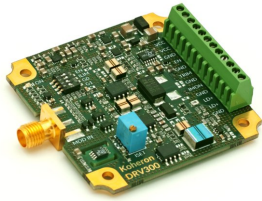


Low noise cathode-grounded laser driver



Koheron DRV300 is a low noise current driver for cathode-grounded laser diodes. It drives up to 200 mA laser current and features a DC to 10 MHz modulation input with adjustable modulation gain. A precision trimming input enables fine external tuning of the laser current. The 10 mA max. output current model with its ultra-low noise is well suited to drive Vertical-Cavity Surface-Emitting Lasers (VCSEL).

Specifications

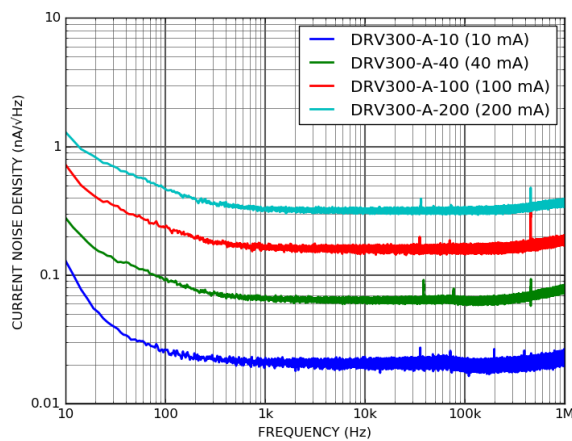
	DRV300-A-10	DRV300-A-40	DRV300-A-200
Laser current	0 - 10 mA	0 - 40 mA	0 - 200 mA
Current driver			
Maximum compliance voltage	4.0 V	4.0 V	4.0 V
Slow start (90 % setpoint)	800 ms	800 ms	800 ms
Current limit (H / L)	11 mA (Fixed)	44 mA / 25 mA	220 mA / 160 mA
RMS noise (10 Hz - 1 MHz)	25 nA _{rms}	75 nA _{rms}	350 nA _{rms}
Current noise density (1 kHz)	23 pA/√Hz	70 pA/√Hz	340 pA/√Hz
Temperature coefficient	50 ppm/°C	50 ppm/°C	50 ppm/°C
Modulation input			
3 dB bandwidth	10 MHz	10 MHz	10 MHz
Gains	40 μA/V, 200 μA/V, 1 mA/V	160 μA/V, 800 μA/V, 4 mA/V	800 μA/V, 4 mA/V, 20 mA/V
Input range	-1.2 V / +2 V	-1.2 V / +2 V	-1.2 V / +2 V
Input impedance	50 Ω	50 Ω	50 Ω
Trimming input			
Gain	500 μA/V	2 mA/V	10 mA/V
Bandwidth	10 Hz	10 Hz	10 Hz
Input range	±2 V	±2 V	±2 V
Input impedance	2 kΩ	2 kΩ	2 kΩ
Current monitor output			
Gain	100 V/A	25 V/A	5 V/A
Bandwidth	250 Hz	250 Hz	250 Hz

Output impedance	1 k Ω	1 k Ω	1 k Ω
Power supply			
Supply voltage	8.5 V - 12 V (9 V nominal)	8.5 V - 12 V (9 V nominal)	8.5 V - 12 V (9 V nominal)
Quiescent current (laser disabled)	10 mA	10 mA	10 mA
Quiescent current (laser enabled)	60 mA	60 mA	60 mA
Other			
Outside Dimensions	58 mm x 50 mm x 14 mm	58 mm x 50 mm x 14 mm	58 mm x 50 mm x 14 mm
Weight	19 g	19 g	19 g
Operating temperature	-20 - 70 $^{\circ}$ C	-20 - 70 $^{\circ}$ C	-20 - 70 $^{\circ}$ C
Compatible lasers	Floating and cathode-grounded diodes	Floating and cathode-grounded diodes	Floating and cathode-grounded diodes

Characterization

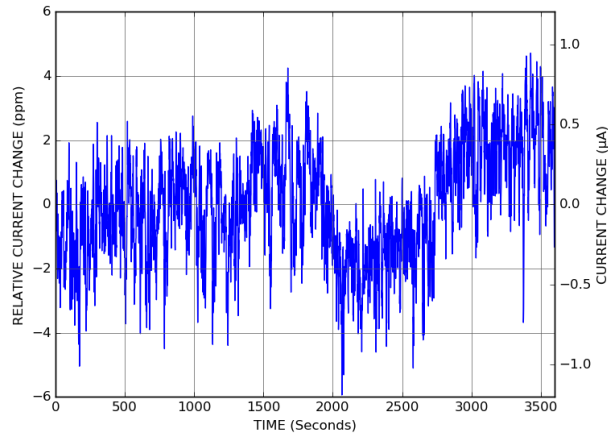
Current noise

The figure below shows the current noise density of DRV300 laser drivers operated at their rated current.



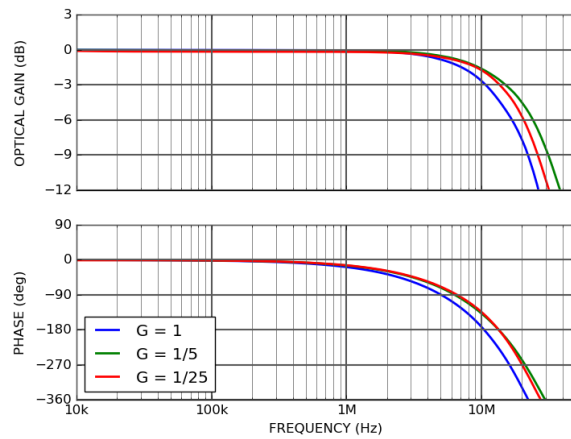
Current stability

The figure below shows the current stability of the DRV300-A-200 laser driver driving 200 mA.



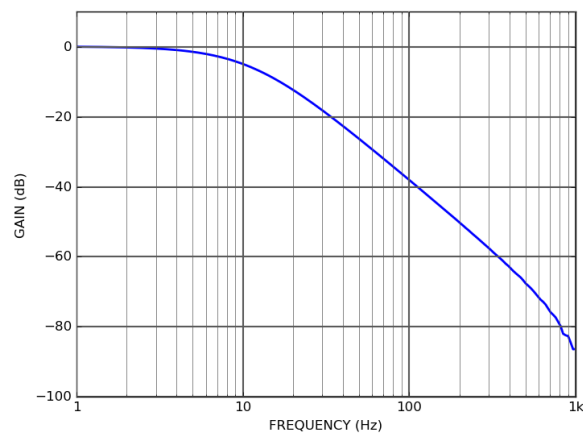
Modulation frequency response

The figure below shows the modulation frequency response of the DRV300-A-200 laser driver driving 200 mA.



Trimming input frequency response

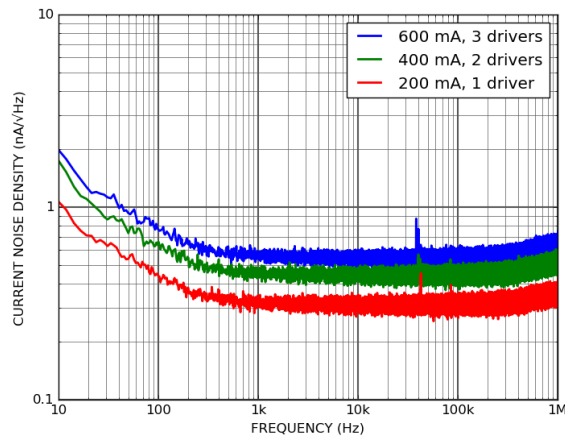
The stiff 10 Hz low-pass filter (> 80 dB rejection at 1 kHz) rejects wideband noise that could be injected by the trimming signal.



Combining multiple DRV300 laser drivers

Thanks to the cathode-grounded architecture of the driver, multiple DRV300 laser drivers can be [mounted in parallel](#) to increase output current. The DRV300 can also be mounted in parallel with any other cathode-grounded current driver such as the [DRV110 Ultra low noise high-voltage laser driver](#).

The figure below shows the current noise density for 1, 2 and 3 DRV300-A-200 driver(s) mounted in parallel, with each driver operating at 200 mA:



Current noise density increases with the square root of the number of drivers (323, 455 and 560 pA/√Hz for 1, 2 and 3 drivers, respectively).

Ordering codes

- DRV300-A-10: Laser current 10 mA
- DRV300-A-40: Laser current 40 mA
- DRV300-A-200: Laser current 200 mA