Piezo Haptic Driver with Boost, Digital Front End, and Internal Waveform Memory

Check for Samples: DRV2667

FEATURES

- **Integrated Digital Front End**
  - **I^2C Bus Control up to 400 kHz**
  - **Advanced Waveform Synthesizer**
  - **2 kB Internal Waveform Memory**
  - **Internal 100 Byte FIFO Interface**
  - **Immersion TS5000 Compliant**
  - **Optional Analog Inputs**
- **High Voltage Piezo-Haptic Driver**
  - **Drives up to 100 nF at 200 V_{PP} and 300 Hz**
  - **Drives up to 150 nF at 150 V_{PP} and 300 Hz**
  - **Drives up to 330 nF at 100 V_{PP} and 300 Hz**
  - **Drives up to 680 nF at 50 V_{PP} and 300 Hz**
  - **Differential Output**
- **Integrated 105 V Boost Converter**
  - **Adjustable Boost Voltage**
  - **Adjustable Boost Current Limit**
  - **Integrated Power FET and Diode**
  - **No Transformer Required**
- **Fast Start Up Time of 2 ms (typical)**
- **Wide Supply Voltage Range of 3 V to 5.5 V**
- **1.8 V Compatible, VDD Tolerant Digital Pins**
- **Available in a 4 mm × 4 mm × 0.9 mm QFN package (RGP)**
- **Pin-Similar with DRV8662 and Pin-Compatible with DRV2665**

APPLICATIONS

- **Mobile Phones**
- **Tablets**
- **Portable Computers**
- **Keyboards and Mice**
- **Electronic Gaming**
- **Touch Enabled Devices**

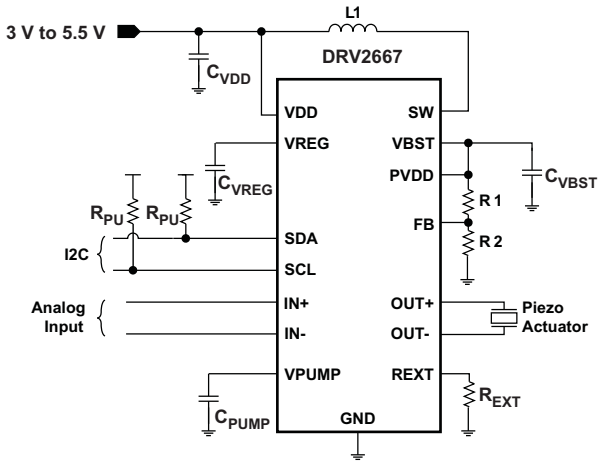
DESCRIPTION

The DRV2667 is a piezo haptic driver with integrated 105 V boost switch, integrated power diode, integrated fully-differential amplifier, and integrated digital front end. This versatile device is capable of driving both high-voltage and low-voltage piezo haptic actuators. The input signal can be driven over the I^2C port or the analog inputs.

The DRV2667 digital interface is available via an I^2C compatible bus. A digital interface relieves the costly processor burden of PWM generation or additional analog channel requirements in the host system. Any writes to the internal FIFO will automatically wake up the device and begin playing the waveform after the 2 ms internal startup procedure. When the data flow stops or the FIFO under-runs, the DRV2667 will automatically enter a pop-less shutdown procedure.

The DRV2667 also includes deep volatile waveform memory to store and recall waveforms with minimal latency as well as an advanced waveform synthesizer to construct complex haptic waveforms with minimal memory usage. This provide a means of hardware acceleration, relieving the host processor of haptic generation duties as well as minimizing bus traffic over the haptic interface.

The boost voltage is set using two external resistors, and the boost current limit is programmable via the R_{EXT} resistor. A typical start-up time of 2 ms makes the DRV2667 an ideal piezo driver for fast haptic responses. Thermal overload protection prevents the device from being damaged when overdriven.



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