Koheron DRV200 drivers are ultra-low noise current drivers combining a very stable current bias with a ±1 V modulation input from DC to 6 MHz. Current bias can be set from 0 to 200 mA with a manual potentiometer. A jumper allows to choose between 3 modulation gains.

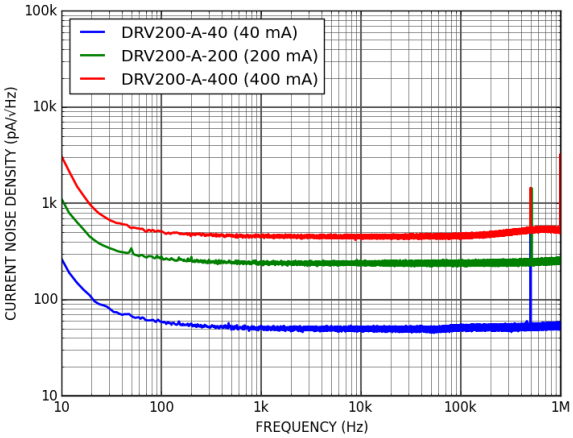
Specifications

	DRV200-A-40	DRV200-A-200	DRV200-A-400
Laser current	0 mA to 40 mA	0 mA to 200 mA	0 mA to 400 mA
Supply voltage	5 V or 6 V	5 V or 6 V	5 V or 6 V
Compliance voltage at 50% max. current 5 V power supply	2.8 V	2.8 V	2.8 V
Compliance voltage at max. current 5 V power supply	1.8 V	1.8 V	1.8 V
Compliance voltage at 50% max. current 6 V power supply	3.8 V	3.8 V	3.8 V
Compliance voltage at max. current 6 V power supply	2.8 V	2.8 V	2.8 V
3 dB modulation bandwidth	8 MHz	6 MHz	6 MHz
Current monitor gain up to max. current	100 V/A	20 V/A	10 V/A
Temperature coefficient	30 ppm/°C	30 ppm/°C	30 ppm/°C
RMS noise 10 Hz to 1 MHz	65 nA_{rms}	255 nA_{rms}	530 nA_{rms}
Current noise density 1 kHz, Modulation gain M	55 pA/√Hz	270 pA/√Hz	480 pA/√Hz
Current limit L setting	32 mA	160 mA	320 mA
Current limit H setting	48 mA	240 mA	480 mA
Modulation gain L setting	0.2 mA/V	1 mA/V	2 mA/V
Modulation gain M setting	2 mA/V	10 mA/V	20 mA/V
Modulation gain H setting	20 mA/V	100 mA/V	200 mA/V
Operating temperature	0 °C to 50 °C	0 °C to 50 °C	0 °C to 50 °C
Outside dimensions	72 mm x 38 mm x 14 mm	72 mm x 38 mm x 14 mm	72 mm x 38 mm x 14 mm
Weight	19 g	19 g	19 g
Compatible lasers	Floating diodes	Floating diodes	Floating diodes

Characterization

Current noise

The figure below shows the current noise of the different DRV200 laser driver variants operated at a maximum rated current:

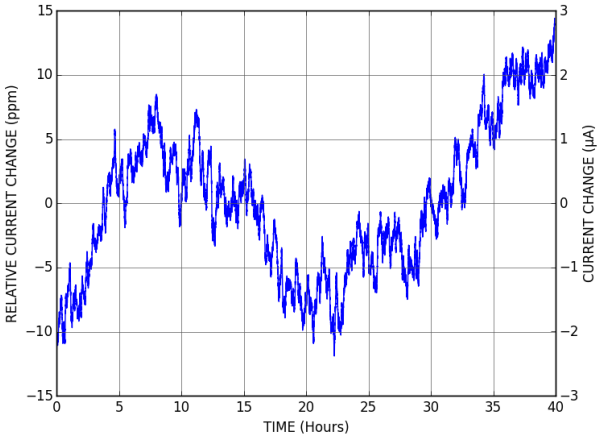


DRV200 current noise

Current noise was measured across a 30 Ω resistor for the 40 mA laser current version (A-40) and a 5 Ω resistor for the 200 mA laser current version (A-200) and for the 400 mA laser current version (A-400).

Current stability

The figure below shows the current evolution of the 200 mA laser current version driver (A-200) delivering 200 mA over 40 hours. The ambient temperature is 25 °C. Current is measured using a 5 Ω precision resistor and a 7.5-digit digital voltmeter.

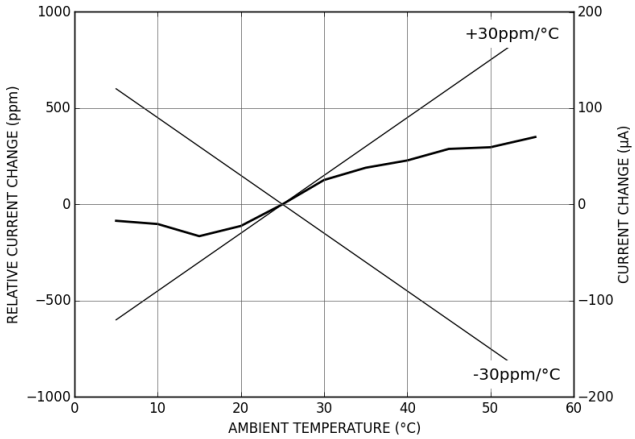


DRV200-A-200 40h current stability

Fluctuation is about 10 ppm per day.

Temperature coefficient

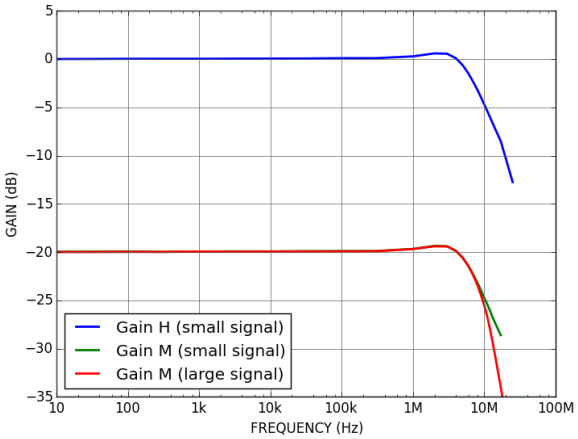
The figure below shows the current variation for different ambient temperatures between 5 °C and 55 °C. Temperature coefficient is below 30 ppm/°C.



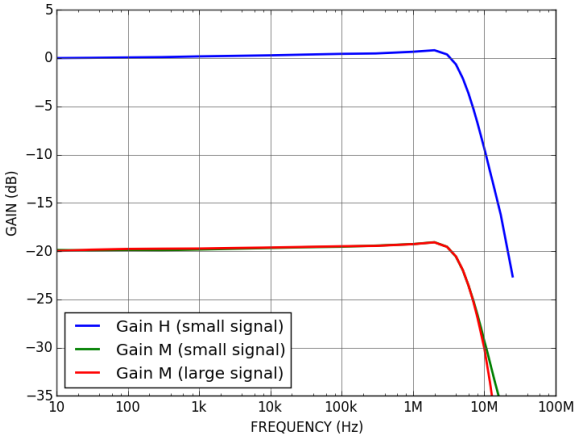
DRV200-A-200 temperature coefficient

DC current modulation input

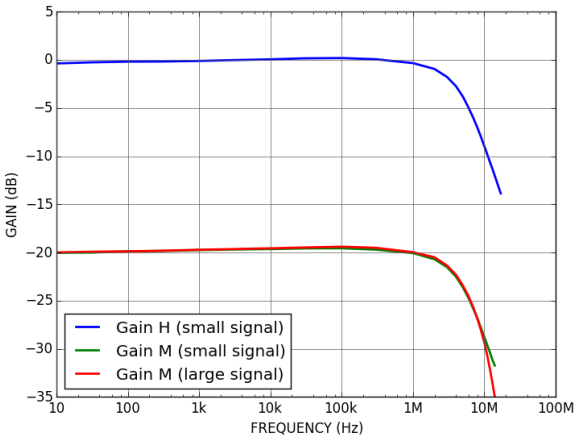
The DC modulation input controls the current setpoint. It combines large bandwidth and high linearity.



DRV200-A-40 (40 mA) modulation response



DRV200-A-200 (200 mA) modulation response



DRV200-A-400 (400 mA) modulation response

Modulation performance are characterized using a DFB laser. Large and small signal correspond to a modulation signal of 2 V_{pp} and 500 mV_{pp}, respectively. The modulation is detected by a 70 MHz DC coupled PD100 photodetector and measured on an oscilloscope.

Ordering codes

PRODUCT NUMBER	ATTRIBUTE
DRV200-A-40	Laser current 40 mA
DRV200-A-200	Laser current 200 mA
DRV200-A-400	Laser current 400 mA