MP113

10A, 135V Digital Dual Channel Inkjet Printer Driver

CARD EDGE CONNECTOR MODULE
PACKAGE STYLE NC

Footprint 110.5mm x 104.5mm

FEATURES

- Digital system interface for multi-pulse waveforms
- Dual channel amplifier design
- High output voltage 135V with negative rail to ground (+Vs to GND)
- High voltage supply 180V (amplifier)
- Peak output current >10A per channel within SOA
- Extended maximum allowable internal power dissipation 100W per channel
- High slew rate 50V/µs

Product Overview

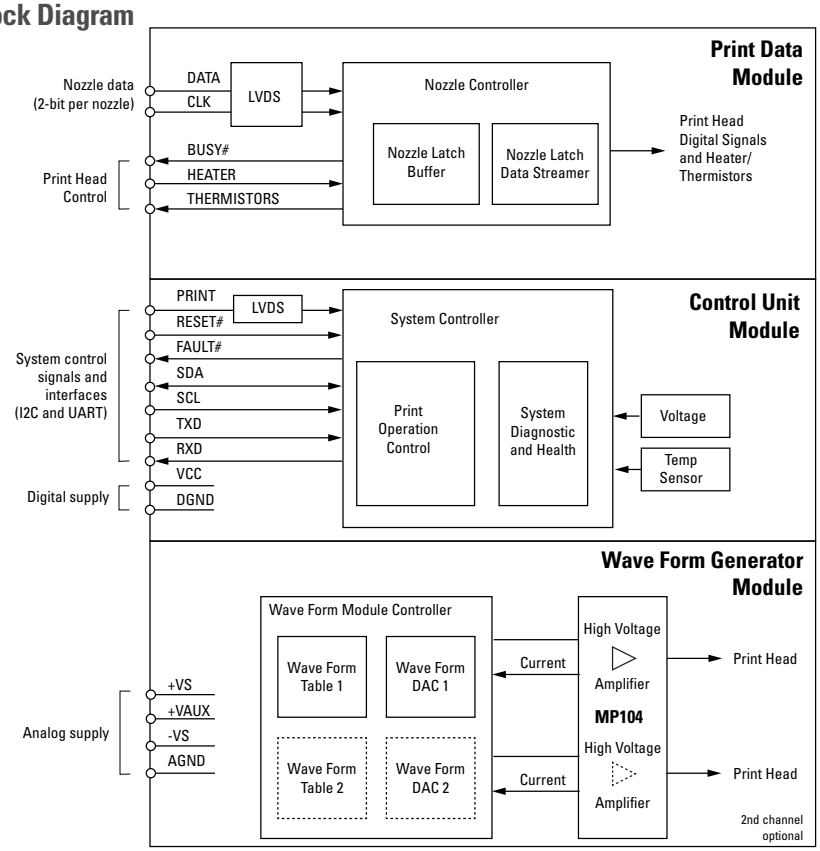
The MP113 combines the intelligence of a digital user interface with a high voltage, high current, dual channel power operational amplifier for generating multi-pulse waveforms used in industrial inkjet printing applications. The onboard firmware supports user-defined waveforms, optimized for the applied ink while solving the challenges of driving a changing number of print nozzles with the required quality and accuracy. This comprehensive solution provides a simplified implementation for an existing drive system or an entirely new design while expanding the capabilities to print grayscale and higher resolution images by changing droplet sizes for greater color intensity.

The MP113 incorporates the dual amplifier design of the Apex MP104 for its improved power dissipation, enhanced circuitry to provide balanced performance in each channel, and a reduction in crosstalk. Output current is rated at >10A PEAK per channel when maintaining the safe operating area (SOA), and provides output voltages up to 135V. The output is referenced to ground and not the negative supply rail, which eliminates the need for a high current negative supply.

Digital Modular Design

The modular design of the MP113 provides a robust solution for driving up to 1,024 inkjet nozzles. The onboard digital and analog modules provide the digital and analog conversion and amplification. The integration of protection and diagnostic features enhances the overall system reliability. The block diagram below illustrates the interaction between the print data, system control and waveform generator modules of the MP113.

Block Diagram



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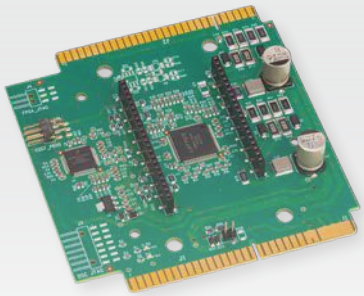
High Voltage Amplifier



Digital Interface Board

Product Specifications

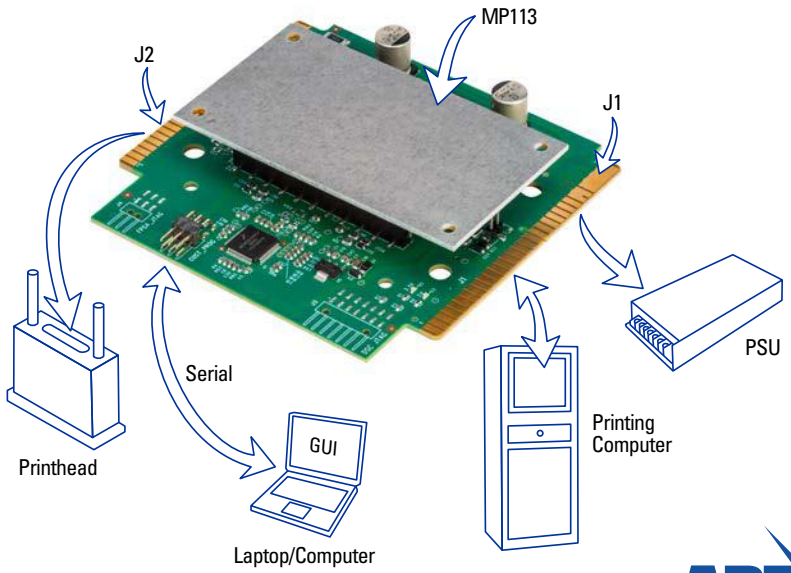
Parameter		MP113
Waveform Generator		
	Maxiumum ouput voltage	135V
	Maximum slew rate	50V/µs
	Maximum number of pulses per waveform	8
	Waveform generator resolution	≥125ns
	Voltage adjustment based on print head parameter	Yes (0.5V steps)
	Minimum pulse width	10µs
	Maximum print speed	50kHz
	Temperature protection	Yes
	Over-current protection	Option
Print Data Module		
	Maximum number of nozzles	1024
	Number of waveform generators	1 or 2
	Maximum Grayscale levels	4 (2-bit)
Module Size		110.5mm x 104.5mm

No Evaluation Kit Required!

In the broadest sense, the modular design of the MP113 makes the device its own evaluation kit. A graphical interface software allows users to test various parameters such as the size and speed of droplet formation and to optimize these specifications for specific types of ink.

Firmware User Guide

A user guide for the MP113 firmware is available to customers by contacting applications engineering support at Apex.support@apexanalog.com.



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SEPTEMBER 2018

ISO9001