

Features

- Operates from Single Supply: 3.3V or 5V
- 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, 9 mA in Normal Run Mode
- Spindle Driver
 - Commutator is Driven by a FLL for High Immunity to Jitter
 - Programmable 10-bit DAC
 - Adjustable Slew Rate Control
 - External Startup Capability
 - 1.0A Current Capability with $R_{on} = 1\Omega$
 - Digital Commutation Delay and Blanking
 - Programmable Delay from BEMF Zero Crossing
 - External INDEX Signal for Spin Lock
 - Active Spindle Braking Capability
- VCM Driver
 - 0.4A Current Capability with $R_{on} = 1.5\Omega$
 - Programmable 14-bit DAC
 - Ramp Load/Unload Capability with 10-bit ADC
 - Power-off Retract with 9V Charge-pump
 - Programmable VCM Current Controlled by Sense Resistor
- Available in a Variety of Packages Depending on Customer Requirements

Description

The AT78C7005 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 or 5V power supply. The AT78C7005 is designed for a small-form-factor hard disk drive application.

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, a 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.



Spindle/ VCM Motor Controller/ Drivers

AT78C7005

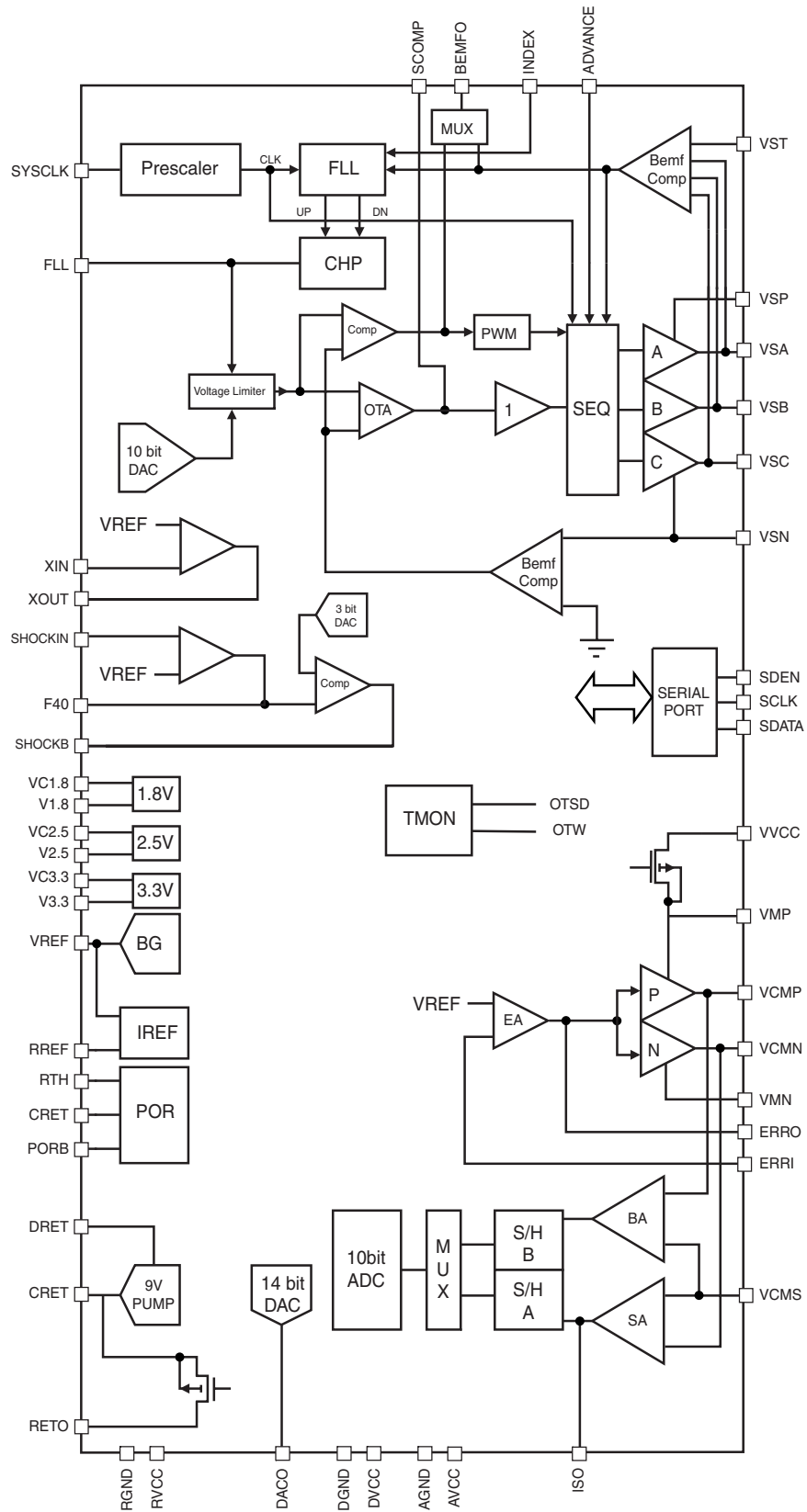
Summary

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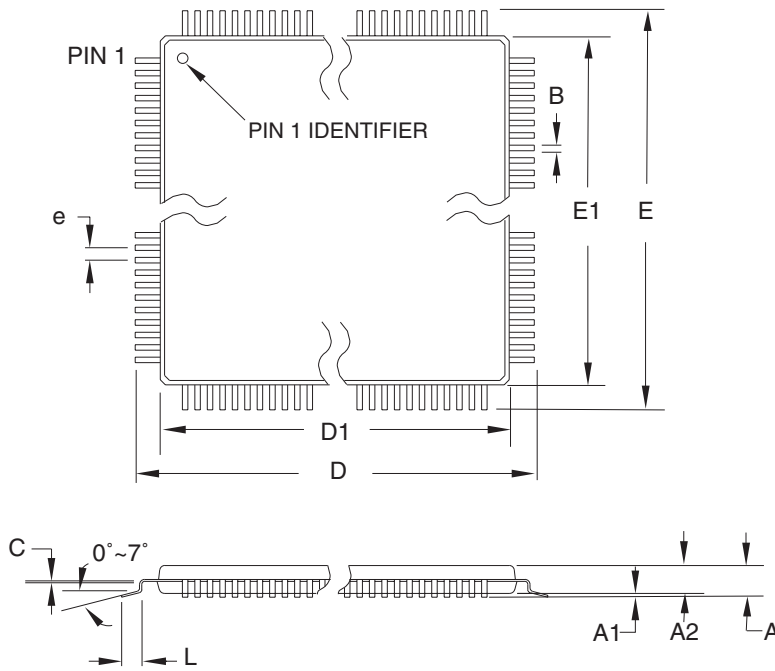
Note: This is a summary document. A complete document is available under NDA. For more information, please contact your local Atmel sales office.

Figure 1. AT78C7005 Block Diagram



Packaging Information

64A1 – TQFP




COMMON DIMENSIONS
(Unit of Measure = mm)

SYMBOL	MIN	NOM	MAX	NOTE
A	-	-	1.20	
A1	0.05	-	0.15	
A2	0.95	1.00	1.05	
D	11.75	12.00	12.25	
D1	9.90	10.00	10.10	Note 2
E	11.75	12.00	12.25	
E1	9.90	10.00	10.10	Note 2
B	0.30	-	0.45	
C	0.09	-	0.20	
L	0.45	-	0.75	
e	0.50 TYP			

- Notes:
1. This package conforms to JEDEC reference MS-026, Variation ACD.
 2. Dimensions D1 and E1 do not include mold protrusion. Allowable protrusion is 0.25 mm per side. Dimensions D1 and E1 are maximum plastic body size dimensions including mold mismatch.
 3. Lead coplanarity is 0.10 mm maximum.

4/22/2004

 2325 Orchard Parkway San Jose, CA 95131	TITLE 64A1, 64-lead, 10 x 10 mm Body Size, 1.0 mm Body Thickness, 0.5 mm Lead Pitch, Thin Profile Plastic Quad Flat Package (TQFP)	DRAWING NO. 64A1	REV. A



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