81G3018

8-Channel Programmable
GMR/MR Read/Write Amplifier with Servo Write

Advanced Information Rev. 2.0

DESCRIPTION

The 81G3018 is a member of a family of integrated circuits for use with MR and GMR recording heads.

The part consists of a low noise read amplifier, a 8-channel write driver, and a programmable MR bias current source. It also supports multi-channel servo write. The 81G3018 family is implemented in sub-micron CMOS technology and requires a single +5V supply.

FEATURES

General

- Current Bias, Voltage Sense architecture
- Fast write to read recovery time (200ns typical)
- Multi-option servo bank-write capability
- Single ended input with one side grounded
- Differential read output
- Thermal asperity detection and correction
- Read/write fault detection
- Only 1 external component (resistor) required
- Single power supply (+5V)
- Serial programmable interface
- Full diagnostics through serial interface
- 48-pin TQFP package

Power Management

- Register programmable power management
- Major modes: read, write, servo, idle, and sleep
- "Zero" power during sleep mode
- Intelligent automatic power management by default in all major modes
- Forced shutdown capability for selected blocks

Read

- High bandwidth read amplifier (220MHz)
- Low MR head bias voltage (near ground)
- Wide range of programmable MR bias currents (2.1 - 15.75mA) with 0.35 mA step size
- Unselected MR heads are grounded
- Low input referred noise ($0.5nV/\sqrt{Hz}$, excluding noise from the MR resistor)
- Programmable MR read gain (135 - 324 V/V) via serial interface
- Buffered MR head voltage monitor (5X gain)
- Thermal asperity detection and correction
- Thermal asperity event counter

Write

- Fast rise / fall time (1.2ns)
- Differential PECL write data input
- Write voltage swing (9Vp-p min)
- Programmable write current (12 to 63mA base to peak) with 1.0mA step size
- Programmable damping resistor

Fault Reporting

- Thermal asperity
- Write frequency too low
- No write-head current
- Write head lead short to ground or open
- Open, or shorted MR head
- Low supply voltage

1.0 FUNCTIONAL DESCRIPTION

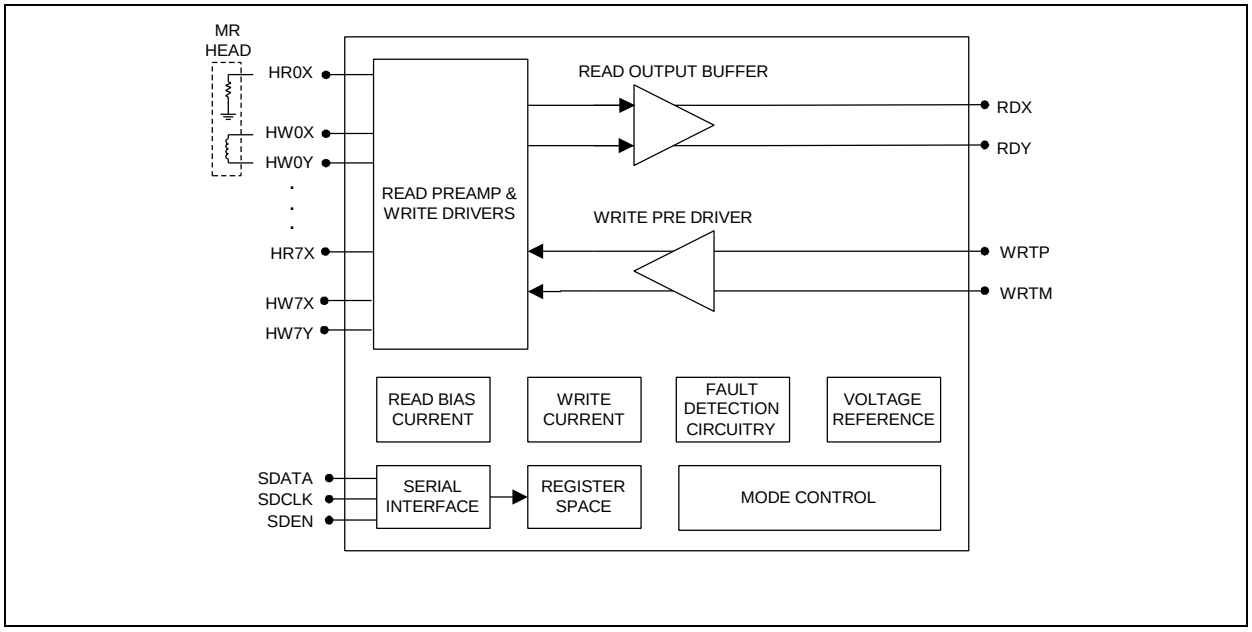

Figure 1: Functional Block Diagram

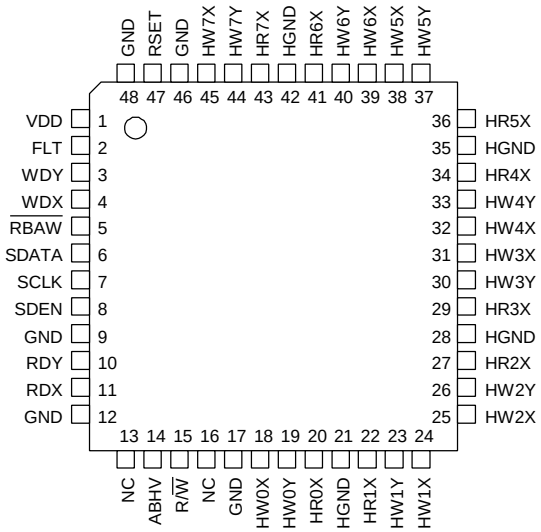

Figure 2: 81G3018 TQFP Pin Diagram