

# LDQPC QUASI-PULSED LASER DIODE DRIVER



The LDQPC quasi-pulsed laser diode drivers are specifically designed for low cost high volume applications. These DC input modules are available with average output power to 75 watts and current output to 200 amps. With a rise/fall time of typically 10us, they are ideally suited for compact short pulse laser applications. All configurations require 12 or 24VDC input and feature a simple analog interface. Output current and voltage can be specified to meet your requirements.

Built around the same topology that has made Lumina Power laser diode drivers the standard of the industry, these board level products offer the reliability and diode protection of the LDP series in a compact easy to integrate package.



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## FEATURES

- 75 Watts Average Power
- 10us. Rise/Fall Time (typical)
- 200 Amps Peak Output
- RoHS Compliant
- Analog Interface

## APPLICATIONS

- Medical Laser Systems
- Mobile Lasers
- Pulsed R&D Applications

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## Specifications

### INPUT

Input Voltage: +12 or 24VDC

### OUTPUT

Output Power: 75 watts average  
 I<sub>pulse</sub>max: 200A peak  
 V<sub>compliance</sub>max: Configurable up to 10 V

### INTERFACE

Interface Connector: 15 Pin "D" Sub Female  
 Pulse Enable: +5V TTL to +15V CMOS  
 Current Program: 0-10V for 0-I<sub>out</sub>max  
 Current Monitor: 0-10V for 0-I<sub>out</sub>max  
 Voltage Monitor: 0-10V for 0-V<sub>out</sub>max

### PERFORMANCE

Pulse Width Range: 20usec to 2msec  
 Max Rep Rate: 10kHz  
 Rise/Fall Time: 10 to 50uSec. (typical)  
 Current Regulation: 1.0% of max. output current  
 Current Ripple: <0.5% of max. output current  
 Current Overshoot: <5% of max. output current  
 Power Limit: Limited to maximum average power with power fold-back circuit

### ENVIRONMENT

Operating Temp: 0 to 40°C  
 Storage: -20 to 85°C  
 Humidity: to 90% non-condensing  
 Cooling: Forced air

### MECHANICAL

Dimensions: See Drawing

Part Number Description: LDQPC-XX-YY-ZZ  
 XX= Current,  
 YY = Compliance Voltage,  
 ZZ=maximum pulse width  
 DC<sub>in</sub>: Input voltage

**Example: LDQPC-100-6-100us -24VDC** This configuration is a 100amp peak, 6 Volts compliance and the maximum pulse width will be 100us. Input voltage is 24VDC

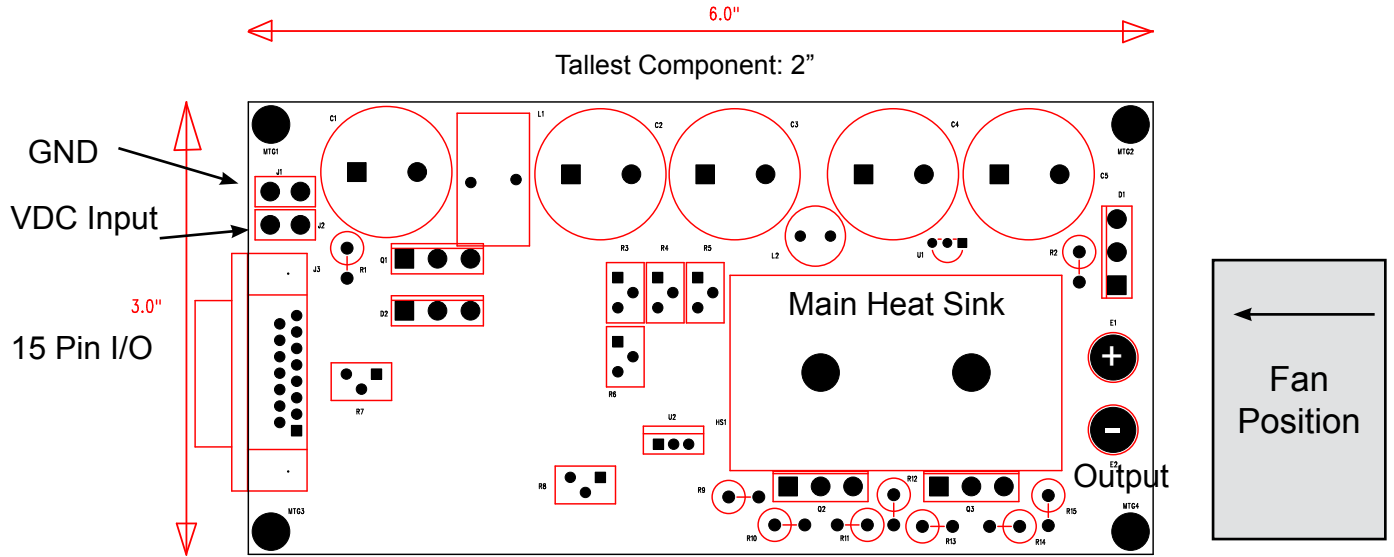
## Interface Configuration

Pin	Function	Description	Impedance
1	Enable	5 to 15V=Enable Output, Default OFF	10.0K
3	Interlock	Open = Off Ground to pin 4 or 9 = Run, Pin can be used for safety switches such as door interlock or temp switch.	10.0K
4, 9	Gnd		
5	V out Mon.	0 to 10V = 0 to full scale output voltage	1.0K
6	I out Mon.	0 to 10V = 0 to full scale output current	1.0K
7	I Program	0 to 10V = 0 to Full scale Note: Accuracy will be compromised when operating below 30% of the maximum value	10.0K
8	Pulse Control	TTL High = On, TTL Low = Off, Default= Off	
No connections to pins: 2, 10, 11, 12, 13, 14 & 15			



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## Board Layout



**Recommended Fan:** 60mm x 60mm fan with 25CFM minimum.

Proper cooling of the LDQPC board is critical to the operation and reliability of the product. The diagram above shows the fan positions and required airflow for the various output currents. The fan must be positioned as close to the board as possible to properly cool the heatsinks. Note: Failure to properly cool the board using the correct size and position of the fans may result in thermal shutdown and potential catastrophic damage to the power supply. Damage to the board from inadequate cooling is not covered under warranty.

## Typical Waveform

The LDQPC supplies are designed for pulsed operation and have a very short rise/fall time. The waveform shown is a scope trace of a 70 amp pulse with a rise time of 4 $\mu$ s. (Rise times vary depending upon output voltage and current).

For pulsed diodes applications where compliance voltages are greater than 10V the LDQCW pulsed laser diode drivers are available with output currents to 200 amps and compliance voltages to 100V.

