Silicon Systems®

A Texas Instruments Company

TLS24504/06/08/18/10/20

4/6/8/10-Channel Magneto Resistive/ Thin Film Read/Write Preamplifier

Preproduction

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FEATURES

- Current bias/current sense architecture
- Designed with LinIMPACT-C™ BiCMOS technology
- Operates from a single +5 V supply (±10%)
- Low power idle mode
- 4, 6, 8, and 10-channel capability
- Serial port logic control
- Single ended input to reader with one side grounded
- True differential read output
- Wide MR resistor range: Rmr = 10 Ω to 40 Ω
- Programmable MR head bias current by serial input (4 bits x 2): Ib = 6 mA to 18 mA
- Programmable gain control by serial input: - 290 V/V & 362 V/V @ Rmr = 20 Ω
- Bandwidth:
  - BW = 65 MHz at -1 dB (Rmr = 20 Ω)
  - BW = 140 MHz at -3 dB (Rmr = 20 Ω)
- Programmable booster for wide bandwidth
- Equivalent input noise: Vn = 0.55nV/√Hz @ Av = 290 V/V, Rmr = 20 Ω
- PSRR 50 dB at 25 MHz (input referred)
- Channel separation 70 dB at f = 25 MHz (input referred)
- Buffered head voltage (BHV) monitor (5 x Gain)
- PECL inputs for WDX and WDY
- Programmable write data divided-by-2 (FF) circuit available
- Programmable write head current: Iw = 15 mA to 32.5 mA (base to peak) by serial input 2.5 mA (0-p) step (3 bits)
- Output capacitance = 8.5 pF for writer
- Fast rise/fall time 3.4 ns (Iw = 25 mA (0-p), Ltf = 180 nH, Rtf = 15 Ω, Llead = 50 nH)
- All-channel servo write available
- Fast recovery times:
  - W/R = 0.8 µs typical ($\overline{IBON}$ = L)
  - R/W = 50 ns typical
- Read fault (RUS) and write fault (WUS) detection
- Programmable MR head short protection by serial input available
- Programmable MR head open protection by serial input available
- Programmable thermal asperity detection threshold control by serial input (4 bits) available
- MR bias on during write mode. Programmable on/off ($\overline{IBON}$)
- Input Control Lines:
  - R/$\overline{W}$ with internal pull-up resistor
  - $\overline{IBON}$ with internal pull-down resistor
- Plastic 30-Pin (DBT) TSSOP packages for 4-channel
- Plastic 38-Pin (DBT) TSSOP packages for 6-channel
- Plastic 44-Pin (DBT) / 48-Pin (DGG) TSSOP packages for 8-channel
- Plastic 50-Pin (DBT) / 56-Pin (DGG) TSSOP packages for 10-channel
- The device in DBT package is optimized pin out for package-on-arm application

BLOCK DIAGRAM