

QCW500-05-50-CC fast linear regulated laser diode driver



Description

QCW500-05-xx-CC is the low current model of a linear regulated diode driver series to provide short pulsed to DC current into laser diodes like VCSELs or single emitter diode modules.

The linear regulation allows not only fast pulsed operation, but also analog modulation at highest bandwidths. Per standard the modulation bandwidth is limited to 100 kHz, but lower or higher analog input filter bandwidth is avaliable on request.

Shortest rise time of down to 50 ns allow also for high speed analog modulated or pulsed operation. Rise/fall time adaption to meet specific setups available on request.

Besides standard industrial use, its low current noise makes it also especially suitable for sensitive laboratory applications.

Full current controlled rise/fall times protect the diode load against any over current/overshots.

By external adaption of the driver input voltage level, power losses and pulse performance can be optimized to meet individual application demands.

Further available models:

QCW500-10-50, up to 10 A, ca. 100 .. 500 ns rise/fall time QCW500-20-50, up to 20 A, typ. 1 μs rise/fall time Custom models / output terminals / load cables on request

Features

- Output current up to 5 A
- Controlled rise/fall time typ. 50 ns *13
- Pulse width 100 ns to DC
- Analog modulation to 100 kHz
- Compliance voltage 0 .. 50 V *51
- Very low current noise
- Especially suitable for fiber laser amplifiers and burn-in systems with multiple single emitter or VCSELs strings

Specifications

Output current
Compliance voltage
Rise/fall time
Current programming
Setpoint accurracy
Monitoring I

Monitoring U Monitoring accurracy Protective features Control interface

Power dissipation Supply (aux) Supply (main) Input (main) capacity Environment Cooling

Baseplate temperature Main connectors in/out Size (LxWxH) max. 5 A *3 0 .. 50 V at 5 A *5 typ. 50 ns

0 - 10 V = 0 - 5 A (0.5 A/V) into 20 $k\Omega$ (SSMB) Offset ± 10 mA ± 1.5 % of setpoint value

 I_{mon} = 1 V/A into 1 MΩ 0.2 V/A into 50 Ω

 U_{mon} 0.1 V/V (real time), into 1 $M\Omega$ typ. <±2 % (of set-point within specified range) t.b.d. Soft start, transient protection, over temp., UVL

Connector JST 6pin, S6B-PH SSMB for analog programming input

ca. 1.5 W + $(U_{in} - U_{ou}) * I_{out}$ (total avg. max. 25 W)

-20 °C .. +50 °C (non condensing) Conductively via baseplate,

max. power dissipation 25 W max. +50 °C

Screw terminals M3, max. 5 mm depth 80 x 40 x 37 mm, PCB 60 x 40 mm

Baseplate mounting via M3 through holes



1) +12 V DC aux input/max. 150 mA

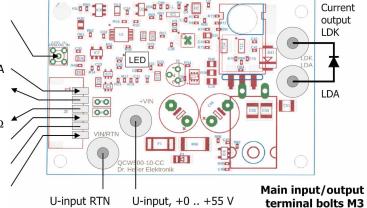
2) I-mon output, 0.2 V/A into 50 Ω $_{\Box}$ $\,$ 1 V/A into 1 M Ω

3) U-mon output, 0.1 V/A into 1 $\text{M}\Omega$

4) Enable input, 5 V = ON, 10 k Ω

5) Common GND

6) Pulse input, 5 V = ON, 10 $k\Omega$



Status LED

Green - standby +12 VDC OK Blue - enabled

Red - error

Start-up sequence:

- 1. Apply main input voltage to U-input
- 2. Apply +12 VDC aux to JST connector pin 1
- 3. Set Enable, JST pin 5 HIGH

Arbitrary sequence of any other signal

^{*1)} For optimized user setups down to 100 ns available

^{*2)} For optimized user setups up to 500 kHz available

^{*3]} Specified output current range 0.25 .. 5 A

 $^{^{\}star_{i,j}}$ $(U_{in} - U_{out}) <= 5 \text{ V and } (U_{in} - U_{out}) * I_{avg} < 25 \text{ W}$

^{*5)} Higher input/output voltage to 100 V or 200 V on request