

## Haptics Controller Product Brief

### Description:

The MTCH810 provides an easy way to add Haptic feedback to any button/slide capacitive touch interface. The device integrates a single-channel Haptic driver output with an industry standard I<sup>2</sup>C™ slave interface to create a simple Haptic feedback peripheral.

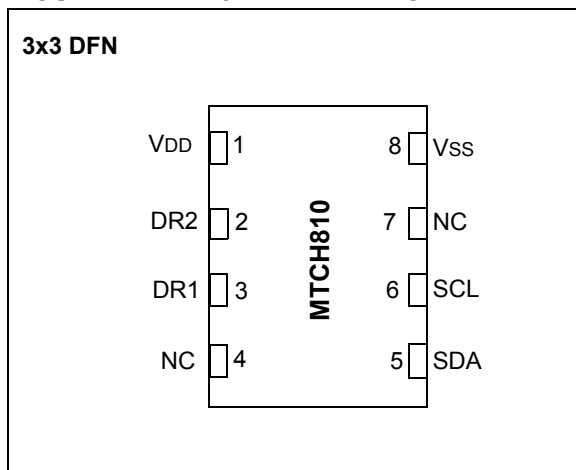
### Features:

- Internal Library of Effects:
  - 14 Haptic effect commands
  - Firmware revision query command
  - Abort Playback command
- I<sup>2</sup>C Control Interface:
  - 7-bit Addressing mode (address = 0x10)
  - Supports 100 kHz and 400 kHz transfer rate
- Wide Operating Voltage: 2.3V-5.5V
- Minimal Number of External Components
- Low-Power Consumption when Idle
- Operating Temperature: -40°C to +85°C

### Package Type:

The device is only offered in an 8-pin 3x3 DFN package.

**FIGURE 1: 8-PIN DFN DIAGRAM**



**TABLE 1: 8-PIN DFN PINOUT DESCRIPTION**

Name	8-Pin DFN	Description
VDD	1	Power supply input
DR2	2	Drive output 2
DR1	3	Drive output 1
NC	4	No connection
SDA	5	I <sup>2</sup> C™ Data
SCL	6	I <sup>2</sup> C™ Clock
NC	7	No connection
Vss	8	Ground

### Pin Description:

#### DR1

This is the non-inverting PWM Haptics drive output. It should be connected to the non-inverting input of a Haptic driver circuit designed for Eccentric Rotating Mass Actuators (ERMs).

#### DR2

It should be connected to the inverting input of a Haptic driver circuit designed for ERM Actuators.

#### SDA

This pin is the serial data connection of the I<sup>2</sup>C interface. It should be connected to the I<sup>2</sup>C master SDA signal with a 1.5K pull-up resistor to VDD.

#### SCL

This pin is the serial clock connection of the I<sup>2</sup>C interface. It should be connected to the I<sup>2</sup>C master SCL signal with a 1.5K pull-up resistor to VDD.

# MTCH810

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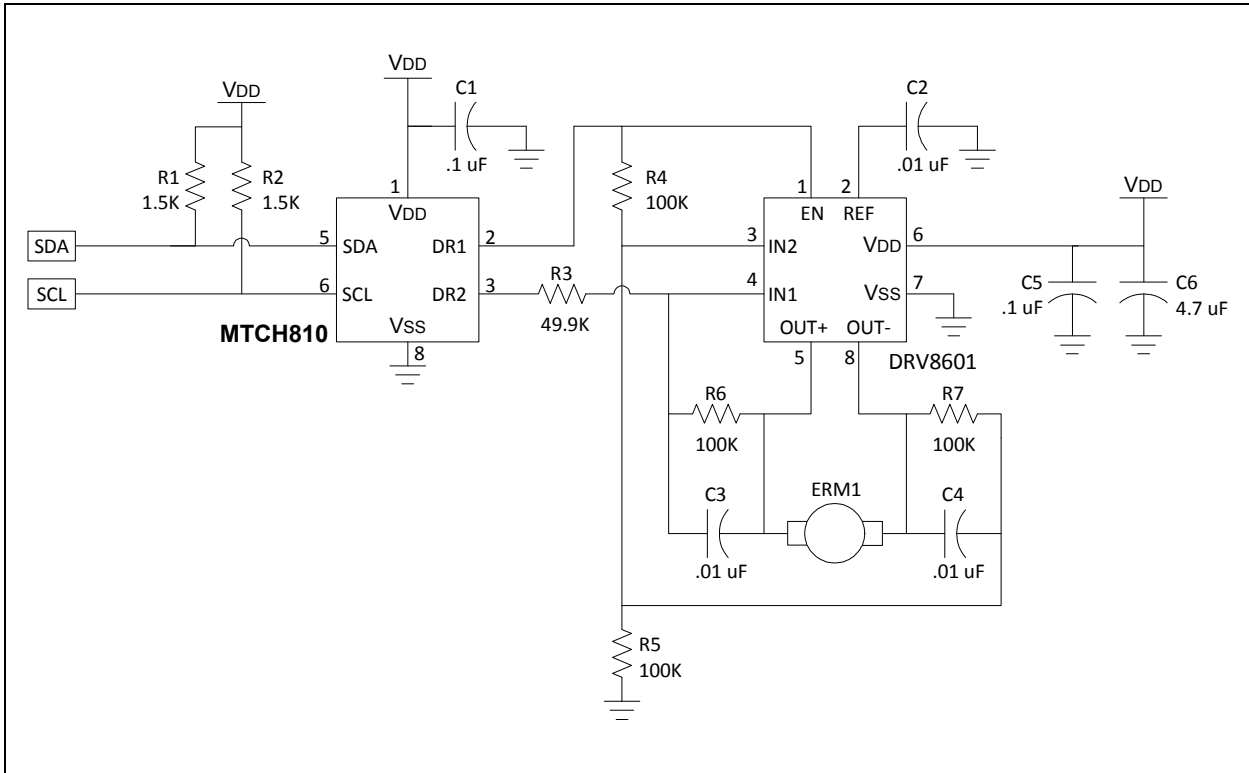
**TABLE 2: APPROVED ACTUATORS AND SPECIFICATIONS**

Actuator	Dimensions (mm)	Rated Voltage	Haptic Transient Overdrive Voltage	Impedance
Nidec NRS-3388i	4.6 ± 0.2D 15.6 ± 0.9L	1.3V ± 0.2V	3.3V	10.6Ω ± 20%
Johnson Electric 1999-1MB0037EP	6.0H x 8.0W 21.5L	4.5V	5.0V	10Ω - typical

**TABLE 3: HAPTIC COMMANDS**

Index	I <sup>2</sup> C™ Message	Haptic Effect Description
0	0x00 0x00	Strong click
1	0x01 0xFF	Med. strong click 60%
2	0x02 0xFE	Low strong click 30%
3	0x03 0xFD	Sharp click
4	0x04 0xFC	Sharp click 60%
5	0x05 0xFB	Sharp click 30%
6	0x06 0xFA	Soft bump
7	0x07 0xF9	Med. soft bump 60%
8	0x08 0xF8	Soft bump 30%
9	0x09 0xF7	Double click
10	0x0A 0xF6	Double click 60%
11	0x0B 0xF5	Triple click
12	0x0C 0xF4	Soft buzz
13	0x0D 0xF3	Strong buzz
14	0x0E 0xF2	Read effect library version number
15	0x0F 0xF1	Abort effect playback

FIGURE 2: TYPICAL SCHEMATIC



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## APPENDIX A: REVISION HISTORY

### Revision A (10/2012)

Initial release of this document.

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