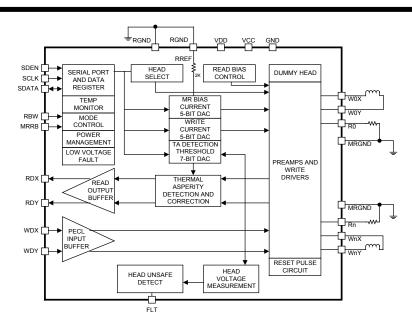## DESCRIPTION

The LD3514-XX is a BiCMOS device that supports a 1, 4, 6, and 8-channel GMR Preamplifier designed for use with 4-terminal magneto-resistive recording heads. It provides 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 +5 V and +8 V supply voltage. Available in flip-chip or TSSOP packages.

FEATURES

- Current Bias/Current Sense Architecture
- +5V and +8V Supply
- 3.3V CMOS compatible Logic Interface
- Power Management
- Internal Current Set 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: $Ib = 2mA\text{-}9.75mA$
- Programmable Gain Control: 170V/V & 225V/V @ $Rmr = 40\Omega$, $Ib = 6mA$
- Wide Bandwidth:
  $BW = 244MHz$ at -1dB @ $Rmr = 40\Omega$
  $BW = 385\ MHz$ at -3dB @ $Rmr = 40\Omega$
- Programmable Booster for Wide Bandwidth
- Equivalent Input Noise: $Vn = 0.50nV/\sqrt{Hz}$ @ $Rmr = 40\Omega$
- PSRR: -68dB at 10KHz to 162MHz; -52dB at 162MHz to 244MHz.
- Impedance matched differential inputs for WDX and WDY
- Programmable 5 bit Write Head Current: $Iw = 15\ mA$ to $60\ mA$
- Servo Bank Write Mode
- Fast Rise/Fall Time: 0.75ns Typical ($Iw = 45mA$ (0-p), $Ltf = 70nH$, $Rtf = 15\Omega$
- Fast Recovery Times: W/R = 200ns max
- Programmable independent Write current Overshoot/Undershoot 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 Available
- Serial Port Read Back Capability
- GMR pinned layer reset (PLR) pulse circuit
- GMR ESD protection diodes on all readers
- Internal capacitor