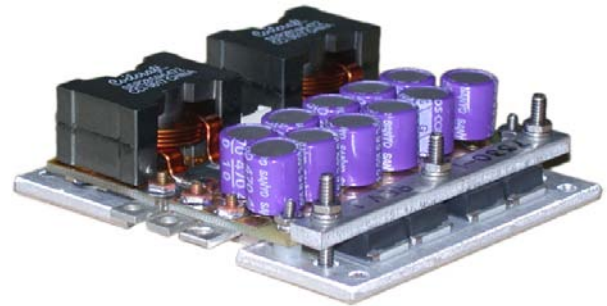




OEM CW & PULSED LASER DIODE DRIVER

- OUTPUT CURRENT UP TO 50 AMPS
- OUTPUT PULSEWIDTH 600ns TO CW
- COMPLIANCE VOLTAGE TO 2.5V
- EXTREMELY COMPACT & EFFICIENT
- +5VDC INPUT POWER
- RoHS COMPLIANT



DESCRIPTION:

AMI's Model 784 OEM laser diode driver (pump laser diode driver) is ideal for compact industrial and medical laser applications. Proprietary technology allows AMI to offer a 50A, 2.5V driver with industry leading efficiency and footprint. RoHS and military versions are available. Contact AMI today to discuss your custom requirements.

SPECIFICATIONS:

PARAMETER	784			Units
	Min.	Typical	Max.	
INPUT				
Power (Driver) at 75mA typical	-	5.0	-	VDC
Power (Laser) at up to 33A dependent upon operating conditions	-	5.0	-	VDC
Control Voltage (Scaling = 10A/V ± 5%)	0	-	5	V
Enable	0.5	-	5	V
OUTPUT				
Current	30	-	50	A
Compliance Voltage	1.4	2.0	2.5	V
Pulsewidth	600	-	CW	ns
Duty Cycle	0	-	100	%
Risetime at 50A (Slow Rise Mode)	-	50	-	µs
Risetime at 50A (Fast Rise Mode)	-	300	-	ns
Ripple (5VDC input power, 2.1V load)	-	2.5	-	A _{RMS}
Ripple (8VDC input power, 2.1V load)	-	3.8	-	A _{RMS}
Efficiency (25°C , 2.5V load, 50A CW)	-	85%	-	-
Regulation (Line)	-	1.5	-	A/V
Regulation (Load)	-	3.0	-	A/V

Specifications are subject to change without notice.

U.S. Patent No. 6,697,402

APPLICATIONS:

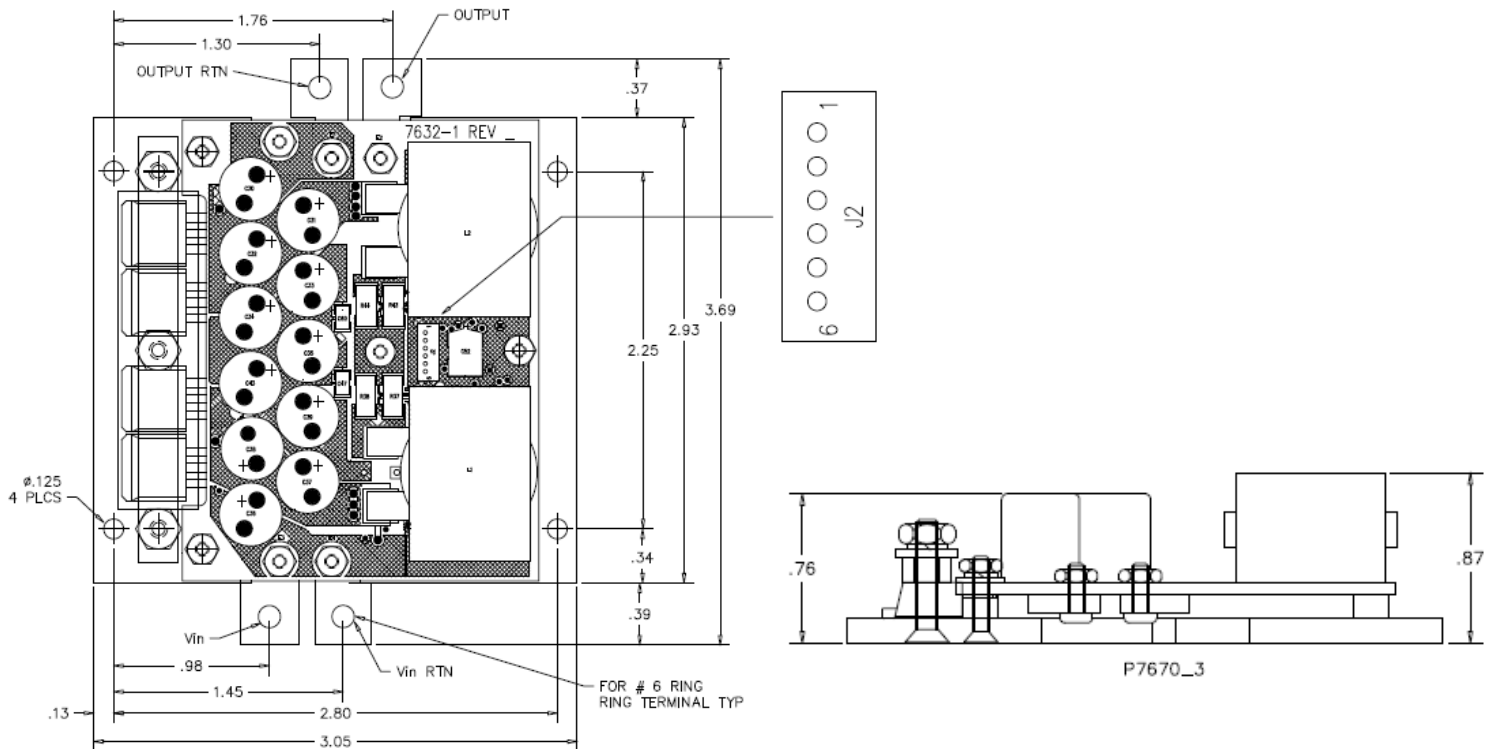
High Current Single Laser Diode Pumping and Direct Illumination Applications.



ABSOLUTE MAXIMUM RATINGS:

PARAMETER	Min.	Max.	Units
INPUT			
Power (Driver) at 75mA typical	4.75	8	VDC
Power (Laser) at up to 33A dependent upon operating conditions	4.75	8	VDC
OUTPUT			
Power (25°C, ≥ 200CFM forced air)	-	125	W
TEMPERATURE			
Operating:	+10	+50	°C
Storage:	-20	+70	°C
Humidity:		< 95% Non-Condensing	

Protection:	Current Limit		
	Thermal Shutdown		
Connections:	Buss Bars		
	6-pin Connector (Molex 53047-0610)		
Cooling:	Required at > 35W @ 50°C or >85W @ 25°C		
Size:	3.69" x 3.05" x 0.87"		
Weight:	6.5oz		
Connections:			
Buss Bars:	See diagram	6 Pin Connector:	J2-1 Power Input J2-2 5V Reference @1mA J2-3 GND J2-4 Control J2-5 Enable J2-6 GND
Interface Description:			
J2-4 Control: 0-5V yields 0-50A out.			
J2-5 Enable: ≥0.5V applies current to load			



Rise Time Applications

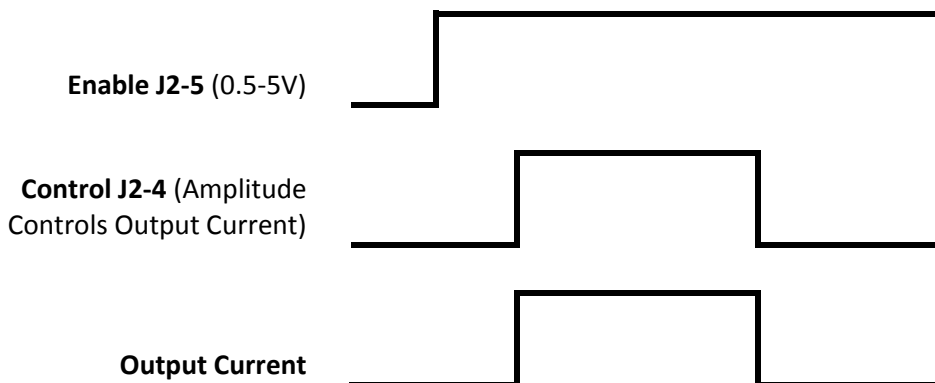
Slow Rise Time Applications:

Pull J2-5 high and pulse J2-4. Output current amplitude, pulsewidth, and repetition rate will follow J2-4 input. This method can also be used to modulate the output current by modulating the signal on J2-4. The typical rise time is 50 μ s. Output cable length to be kept as short as possible to minimize impedance.

Fast Rise Time Applications:

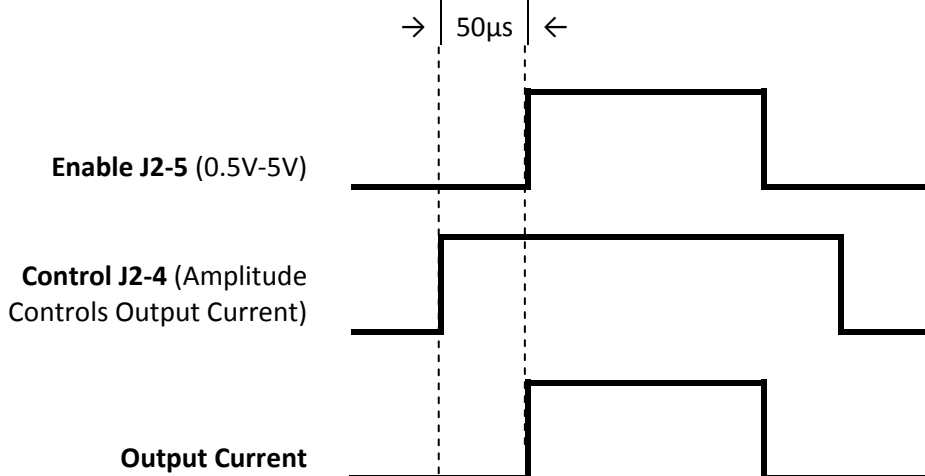
Input scaled voltage for desired output current on J2-4 (0-5V yields 0-50A). Allow 50 μ s for driver to come up to set current. Apply ≥ 0.5 V to J2-5 to enable output to the load. Pull J2-5 low to stop output current. This method will typically result in 300ns rise time. Output cable length to be kept as short as possible to minimize load impedance.

Slow Rise Operating Mode



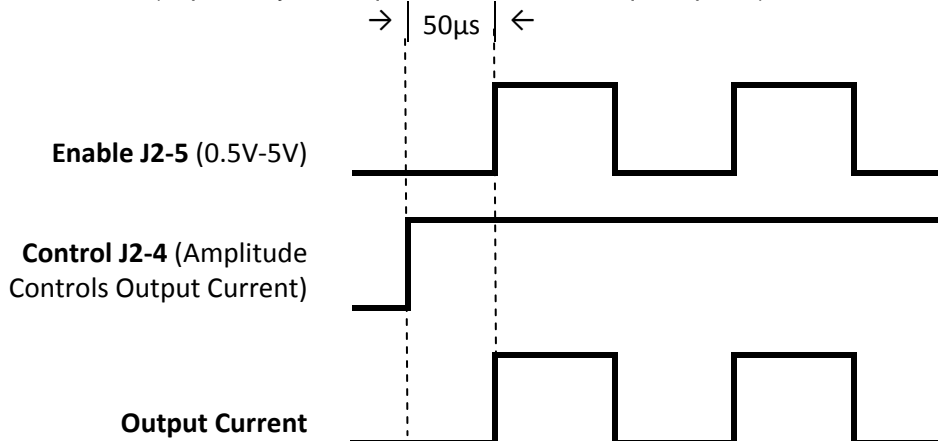
Fast Rise Efficient Operating Mode

(50 μ s delay required on each subsequent pulse)

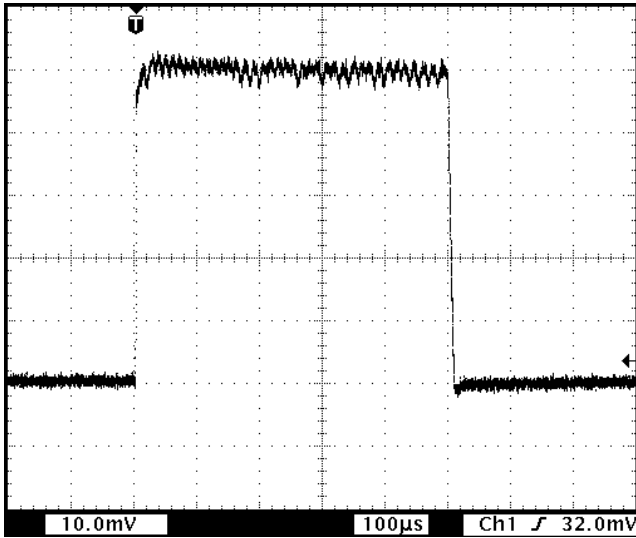


Fast Rise Inefficient Operating Mode

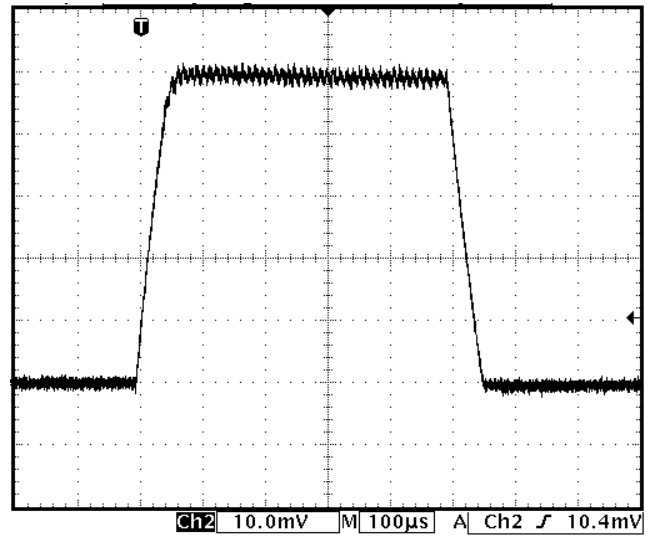
(50 μ s delay not required on each subsequent pulse)



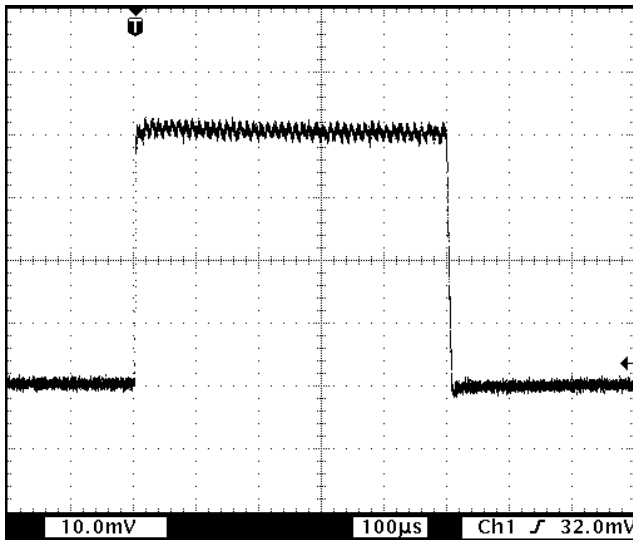
Sample Output Waveforms



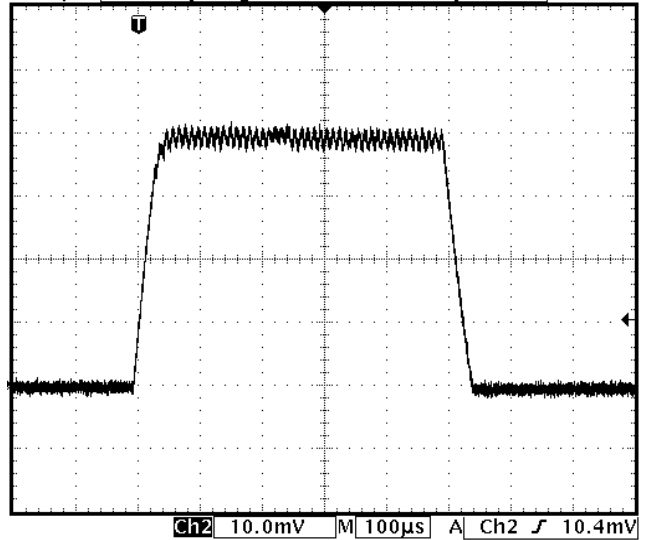
50A, 2.5V, 500µs Pulsewidth (Fast Rise)



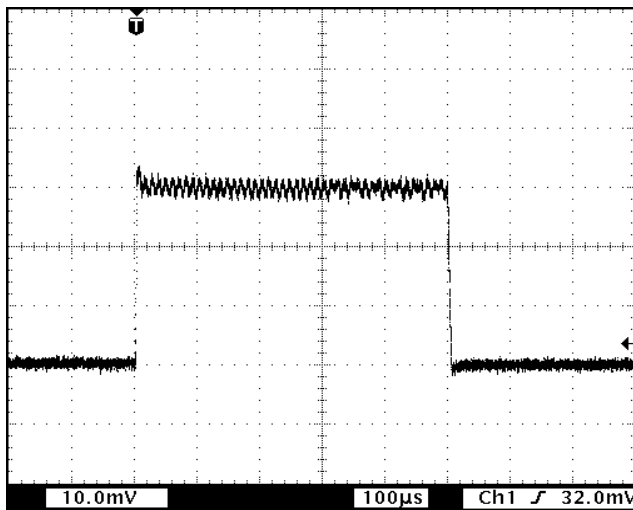
50A, 2.5V, 500µs Pulsewidth (Slow Rise)



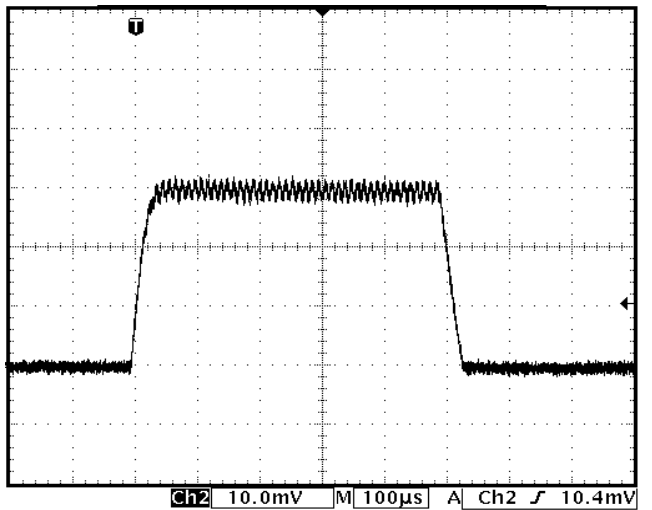
40A, 2.5V, 500µs Pulsewidth (Fast Rise)



40A, 2.5V, 500µs Pulsewidth (Slow Rise)



30A, 2.5V, 500µs Pulsewidth (Fast Rise)



30A, 2.5V, 500µs Pulsewidth (Slow Rise)