

## SPINDLE/VCM SPECIFICATION

### 1. DESCRIPTION

LD7015 is a CMOS monolithic device that integrates spindle and VCM controllers as well as power stages into one chip. The device operates from 3.3V power supply. LD7015 is designed for a small-form-factor hard disk drive applications.

A precision low voltage detection circuit monitors the power supply and initiates VCM retract at voltage fault condition. A 3-line serial port interface with read back capability provides interface to the microprocessor.

The spindle driver features a transconductance amplifier, current sense amplifier, power output drivers, sequencer, internal delay/masking logic, spindle brake circuit, FLL, and charge pump for locking the spindle to the programmed rotational speed.

The VCM driver features a transconductance amplifier, differential input current sense amplifier, ramp load/unload capability, and power output amplifier.

### 2. FEATURES

#### 2.1. General

- Operates from single supply, 3.3V
- Small footprint 64-Pin TQFP package or Flip Chip
- Precision low voltage monitor circuitry for the power supply
- Master Power on Reset
- Serial Port Interface with Read-back capability
- Over-temperature protection/warning
- Shock sensor signal processing
- On-chip 1.8V, 2.5V and -3V Regulators
- Low power consumption, 9mA in normal run mode

#### 2.2. Spindle Driver

- Commutator is driven by a FLL for high immunity to jitter
- Programmable 10-bit DAC
- Adjustable slew rate control
- External startup capability
- 0.4 Amp current capability with  $R_{on} = 1.4 \Omega$
- Digital commutation delay and blanking
- Programmable delay from Bemf zero crossing
- External INDEX signal for spin lock
- Active spindle braking capability

#### 2.3. VCM Driver

- 0.4 Amp current capability with  $R_{on} = 2.2 \Omega$
- Programmable 14-bit DAC
- Ramp load/unload capability with 10-bit ADC
- Programmable VCM current controlled by sense resistor

