SHORT PULSE SEED LASER DIODE DRIVER

- **Adjustable Pulse Width < 250 ps to 1 ns**
- **Output Current up to 1.1 A**
- **Compliance Voltage up to 10.0 V**
- **Repetition Rate up to 1 MHz**
- **On-Board TEC Controller**
- **5.0 VDC Input Power**
- **Compact Size Only 2.9” x 3.0” x 0.5”**

DESCRIPTION:

AMI’s Model 766 short pulse seed laser diode driver is ideal for driving 14-pin butterfly packaged laser diode modules for applications which require pulse widths less than 1 ns. Applications include materials processing, time-resolved spectroscopy, LIDAR and others. The driver circuitry operates from a single 5 V power source. All other needed voltages are generated on the board by high efficiency switching power supplies. The driver supplies a bidirectional proportional-integral-derivative (PID) thermoelectric cooler controller (TEC) with current capability of 3 A and voltage capability of 4.2 V.

SPECIFICATION:

PARAMETER	Min.	Typical	Max.	Units
INPUT				
Power	4.75	5.0	5.25	VDC
Current	-	0.330	2.5	A
Trigger (50 Ω Impedance)	3.85	-	5.0	V
OUTPUT				
Current*	0.4	-	1.1	A
Compliance Voltage	1.2	-	10.0	V
Pulsewidth*	0.150	-	1.0	ns
Repetition Rate	Single Shot	-	1.0	MHz
Risetime (Optical) *	-	100	-	ps
TEC Current	0	1.80	-	A
TEC Voltage	0	3.14	-	V
TEMPERATURE				
Operating	0	-	+50	°C
Storage	-20	-	+70	°C
Humidity		< 95% Non-Condensing		

** Output performance dependent upon laser diode characteristics. Performance cannot be guaranteed for all laser types. See optical output waveforms for example. Contact AMI to discuss your specific requirements.*

Specifications are subject to change without notice.

APPLICATIONS:

Seed Laser Diode Driver for Fiber Lasers, Time-Resolved Spectroscopy, LIDAR

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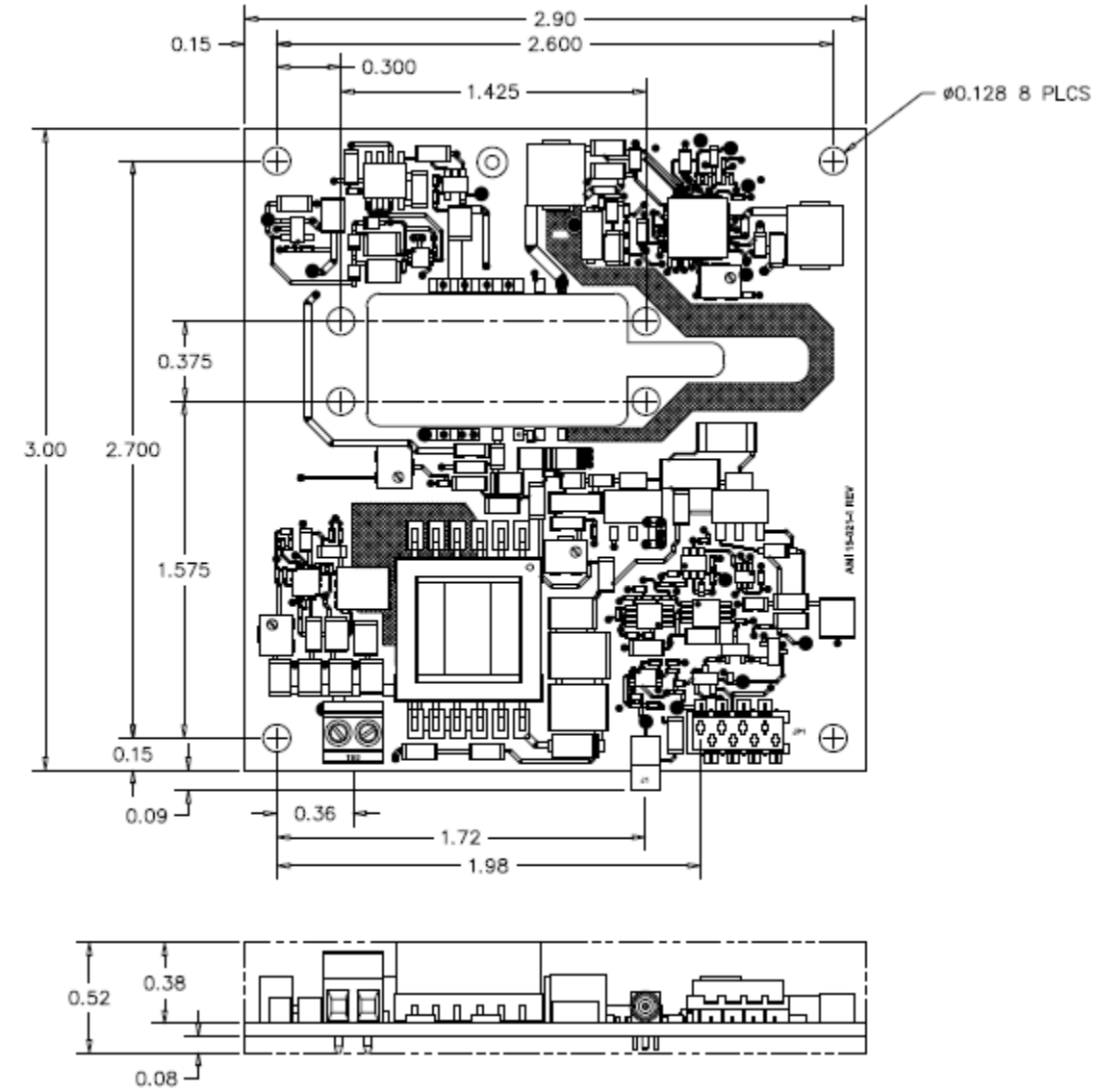
PROTECTION:	Driver disabled when laser diode die temperature is outside of TEC set point by ±1˚C.
	Driver disabled when power exceeds maximum dissipation.
CONNECTIONS:	
Power:	2 pin Terminal Block (*Molex 39257-0002)*
Interface:	8 Pin TE Connectivity MicroMatch Connectors (*188275-8*)
Trigger:	MMCX Micro Coax Connector
SIZE:	2.9” x 3.09” x 0.52”
THERMAL:	On-board TEC Controller will provide heating and cooling as necessary to maintain desired operating point. Thermistor and the TE cooler are in the laser diode package (not included). Customer may need to provide thermal mass and/or forced air for heatsinking under high dissipation conditions.

MECHANICAL DIMENSIONS:



ALL DIMENSIONS ARE IN INCHES. TOLERANCES: .XX= ± .02, .XXX= ±.005 DWG# 16-014

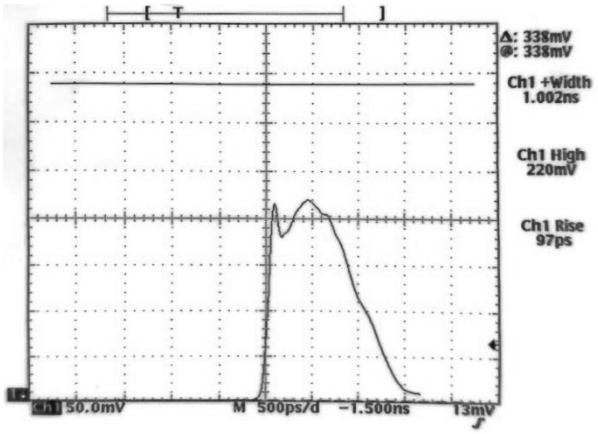
PIN CONNECTIONS:

I/O CONNECTOR Pinout	
JP1	
Pin	Function
1	$\overline{\text{Enable}}$
2	GND
3	$\overline{\text{Temp Fault}}$
4	GND
5	Reserved - N/C
6	GND
7	Reserved - N/C
8	GND

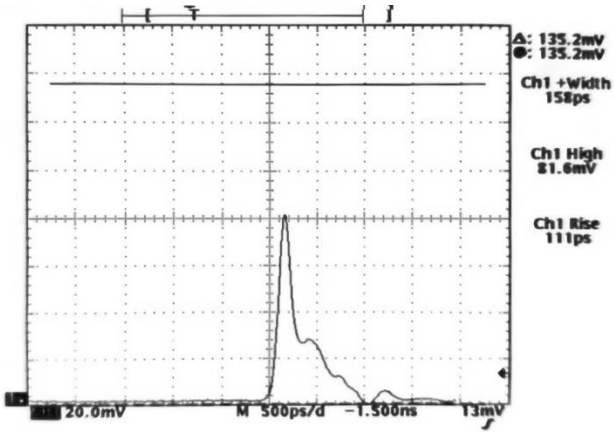
Compatible Laser Pinout	
Pin	Function
1	TEC +
2	Thermistor
3	BFM Anode
4	BFM Cathode
5	Thermistor
6	N/C
7	N/C
8	N/C
9	N/C
10	LD Anode
11	LD Cathode
12	N/C
13	Case Ground
14	TEC -

OPTICAL OUTPUT WAVEFORMS:

Test Laser: Lumics LU1064M450

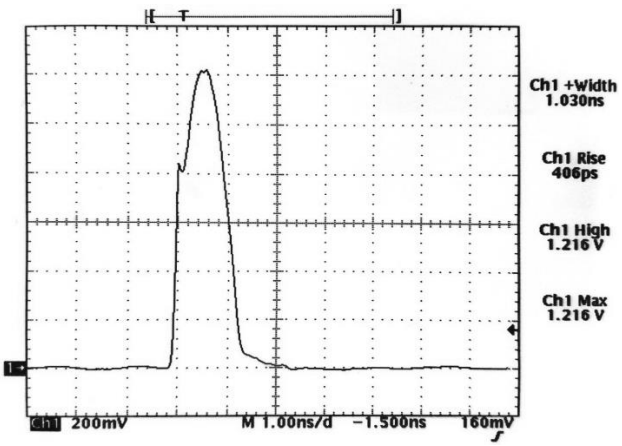


1.0 ns Pulse Width, 1.1 A, P_{OP}= 580 mW

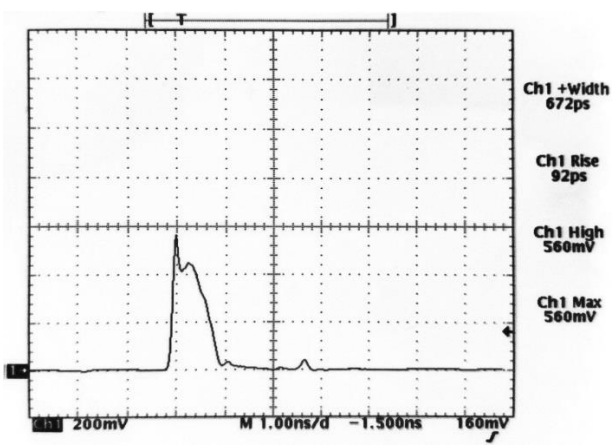


158 ps Pulse Width, 0.4 A, P_{OP}= 230 mW

Test Laser: Oclaro LC96A1060-20R



1.0 ns Pulse Width, 1.2 A, P_{OP}= 620 mW



672 ps Pulse Width, 0.6 A, P_{OP}= 330 mW