

# VC2010 High-Performance Spindle/VCM Control

## Features

### VCM Actuator Predriver

- Transconductance amplifier with selectable class B or AB mode
- 14-bit DAC for actuator current control
- Regulated 3-stage retract on voltage fault or command
- Programmable on-chip transconductance compensation reduces external component count

### Spindle Control

- Motor inductance sense mode for determination of motor start position
- Microprocessor controlled ramp-to-start speed in start mode
- Sinusoidal current mode or 6-state commutation in run mode
- Programmable wave shape for optimized acoustic performance
- Transconductance configuration in run mode, using PWM for efficiency
- Peak current-limit control in start mode, using constant off-time method
- 10-bit DAC with 4-step gain ranging
- Fast restart from partial spindown, using phase frequency comparison of BEMF
- Automatic spindle dynamic brake at programmable RPM after retract

### Serial Port Interface

- 30 MHz read/write serial port
- 3.3 V TTL compatible digital I/O, 5 V CMOS input tolerant

### Voltage Monitor, System Reset, and Auxiliary Supplies

- 5 V, 12 V, and 3.3 V undervoltage fault comparators
- Power-on reset signal output
- 3.3 V regulator with voltage margin control and current limit
- Resistor adjustable negative voltage regulator for MR preamplifiers
- Programmable output voltage switching and linear regulators with undervoltage monitoring

### Other Features

- 12-bit DAC to drive external microactuator driver
- 10-bit ADC to digitize selected internal and external signals
- Special diagnostic features for observation of on-chip signals
- Supports 3-stage constant voltage retract

### Pin Information

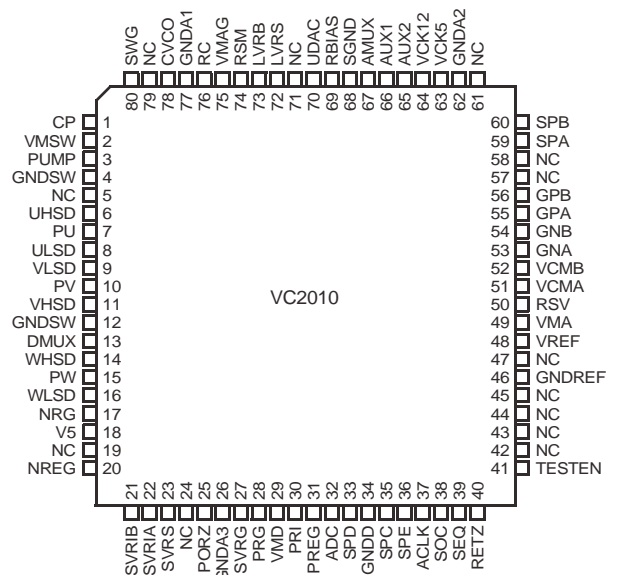
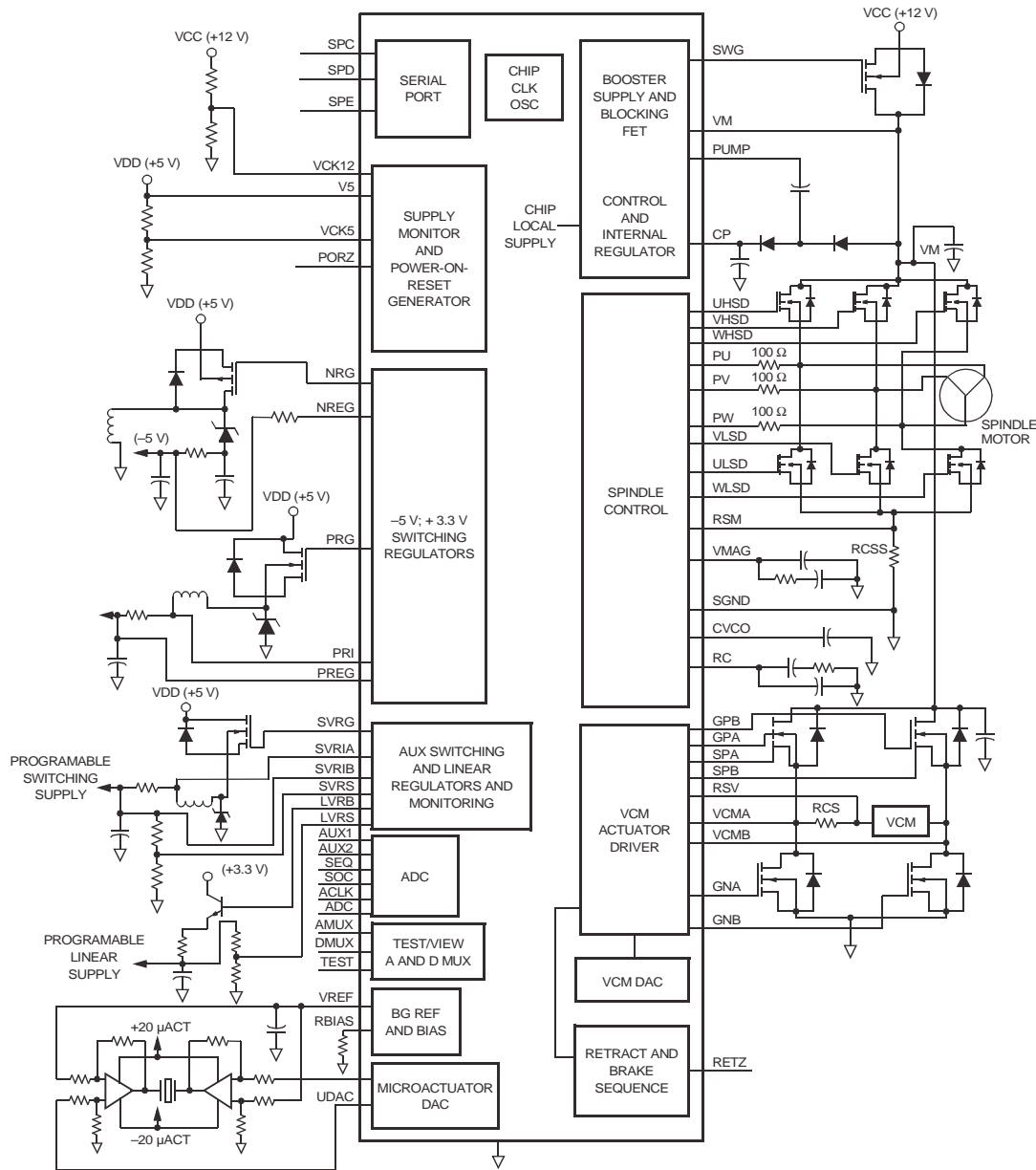


Figure 1. VC2010 Pin Diagram (80-Pin TQFP)

Block Diagram



2537 (F)

Figure 2. VC2010 Block Diagram

For additional information, contact your Agere Systems Account Manager or the following:

INTERNET: <http://www.agere.com>

E-MAIL: [docmaster@agere.com](mailto:docmaster@agere.com)

N. AMERICA: Agere Systems Inc., 555 Union Boulevard, Room 30L-15P-BA, Allentown, PA 18109-3286

1-800-372-2447, FAX 610-712-4106 (In CANADA: 1-800-553-2448, FAX 610-712-4106)

ASIA: Agere Systems Hong Kong Ltd., Suites 3201 & 3210-12, 32/F, Tower 2, The Gateway, Harbour City, Kowloon

Tel. (852) 3129-2000, FAX (852) 3129-2020

CHINA: (86) 21-5047-1212 (Shanghai), (86) 10-6522-5566 (Beijing), (86) 755-695-7224 (Shenzhen)

JAPAN: (81) 3-5421-1600 (Tokyo), KOREA: (82) 2-767-1850 (Seoul), SINGAPORE: (65) 778-8833, TAIWAN: (886) 2-2725-5858 (Taipei)

EUROPE: Tel. (44) 7000 624624, FAX (44) 1344 488 045

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