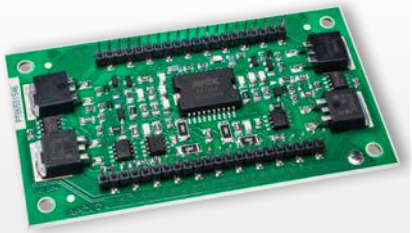
MP104

10A, 180V Dual Channel Inkjet Printer Driver



42-PIN DIP PACKAGE STYLE KF

Footprint 91.4mm x 50.8mm

FEATURES

- Low cost, dual channel integrated solution
- High supply voltage, 180V with negative rail to ground (+V_S to GND)
- Peak output current >10A per channel within SOA
- Extended maximum allowable internal power dissipation 100W per channel
- High slew rate 50V/µs

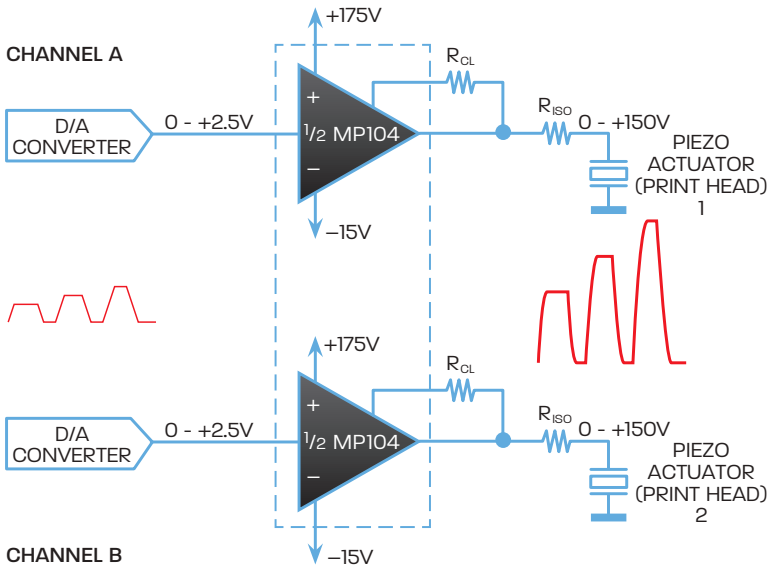
Product Overview

The MP104 is a high voltage, high current, dual channel power amplifier targeted for piezoelectric applications, and specifically, piezo devices used to drive inkjet printer nozzles. The MP104 is a follow on device to the Apex MP103 and provides extended power dissipation, enhanced circuitry to provide balanced performance in each channel, and a reduction in crosstalk.

This low cost, thermally efficient integrated solution is designed with two identical amplifiers designated as Channel A and Channel B. Output current is rated at >10 A peak per channel when maintaining the safe operating area (SOA), and operates on maximum supply voltages of 180V (+V_S to GND) to reduce expensive power supply requirements. The MP104 also excels in maximum allowable internal power dissipation, which can be as high as 100W per channel. A real benefit for inkjet printer driver designs.

Typical Application

With its dual channel design, the MP104 is well suited to piezoelectric actuation circuits used to drive inkjet printer nozzles. This next generation device references the output to ground and not the negative supply rail, which eliminates the need for a high current negative supply. The MP104 also features a low current negative supply (≤50mA) to allow input to zero volts without violating the common mode input range.



A single, dual channel MP104 drives two separate print heads.

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Packaging, Evaluation Kit

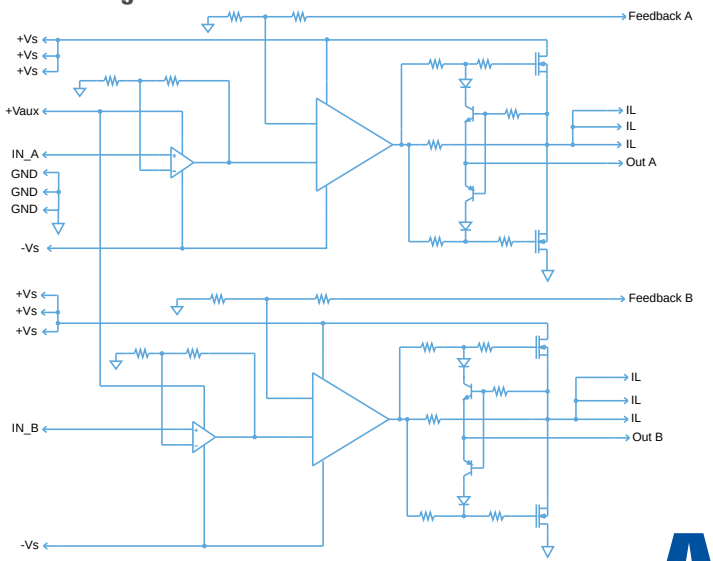
The MP104 is a unique product design using an open frame package form factor. The compact package frame has 42 external pin connects. The open frame concept utilizes a copper circuit layer and isolated metal substrate (IMS) to provide exceptional thermal properties. The evaluation kit for the MP104 is the EK37 which comes with all necessary hardware, including a heatsink. Evaluation units of the MP104 can be purchased separately.

Assembled EK37 evaluation kit for MP104.

Product Specifications

Parameter	MP103	MP104
Maximum Supply Voltage	200V (+V_S to –V_S)	180V (+V_S to GND)
Supply Voltage, -V_S	-20V to -7V	-20V to -15V
Output Current, PEAK (within SOA)	15A	
Slew Rate (minimum, typical)	50V/µs	
Voltage Swing	-V_S+14 to +V_S-9	GND to +V_S-9
Fixed Gain	65V/V	61.5V/V
Power Dissipation per Channel	35W	100W
Number of Channels	2	
Temperature Range, Case	0°C to +70°C	-40°C to +85°C

Block Diagram



The dual channel MP104 saves board space for inkjet printer applications that can require up to 150 drive channels.

APEX MICROTECHNOLOGY INC.
5980 N Shannon Road
Tucson, Arizona 85741 USA
T: +1.520.690.8600
F: +1.520.888.3329

SALES SUPPORT
Toll Free: +1.800.862.1032
eMail: custserv@apexanalog.com

TECHNICAL SUPPORT
Toll Free: +1.800.546.2739
eMail: apex.support@apexanalog.com

www.apexanalog.com