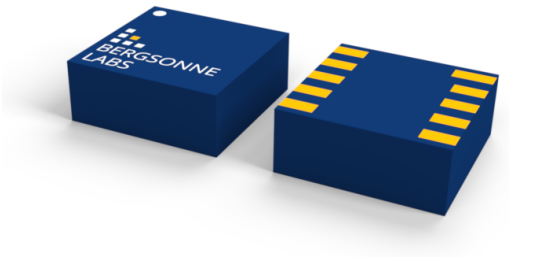
Drive.P

piezoelectric sensor/actuator driver

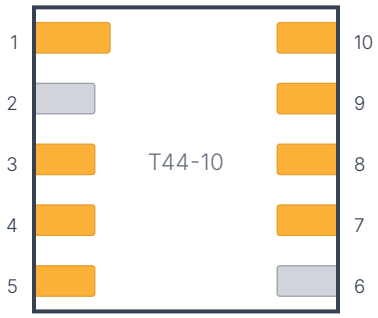
Built around the Boréas Technologies BOS1921 driver, the advanced DRIVE.P tile provides an ultra-compact, fully-integrated solution for interfacing with piezoelectric sensors and actuators. With a maximum peak-to-peak differential output amplitude of 190V, the ability to drive one or two capacitive loads up to a total of 820nF, a built-in waveform synthesizer and high-speed 1024-sample continuous-playback FIFO, as well as a sensing resolution of just 7.6mV, this tile provides an unparalleled level of integration for next-generation haptics and other piezoactuator solutions.



Overview

Revision	a
Package	T44-10
Power	1.8–5.5V (system), 3–5.5V (drive)
Component	BOS1921
Interfaces	I2C, I3C

Pad Assignments



(top view)

PAD	TYPE	FUNCTION	NOTE
1	power	GND	
3	digital	GPIO	
4	interface	I2C.CLK	when using a non-Core processor, ensure adequate external pull-up resistance.
	interface	I3C.CLK	
5	interface	I2C.DAT	when using a non-Core processor, ensure adequate external pull-up resistance.
	interface	I3C.DAT	
7	drive	OUT+	
8	drive	OUT-	
9	power	V_DRIVE	3.0-5.5V supply for the power stage
10	power	V+	1.8-5.5V

Interfaces

I2C

I2C

Mode	slave
Max Clock	1MHz
Address	0x5A (default)
Format	7-bit addr, 8-bit data

FUNCTION	REQ	PAD(S)
I2C.CLK	Yes	4
I2C.DAT	Yes	5

I3C

I3C

Mode	slave

FUNCTION	REQ	PAD(S)
I3C.CLK	Yes	4
I3C.DAT	Yes	5

Application Notes

A single piezo connected across the OUT terminals can be used for both sensing and output, including bipolar output

Two piezos can be driven by in a unipolar configuration by connecting the positive lead of each piezo to each of the OUT pads, and the negative terminals to GND. Sensing is not possible in this configuration.