Features

- 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, 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
  - 0.4A Current Capability with R_{on} = 1.4Ω
  - 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} = 2.2Ω
  - Programmable 14-bit DAC
  - Ramp Load/Unload Capability with 10-bit ADC
  - Programmable VCM Current Controlled by Sense Resistor
- Packaging: Variety Available Depending on Customer Needs

Description

The AT78C7015 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. The AT78C7015 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

AT78C7015

Summary

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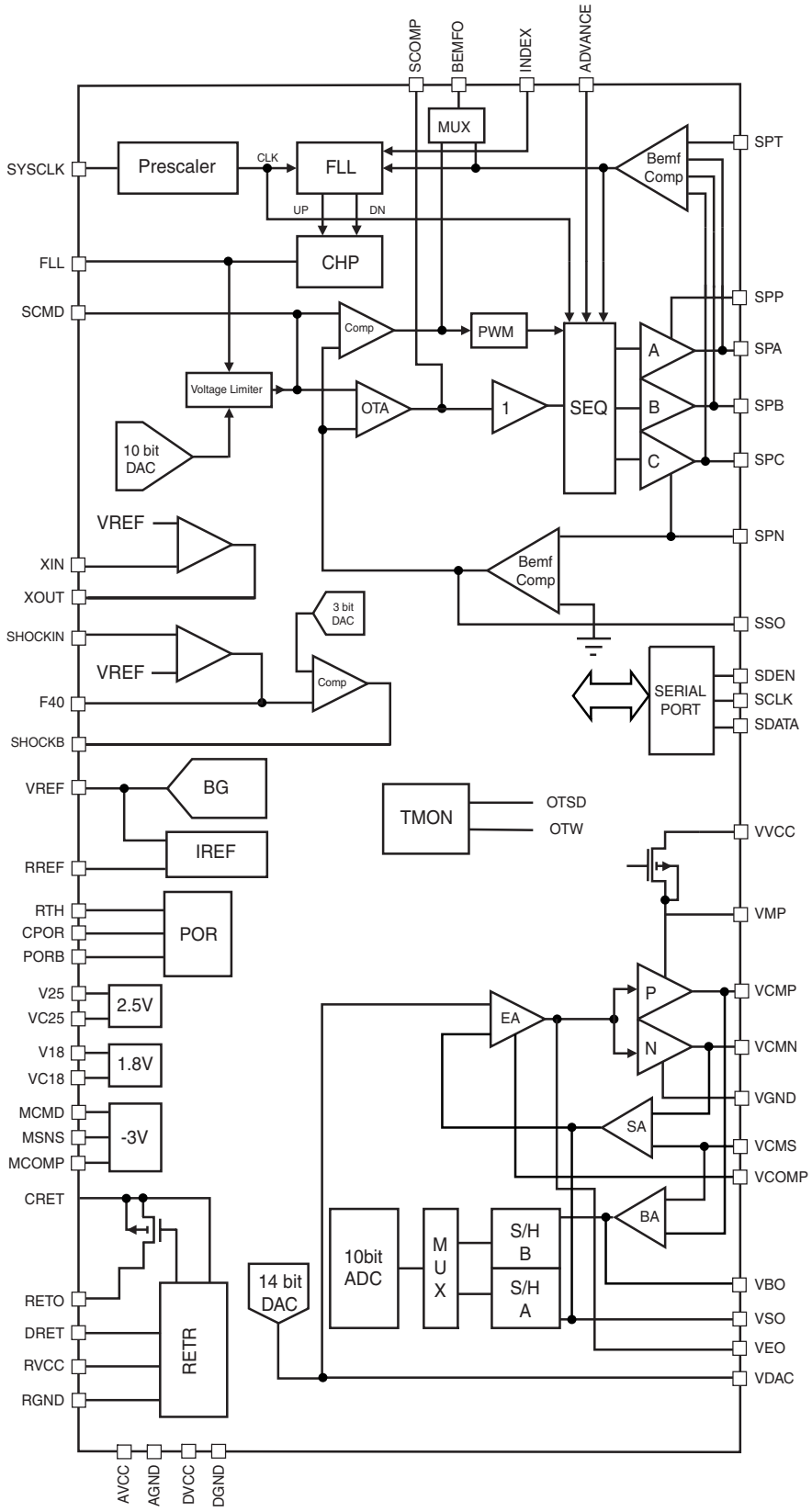
Note: This is a summary document. A complete document is available under NDA. For more information, please contact your local Atmel sales office.

AT78C7015 Block Diagram



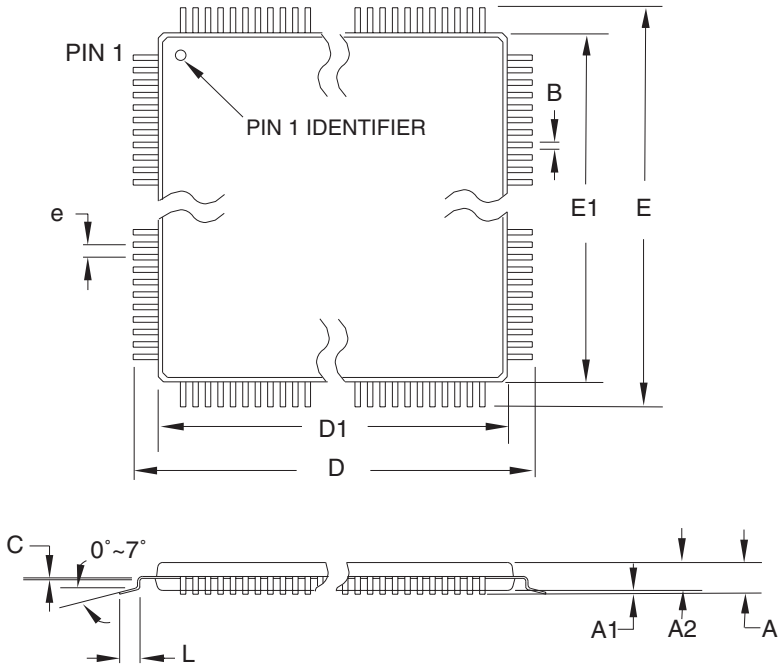
Ordering Information

Ordering Code	Package	Operation Range
AT78C7015	64A1	

Package Type	
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)

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

	TITLE	DRAWING NO.	REV.
2325 Orchard Parkway San Jose, CA 95131	**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)	64A1	A

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www.atmel.com/literature

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