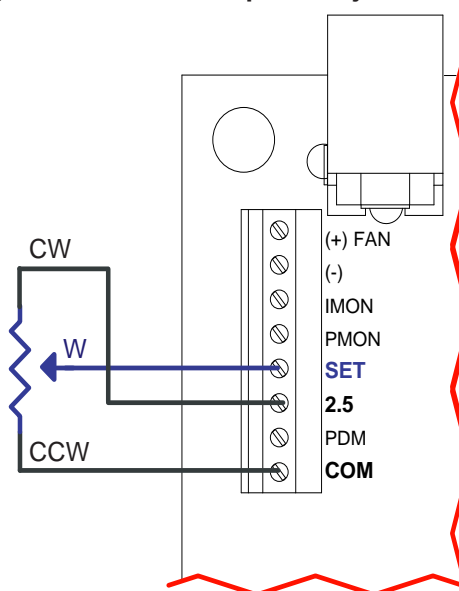
200 mA Range	2.0 Amp Range
$LDI = V_{SET} * 106 \text{ [mA / V]}$	$LDI = V_{SET} * 1.2 \text{ [A / V]}$

Table 6: Photodiode Current (PDI) vs. V_{SET}

200 μ A Range	2 mA Range
$PDI = V_{P_{MON}} * 100 \text{ [}\mu\text{A / V]}$	$PDI = V_{P_{MON}} \text{ [mA / V]}$

NOTE: The 2.5 V output can source 1.5 mA with a 5 V input. Use greater than 2 k Ω resistance to prevent loading it down.

Figure 7 - External Setpoint Adjustment



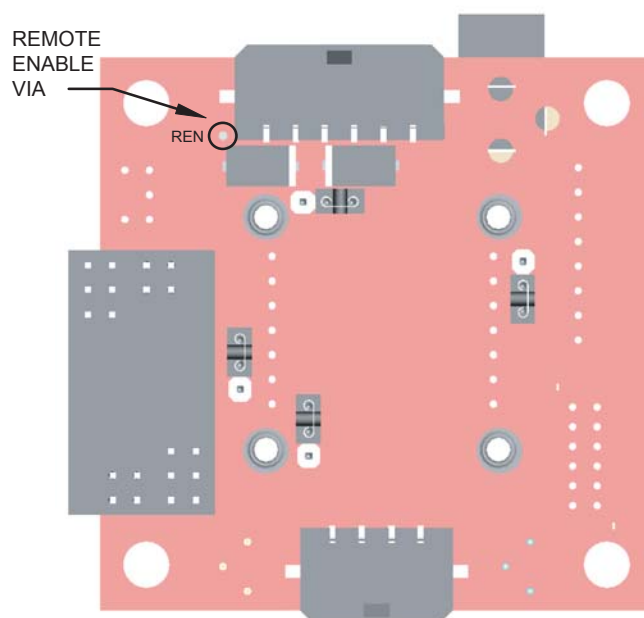
CONFIGURING THE EVALUATION BOARD

STEP 11: ENABLE OR DISABLE THE OUTPUT CURRENT

The WLD3343 output current can be enabled and disabled using the onboard toggle switch. The output is enabled when the green ON LED indicator is lit (see Figure 1).

You can also remotely enable the WLD3343 by connecting a control signal to a via (see Figure 8). This is an active low input. GND = ENABLE. Note the ON/OFF LED will not light when enabled using the remote input.

Figure 8: Control Signal Via Placement



APPLICATION NOTES

Noise Reduction

For lowest noise, operate in Constant Current mode with the cathode of the laser diode grounded (Type C).

If you buy a special low noise version of the WLD3343 (WLD3343-2L), you can decrease noise by a factor of 2.5 under the same conditions. Note that you can only operate in Constant Current mode with the WLD3343-2L.

Improve Temperature Coefficient

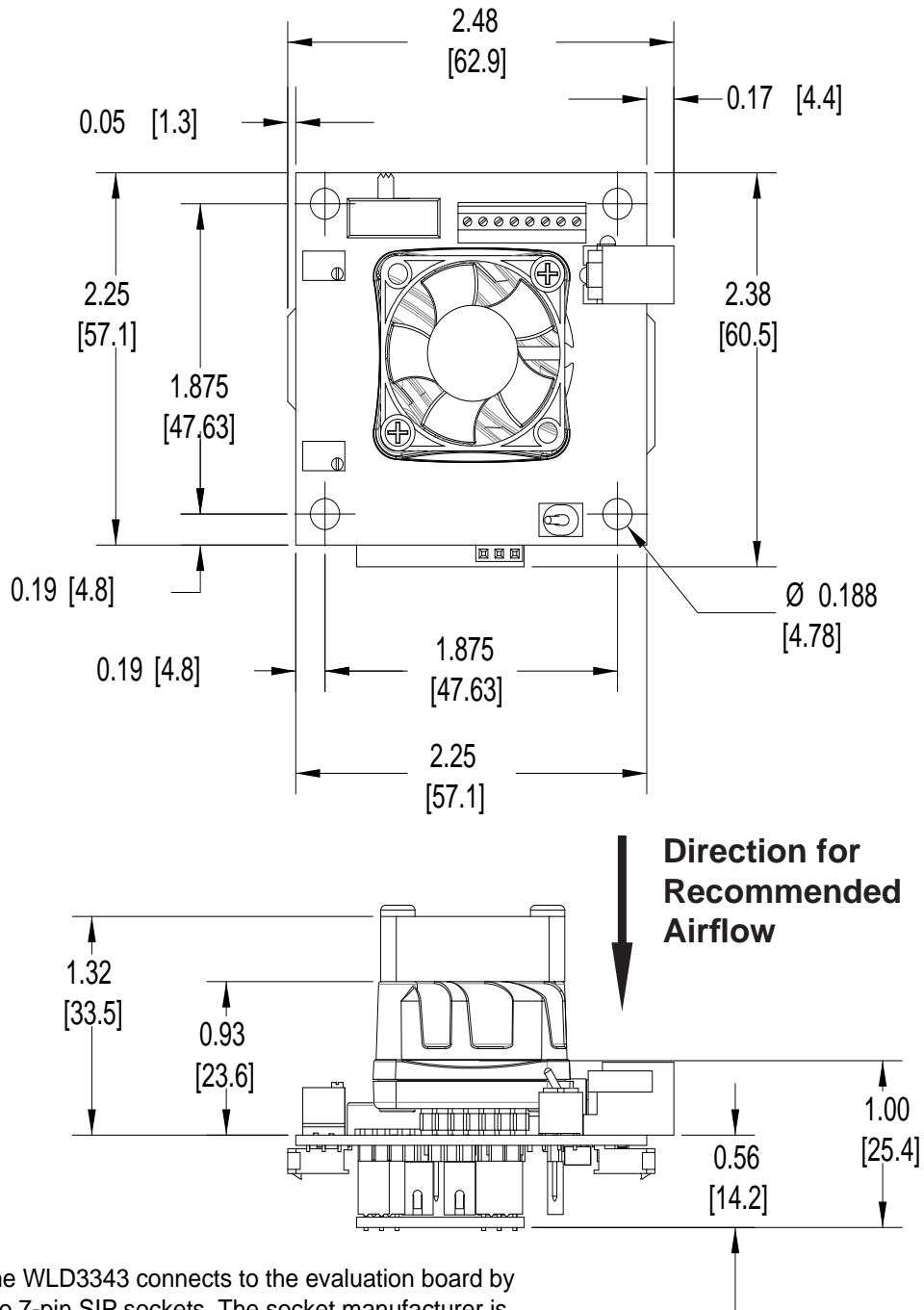
To achieve better stability, use the external setpoint input rather than the onboard setpoint trimpot.

Using the WLD3343HB with this Evaluation Board

To operate with 3.3 V input, use the WLD3343HB version. Note that maximum output current at this supply voltage is 170 mA (200 mA range) or 1.7 A (2 A range).

Bandwidth Optimization

To improve bandwidth, shorten the cables. Expect 1.8 MHz at 200 mA and 850 kHz at 2 A (sine wave 3 dB point), with factory length cables.



The WLD3343 connects to the evaluation board by two 7-pin SIP sockets. The socket manufacturer is Aries Electronics, PN 25-0513-10.

Dimensions are shown in inches [mm]. All tolerances are ±5%.

CERTIFICATION AND WARRANTY

CERTIFICATION:

Wavelength Electronics, Inc. (Wavelength) certifies that this product met it's published specifications at the time of shipment. Wavelength further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by that organization's calibration facilities, and to the calibration facilities of other International Standards Organization members.

WARRANTY:

This Wavelength product is warranted against defects in materials and workmanship for a period of 90 days from date of shipment. During the warranty period, Wavelength will, at its option, either repair or replace products which prove to be defective.

WARRANTY SERVICE:

For warranty service or repair, this product must be returned to the factory. An RMA is required for products returned to Wavelength for warranty service. The Buyer shall prepay shipping charges to Wavelength and Wavelength shall pay shipping charges to return the product to the Buyer upon determination of defective materials or workmanship. However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to Wavelength from another country.

LIMITATIONS OF WARRANTY:

The warranty shall not apply to defects resulting from improper use or misuse of the product or operation outside published specifications.

No other warranty is expressed or implied. Wavelength specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

EXCLUSIVE REMEDIES:

The remedies provided herein are the Buyer's sole and exclusive remedies. Wavelength shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

REVERSE ENGINEERING PROHIBITED:

Buyer, End-User, or Third-Party Reseller are expressly prohibited from reverse engineering, decompiling, or disassembling this product.



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SAFETY:

There are no user serviceable parts inside this product. Return the product to Wavelength for service and repair to ensure that safety features are maintained.

LIFE SUPPORT POLICY:

As a general policy, Wavelength Electronics, Inc. does not recommend the use of any of its products in life support applications where the failure or malfunction of the Wavelength product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. Wavelength will not knowingly sell its products for use in such applications unless it receives written assurances satisfactory to Wavelength that the risks of injury or damage have been minimized, the customer assumes all such risks, and there is no product liability for Wavelength. Examples of devices considered to be life support devices are neonatal oxygen analyzers, nerve stimulators (for any use), auto transfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, ventilators of all types, and infusion pumps as well as other devices designated as "critical" by the FDA. The above are representative examples only and are not intended to be conclusive or exclusive of any other life support device.

REVISION HISTORY		
REVISION	DATE	NOTES
REV. F	31-Aug-09	Updated links to support new website
REV. G	17-Mar-10	Updated for new board (Rev. C) -- added V_{DD}/V_S jumper and power pak, lowered noise and leakage current, increased max I, and changed transfer function
REV. H	6-Jul-10	Added bandwidth and 2.5 V specifications
REV. I	3-May-11	Added link to prior revision datasheet.
REV. J	Dec-11	Added link to prior revision
REV. K	25-Jan-13	Added socket manufacturer and updated R_{SENSE}