DESCRIPTION

The LD3301-1, LD3301-2 are BiCMOS devices that support a 1-channel (2-channel) GMR Preamplifier. They are designed for use with 4-terminal magneto-resistive recording heads, providing a low noise GMR head amplifier, GMR bias current control, thin film write driver, write current control, thermal asperity detection and correction. Fast recovery mode can be also programmed to put the chip faster in read mode from any other existing modes. The device is programmable for read gain, GMR resistance measurement, and thermal asperity threshold level. The device allows multiple channel write functions for servo writing. Half or all of the heads can be simultaneously selected in the servo write mode. Features and thresholds are controlled through a serial port interface. This product requires +3.3V or +5V supply voltage. Available in flip-chip or TSSOP packages.

FEATURES

- Current Bias/Current Sense Architecture
- +5V or +3.3V Supply
- 3.3V CMOS compatible Logic Interface
- Power Management
- Integrated reference resistor
- Single ended input to reader with one side grounded externally
- Differential read output

- GMR resistor range: 25Ω to 65Ω
- Programmable 5 bit GMR head bias current: $Ib = 2mA$-$9.75mA$
- Programmable gain control: 130V/V & 200V/V @ Rmr = 35Ω, Ib = 6mA
- Wide bandwidth: BW = 250 MHz at -1dB @ Rmr = 35Ω
- Programmable booster for wide bandwidth
- Equivalent input noise: $Vn = 0.8nV/\sqrt{Hz}$ @ Rmr = 35Ω
- Impedance matched differential inputs for WDX and WDY
- Programmable 5 bit write head current: Iw = 15 mA to 60 mA
- Servo Bank Write Mode
- Rise/Fall Time: 1ns@5V / 2ns@3.3V Typical (Iw = 40mA (0-p), Ltf = 50nH, Rtf = 15Ω)
- Fast recovery times: W/R = 200ns @ 5V supply, W/R= 400ns @ 3.3V supply
- Programmable write current overshoot control
- Read fault and Write fault detection
- Rmr value measurement mode
- GMR Head Open/Short and TF Head Protection
- Programmable (7 bits) thermal asperity detection threshold control and programmable thermal asperity compensation
- Serial port read back capability
- GMR ESD protection diodes on reader
- Internal capacitor