ANALOG DEVICES

Optical Disk Servo/Data Channel Processing Element

AD880

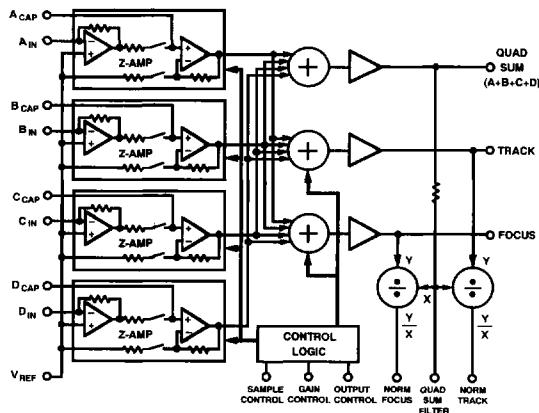## FEATURES
4 Matched Transimpedance Amplifiers
30 MHz Bandwidth
Selectable 36 kΩ/120 kΩ Transimpedance
Continuous or Sampled Servo Capability
Outputs:
  Quad Sum
  Track
  Normalized Track
  Focus
  Normalized Focus
10 MHz Normalization Dividers
Fast Write Recovery with Sampling
Low Output Noise

FUNCTIONAL BLOCK DIAGRAM

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PRODUCT DESCRIPTION

The AD880 is a monolithic integrated circuit intended for applications in the servo/read systems of an optical disk drive product.

The AD880 consists of four matched transimpedance amplifiers (A, B, C, D) with selectable 36 kΩ or 120 kΩ transimpedance. The basic transimpedance stage consists of a 10 kΩ transimpedance amplifier that drives a programmable X1 or X3.3 buffer. Each stage has been configured to minimize noise and noise peaking. To further enhance overall signal-to-noise performance an external capacitor may be added between the transimpedance amplifier and the programmable buffer to implement a first order low-pass filter.

The AD880 is stable over the full range of input source capacitances. To ensure stability and maximize available bandwidth in both transimpedance modes, the internal compensation capacitor in the programmable buffer is appropriately modified for each mode.

Fast read after write recovery is implemented through the transimpedance sample function. The "sample" function prevents the

channel from saturating during writes. The "sample capacitor" also serves the dual purpose of providing the low-pass filter.

In addition, the part contains three offset trimmed summing amplifiers with 30 MHz bandwidth. One amplifier provides the Quad-Sum output that can be low-pass filtered prior to driving the normalization dividers. Two other summing amplifiers generate the Track and Focus outputs.

- Quad Sum : $(A+B+C+D)$
- Track : $(A+D) - (B+C)$ or $(A-B)$
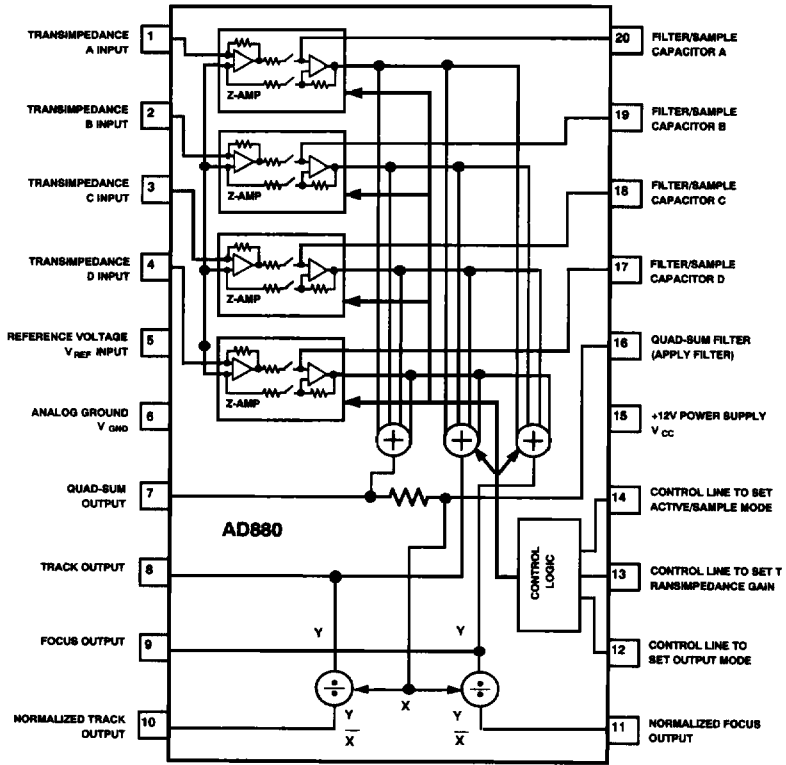- Focus : $(A+C) - (B+D)$ or $(C-D)$

The selectable outputs are programmed through a CMOS compatible control line.

Finally, a pair of two quadrant dividers are provided. These generate the normalized focus and track signals with an accuracy of 5%, and have bandwidths in excess of 10 MHz.

The AD880 is available in a 20-pin wide body SOIC package and is specified to operate over the 0°C to +70°C commercial temperature range. However, evaluation samples are available in a 20-pin side braze package.

This is an abridged version of the datasheet. To obtain a complete data sheet, contact your nearest sales office.

AD880

AD880 PIN ASSIGNMENTS

Model No.	Package Description	Package Option*
AD880JR	20-Pin Small Outline	R-20

ORDERING GUIDE

*R = Small Outline IC. For outline information see Package Information section.