

42-PIN DIP PACKAGE STYLE FC

Footprint 73.4mm x 41.4mm

FEATURES

- High current 15A PEAK per channel
- High voltage operation 40V to 200V dual supply
- High gain bandwidth 230KHz
- High slew rate 167V/µs

Product Overview

MD1

15A, Dual Channel, Power Amplifier For Driving Piezo Electronics

The MP103FC is a 15A, dual-channel device that allows designers to save significant board space in multi-channel systems. The MP103FC operates on voltage supplies ranging from 30V up to 200V and features a respectable slew rate of 167V/µs. Packaging for the MP103FC is an "open frame" form factor developed for a number of Apex power operational amplifier products to offer a lower per unit cost in comparison with a hermetically sealed hybrid (see the "*Open Frame Packaging*" technology story on reverse side). One benefit of note with this open frame packaging is it can function across the full industrial temperature range -25°C to +85°C.

Typical Applications

The design goal for the MP103FC was to save board space in multi-channel systems. With its dual-channel topology, the most typical application for the MP103FC will be driving piezos in large industrial ink jet printers used to create wide format banners and billboards. Printers along this size and scale incorporate up to 150 ink jet heads with an equal number of drive channels, making the dual-channel MP103FC an excellent space-saving option.



The dual-channel MP103FC saves board space for inkjet printer applications that require up to 150 drive channels.



Open Frame Heat Sinking and Board Mounting

A heatsink can be flush mounted to the open frame module above the board to free up board space. Components can even be mounted on the board under the open frame, as well as underneath the board.

Apex Microtechnology has been an industry leader in the design and manufacturing of high power, precision analog products for more than two decades. Many Apex products have traditionally been designed as hybrids in order to achieve voltage levels up to 1200V and 50A of output current. Hybrids are known to be very reliable, but also costly. To address this cost issue, Apex re-engineered how a power component is designed and manufactured. The Apex "open frame" product technology utilizes low cost surface mount technology (SMT) to reduce per unit costs by up to 75%.

Traditional hybrid packages achieve exceptional thermal management by soldering unpackaged power transistor die to a BeO (beryllia oxide) substrate which in turn is soldered to a metal base package. In researching lower cost alternatives, Apex design engineers discovered how to create a package with a similarly low thermal resistance at a significant cost savings by soldering surface mount packaged power transistors to an insulated metal substrate (IMS). An IMS substrate consists of an aluminum metal substrate, a thin insulating layer and a copper conductive layer. Overall the substrate is similar to a standard printed circuit board but with far lower thermal resistance.

The use of SMT construction techniques generate significant cost efficiencies because they eliminate a number of costly, time consuming manufacturing steps typically found in the process intensive, labor intensive assembly of hybrid components.



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