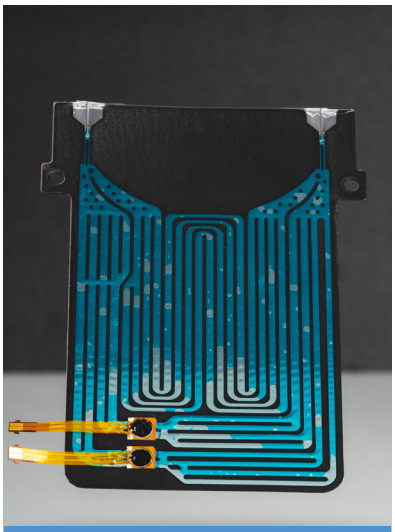
Application Brief

Active Cooling

A COOL DESIGN FOR HEAT MANAGEMENT

Boréas Technologies' piezo-driven active cooling solution brings liquid cooling to compact devices. Using a Boréas piezo driver, piezo micropump, and PET cooling film, our system actively pushes heat away from the source. This versatile approach can be custom-fitted to any device requiring thermal management - from smartphones, laptops, and AR/VR headsets to automotive displays and gaming consoles. With over 1 million units sold, our proven solution brings efficient liquid cooling to even the most space-constrained applications.



The cooling film can be customized to accommodate a wide range of device designs and form factors.

THE GROWING NEED FOR ADVANCED THERMAL MANAGEMENT

Thermal management is a critical challenge across all electronic devices, impacting both performance and user experience. While passive cooling methods have traditionally served basic needs, today's advanced applications - from foldable displays to AI-powered devices - demand more sophisticated solutions. The integration of powerful processors, including NPUs (neural processing units) and GPUs, generates significant heat that can compromise device functionality and reliability. This evolution in processing capabilities, coupled with increasingly compact form factors, makes innovative and adaptable cooling solutions essential for any device pushing the boundaries of performance.

BENDABLE

The PET film can bend over 200 000 times.

THIN

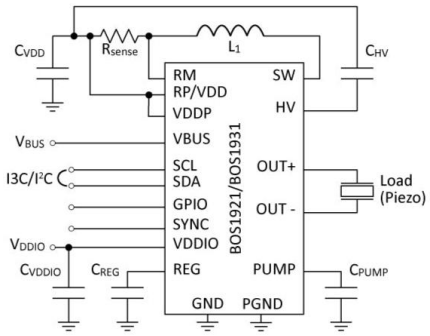
PET film thickness can go as low as 0.3 mm

LOW POWER CONSUMPTION

CapDrive technology consumes 10x less power than competiting piezo drivers

POWERED BY OUR CAPDRIVE® TECHNOLOGY: BOS1931

- High-Voltage Low Power Piezo Driver
  - Drives 100 nF at 190 Vpk-pk and 300 Hz while consuming only 350 mW
  - Drives Capacitive Load up to 820 nF
  - Energy Recovery
  - Differential Output
  - Miniature Solution Footprint, WLCSP 2.1x1.7 mm
  - Small Solution Footprint, QFN 4x4 mm
  - Low BOM cost
- Integrated Digital Front End with I3C/I2C
  - 1024 sample Internal FIFO Interface
  - 1.8V to 5.0V Digital I/O Supply
  - Waveform Synthesizer (WFS)
  - Supports Continuous Waveforms Playback
  - State Retention in SLEEP Mode
- Fast Start Up Time of Less Than 300 µs
- Multi-Actuator Synchronization
- Wide Supply Voltage Range of 3V to 5.5V



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Additional information

For further information on technologies, our products, the application of our products, terms and conditions, or prices please contact the Boréas Technologies office by visiting our website at www.boreas.ca.