

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 100 watts and current output to 200 amps. With a rise/fall time of <math><10\mu\text{s}</math>, they are ideally suited for compact short pulse laser applications. All configurations require 15 volts DC 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 LDQPC series in a compact easy to integrate package.

FEATURES

- 75 Watts Average Power
- 10 μs . Rise/Fall Time
- 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: +15 or 24VDC

OUTPUT

Output Power: 75 watts average
 I_{pulse}max: 200A peak
 I_{avg}max: 80A
 V_{compliance}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_{out}max
 Current Monitor: 0-10V for 0-I_{out}max
 Voltage Monitor: 0-10V for 0-V_{out}max

PERFORMANCE

Pulse Width Range: 20usec to 2msec
 Max Rep Rate: 10kHz
 Rise/Fall Time: 10uSec
 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-DCin
 XX= Current,
 YY = Compliance Voltage,
 ZZ=maximum pulse width
 DCin: 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

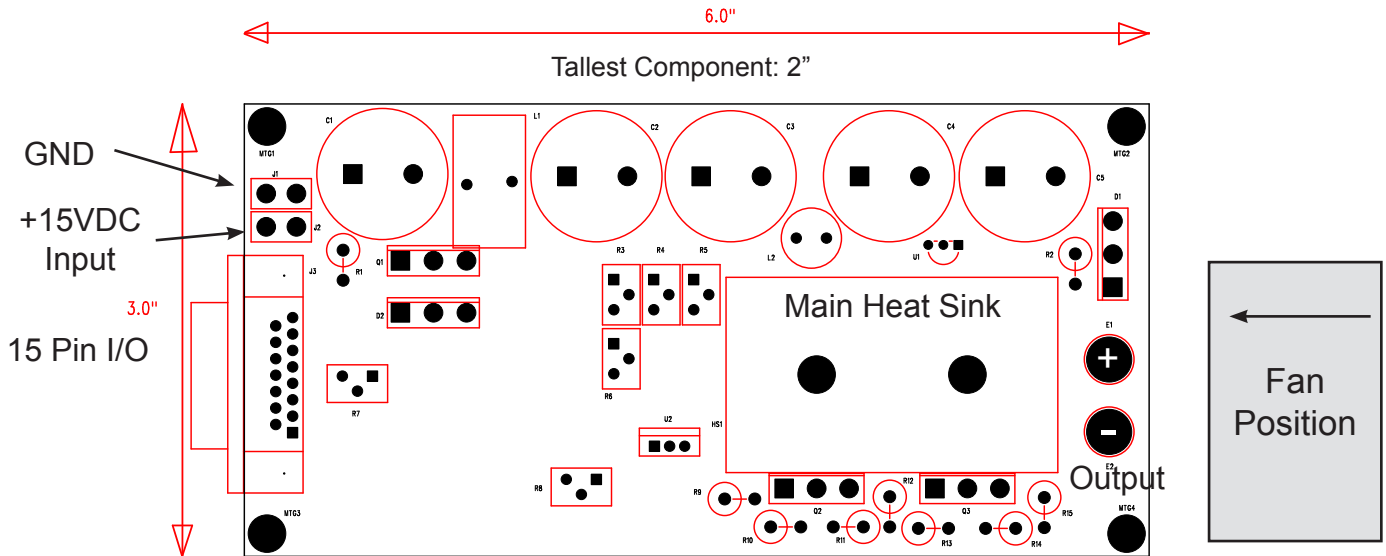
Interface Configuration

| 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 | 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



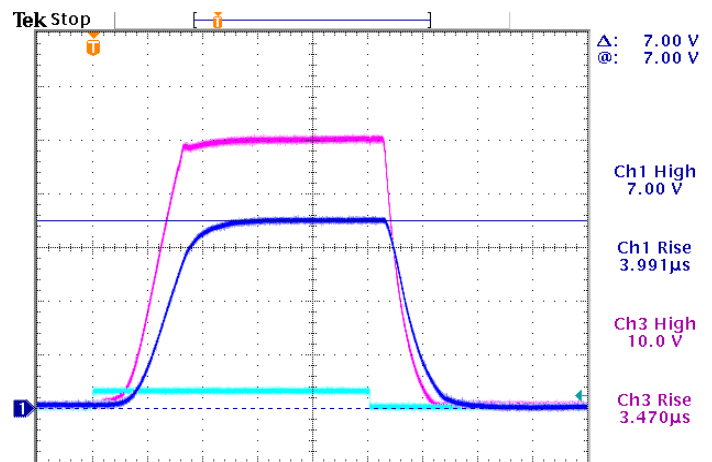
Recommended Fan: 60mm x 60mm fan with 25CFM minimum.

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 μ 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.



rev3-13hs