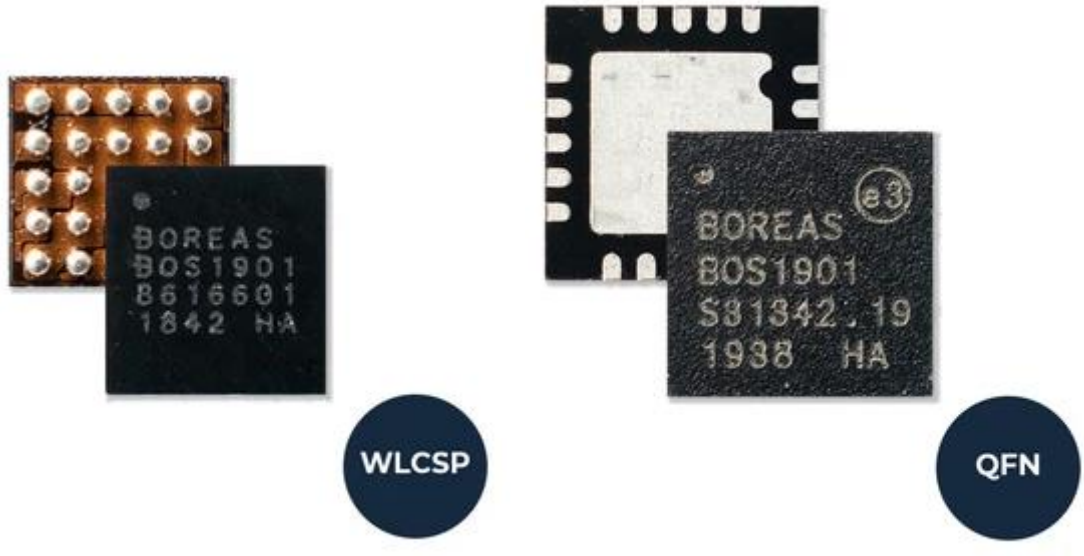
BORÉAS TECHNOLOGIES



BOS1901 Piezo Haptic Driver

Product Description

190 V_{pk-pk} Piezo Haptic Driver Powered by CapDrive™

The BOS1901 is a single-chip piezo actuator driver with energy recovery, based on our patented CapDrive™ technology. It can drive actuators with up to 190 Vpk-pk waveforms while operating from a 3-5.5 V supply voltage. The input digital stream is written in the internal FIFO over the digital interface to generate the desired output waveform. Low power and small size make it suitable in a variety of applications where power consumption and heat dissipation must be minimized.

The BOS1901 uses a high-speed SPI in its Digital Front End. It enables the device to share a common communication bus for multi-actuator systems and the user to query various data such as the actuator voltage for sensing applications.

The differential driver achieves low distortion waveforms and quiet actuator operation. All settings are adjustable through the digital front end to reduce the BOM. Only 7 passive discrete components are required. The BOS1901 can be operated with a wide selection of commercial off-the-shelf inductors.

In systems that can’t handle reverse current flow in the power delivery network, the BOS1901 features a unidirectional power input (UPI). When the UPI mode is activated, the driver behaves as a resistive load without reducing power efficiency.

Typical start-up time of less than 300 µs makes the BOS1901 latency insignificant in most systems. Safety systems protect the device from damage in case of a fault.

Parametric Specifications

Description	BOS1901
Supply Voltage Min	3.0 V
Supply Voltage Max	5.5 V
I/O Supply Voltage Min	1.62 V
I/O Supply Voltage Max	5.5 V

Full-Scale Output Voltage	190 Vpp
Quiescent Current (Sleep)	1 µA
Total Harmonic Distortion + Noise	0.5 %

Features

- High-Voltage Low Power Piezo Driver
  - Drives 100 nF at 190 V_{pk-pk} and 300 Hz with only 350 mW
  - Drives Capacitive Load up to 820 nF
  - Energy Recovery
  - Differential Output
  - Miniature Solution Footprint, WLCSP 2.1x2.2 mm
  - Small Solution Footprint, QFN 4x4 mm
  - Low BOM cost
- Integrated Digital Front End with SPI
  - 64 samples Internal FIFO Interface
  - 1.8 V to 5.0 V Digital I/O Supply
- Piezo Force Sensing
- Fast Start Up Time, < 300 µs
- Unidirectional Power Input option
- Wide Supply Voltage Range, 3 to 5.5 V

BOS1901 Technical Documentation

Document Name	Type	Size	Release Date
BOS1901 - Datasheet (English)		1.99 MB	2020-08-20
BOS1901 - Product Brief (English)		242 KB	2019-04-23
BOS1901 - Product Brief (German)(auf Deutsch)		250 KB	2019-04-23
BOS1901 - Product Brief (Korean)(한국어)		290 KB	2019-04-23
BOS1901 - Product Brief (Japanese)(日本語)		302 KB	2019-04-23
BOS1901 - Product Brief (Chinese)(简体中文)		337 KB	2019-04-23

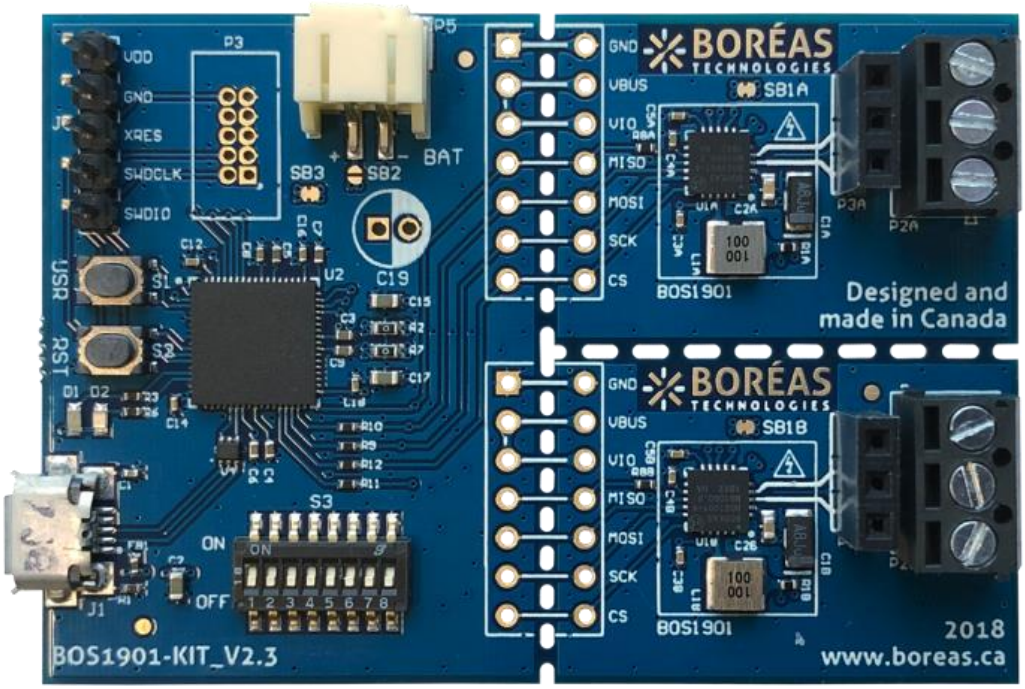
Support - BOS1901 FAQ

Take a look at the BOS1901 FAQ page

BOS1901 Application Notes

Document Name	Type	Size	Release Date
BOS1901 - Probing BOS1901 with an Oscilloscope		412 KB	2019-09-18
BOS1901 – Sensing Piezoelectric Actuator Force using BOS1901		459 KB	2019-11-25
BOS1901 – Driving Piezoelectric Actuator using BOS1901		580 KB	2020-03-11
BOS1901 – Oscillator Trimming		437 KB	2020-03-11

Design - BOS1901 Development-Kit



The BOS1901-Kit has been designed to provide a plug-and-play experience to first-time users.

Learn More on the BOS1901 Development Kit

Distributors

Digi-Key Electronics

Buy the BOS1901 on Digi-Key Electronics Website

https://www.boreas.ca/products/bos1901-piezo-haptic-driver