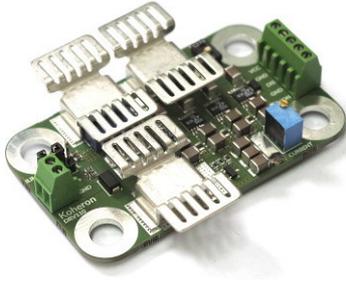


DRV110 - Ultra low noise high-voltage laser driver



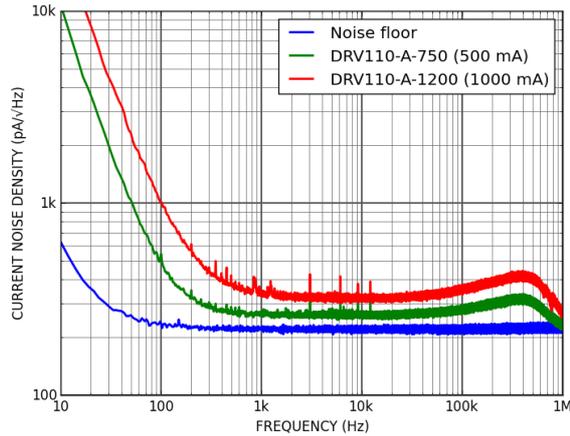
Koheron DRV110 is a current source that can drive up to 1200 mA of current with a compliance voltage of 15 V. Its current noise of 350 pA/√Hz (180 pA/√Hz for the 750 mA version) is below the noise of a 1 A Poissonian current source. The DRV110 can be used to drive high current LEDs below the shot noise limit. Thanks to its high compliance voltage and its low noise performance, the DRV110 is an also an excellent choice to drive quantum cascade lasers (QCL).

Specifications

	DRV110-A-375	DRV110-A-750	DRV110-A-1200
Current driver			
Laser current	0 - 375 mA	0 - 750 mA	0 - 1200 mA
Supply voltage	3 - 19.5 V	3 - 19.5 V	3 - 19.5 V
Compliance voltage	15 V	15 V	15 V
Temperature coefficient	25 ppm/°C	25 ppm/°C	25 ppm/°C
RMS noise (10 Hz - 1 MHz)	130 nA _{rms}	240 nA _{rms}	480 nA _{rms}
Current noise density (1 kHz)	110 pA/√Hz	200 pA/√Hz	400 pA/√Hz
Current limit (high setting)	400 mA	800 mA	1250 mA
Current limit (low setting)	200 mA	400 mA	500 mA
Slow start (90 % setpoint)	3 s	3 s	3 s
Other			
Outside Dimensions	63 mm x 53 mm x 12 mm	63 mm x 53 mm x 12 mm	63 mm x 53 mm x 12 mm
Weight	23.5 g	23.5 g	23.5 g
Operating temperature	0 °C - 50 °C	0 °C - 50 °C	0 °C - 50 °C
Compatible lasers	Floating diodes / Cathode-grounded	Floating diodes / Cathode-grounded	Floating diodes / Cathode-grounded

Current noise

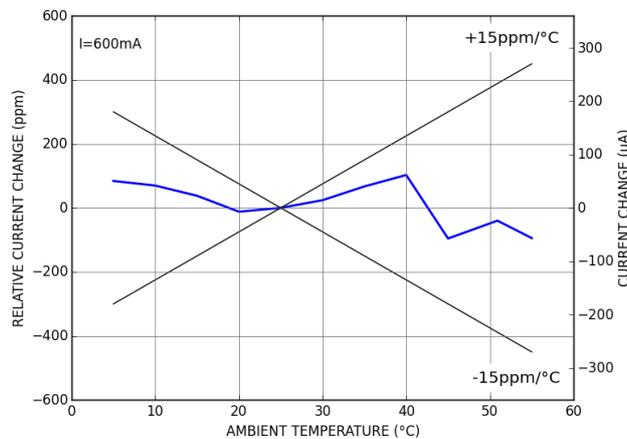
The power spectral density of the DRV110 laser driver current noise was characterized using a 2.5 Ω load and followed by an instrumentation amplifier. Both drivers were supplied with 7 V.



Current noise RMS integrated between 10 Hz and 1 MHz is 168 nA for the 750 mA laser current version (A-750) and 289 nA for the 1200 mA laser current version (A-1200).

Current stability

The figure below shows the current variation for different ambient temperatures between 5 and 55 °C. A DRV110-A-750 (750 mA laser current version) supplied at 7V and delivering 600 mA into a 5 Ω load was used. Temperature coefficient is below 15 ppm/°C.



Current stability is depicted in the following figure showing a 24-hour long evolution of current, set to 600 mA at 25 °C ambient temperature. Current is stable within ±50 ppm.

