Silicon Systems®

A Texas Instruments Company

TLS2231

Servo-Combination Predriver

Prototype

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DESCRIPTION

The TLS2231 is a servo-combination predriver designed for use in hard-disk-drive applications. The predriver, when used in combination with the TPIC150x, can drive a voice-coil motor (VCM) and a spindle motor. Figure 1-1 is a functional block digram of the servo-combination predriver.

FEATURES

- **VOICE-COIL MOTOR PREDRIVER**
  - **Linear input control**
  - **Transconductance amplifier with class AB output (when used with TPIC150x drivers)**
  - **Saturation detection of VCM drivers**
  - **Summing amplifier**
  - **Current sense amplifier**
  - **Retract function on power loss of on software command**
  - **External set for retract voltage**
- **SUPPORT FUNCTIONS**
  - **Voltage monitor (based on 5 V and 12 V supplies)**
  - **Charge pump (24 V) for driving N-channel DMOS H-bridge drivers**
- **SPINDLE MOTOR PREDRIVER**
  - **Pulse width modulated (PWM) start and PWM current limit**
  - **Advance terminal signals commutation timing to on-chip sequencer during start mode**
  - **Current sense comparator**
  - **Low noise phase-locked loop performs commutation timing during run mode**
  - **PWM or linear run**
  - **Low-side driver transconductance amplifier for linear run mode**
  - **Dynamic brake**
  - **Power-down brake after delay**
  - **Soft switching or limited dV/dT reduces acoustic noise in linear current control mode**
  - **KELVIN_SENSE input to reduce current sense errors induced by ground level variances**

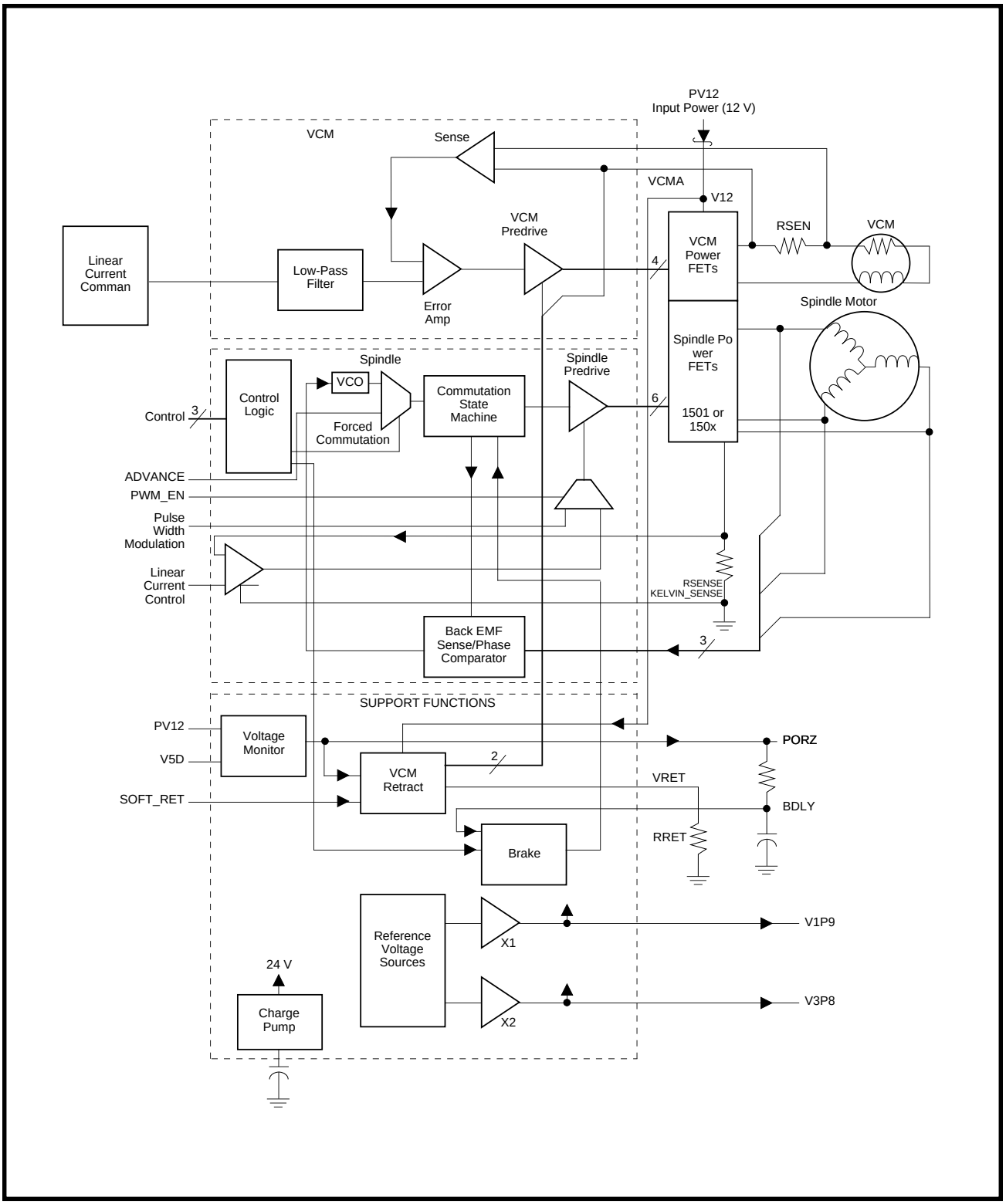

FIGURE 1-1: Functional Block Diagram