



AIC-221

Hybrid VCO AIC-221-7.5 & AIC-221-5 **PRELIMINARY**

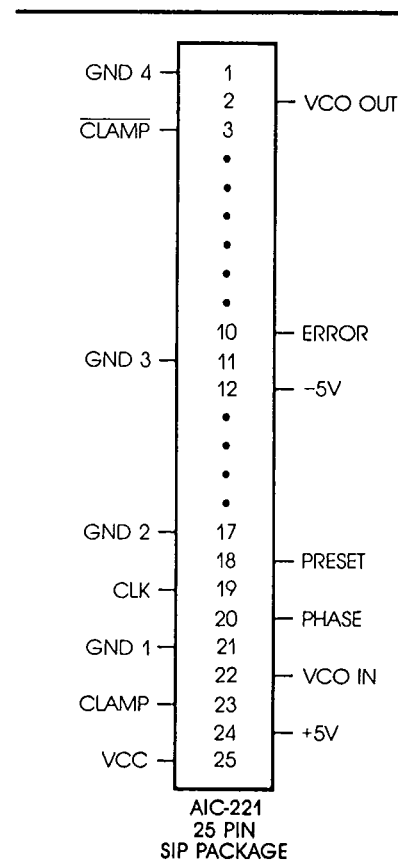
- Implements All Analog VCO Circuitry
- Significantly Reduces Component Count And Space Requirements In Hard Disk Systems
- Enables High-Performance Data Separator Design Due To Extremely Low Phase Error
- Completely Compatible With The AIC-250 And The AIC-270 Encoders/Decoders
- Eliminates All Costly Critical Adjustments
- Available In 5 MHz And 7.5 MHz Data Transfer Rate Versions
- 25-Pin SIP Package Saves Board Space And Eliminates Critical Layout Problems

DESCRIPTION

The AIC-221 is a Hybrid Voltage Controlled Oscillator (VCO) that implements all the analog portion of a disk data separator in a small 25-pin single-in-line (SIP) package. The AIC-221, along with a very simple logical data separator and a delay line, is all that is needed to implement a high-performance disk data separator.

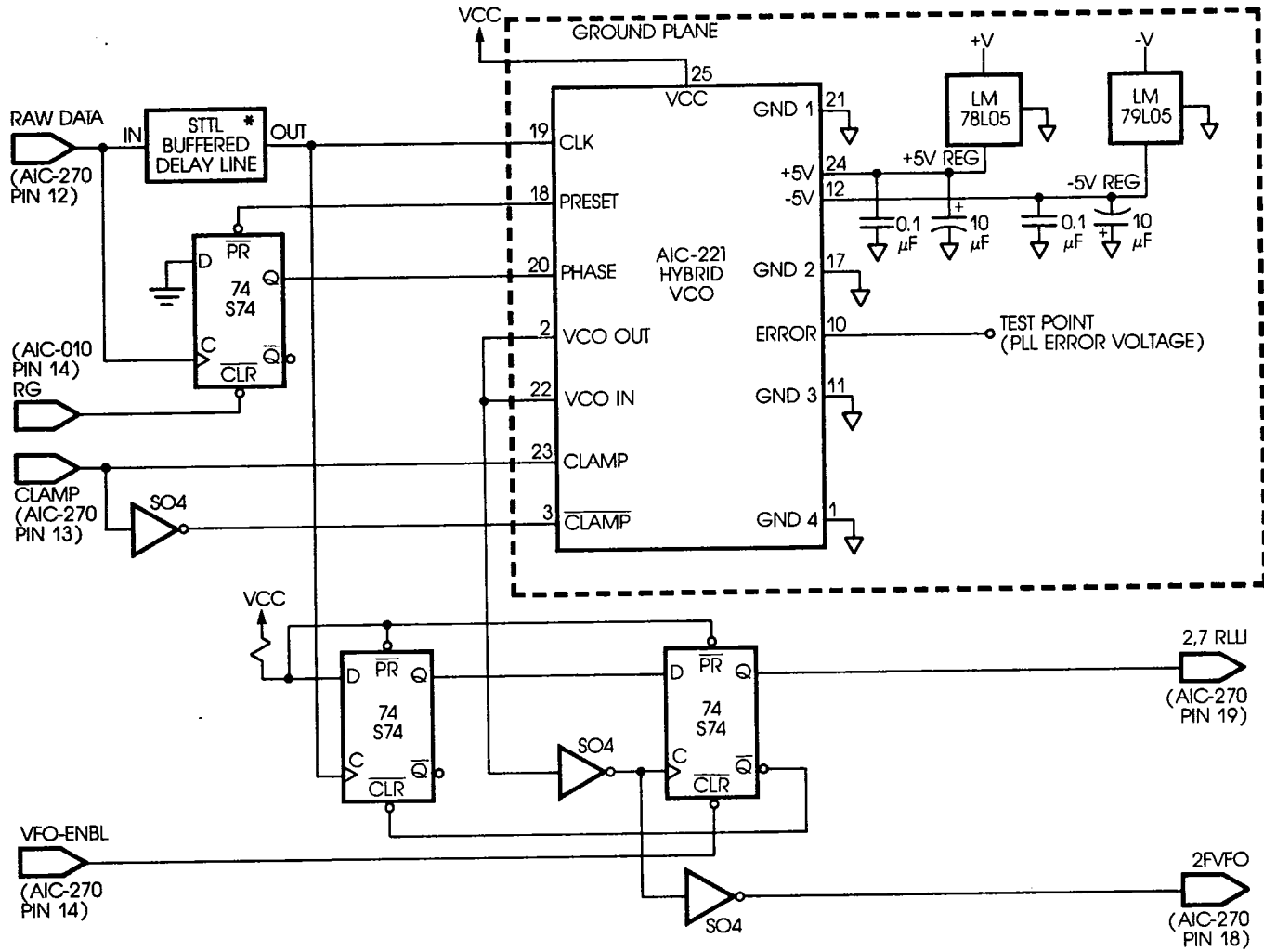
The AIC-221 works with either the AIC-250 (for MFM) or the AIC-270 (for 2,7 RLL) in converting encoded data to NRZ format data. The NRZ data along with the Read Reference Clock is then sent to the AIC-010 Programmable Storage Controller.

The AIC-221 is available in two data transfer rate versions—5 MHz (10 MHz oscillator), and 7.5 MHz (15 MHz oscillator). By implementing all the analog components in the hybrid package, the AIC-221 eliminates all critical adjustments and simplifies the task of the designer.



Hybrid VCO

TYPICAL CIRCUIT CONFIGURATION—2,7 RLL DATA



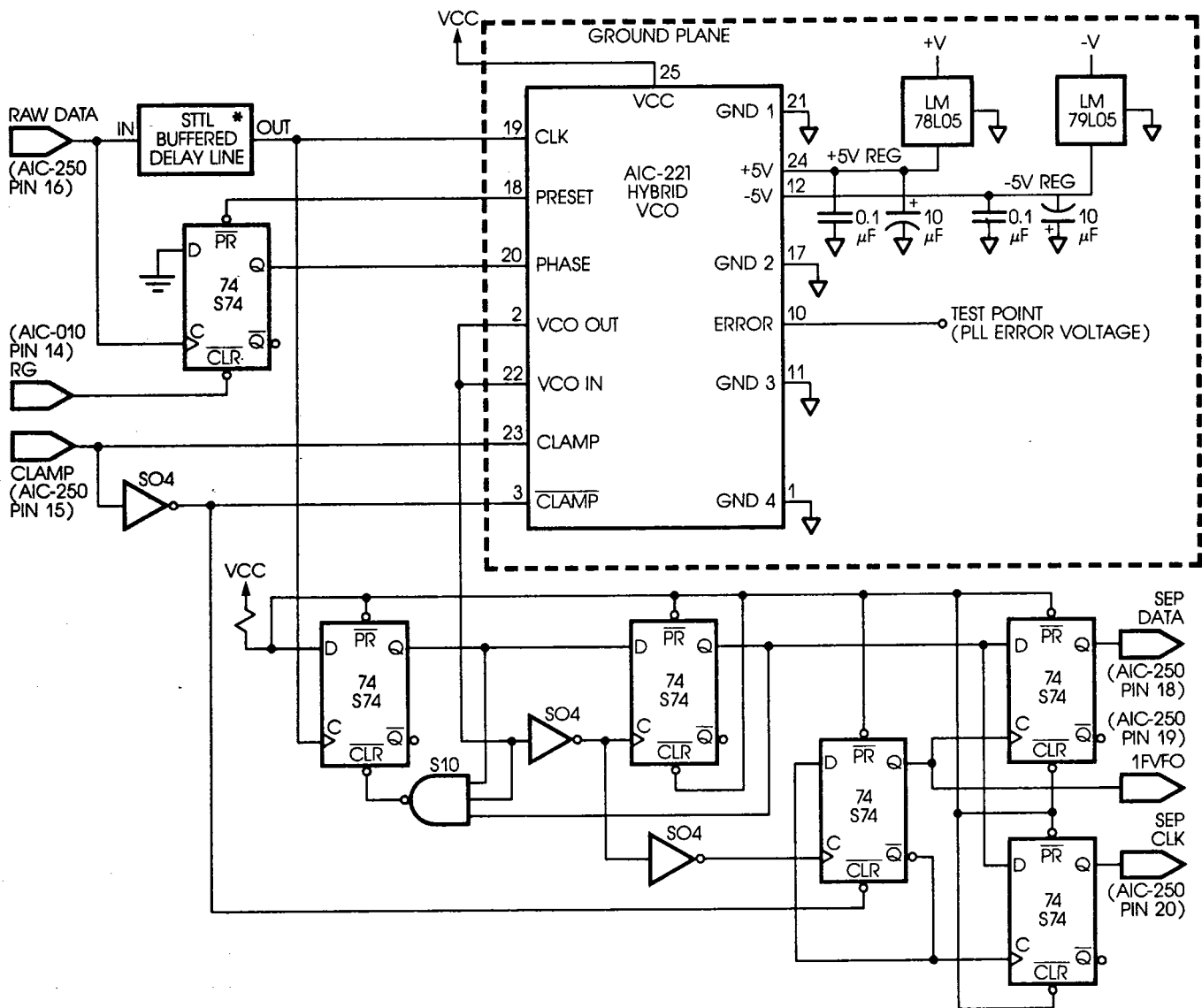
DATA RATE	PART NUMBER	*DELAY LINE VALUE
5.0 MHz	AIC-221-5	60 nsecs
7.5 MHz	AIC-221-7.5	40 nsecs

NOTE: The use of the AIC-221 Hybrid VCO in the above configuration is recommended only with the AIC-270 2,7 RLL encoder/decoder. The use of this part with other 2,7 RLL encoders/decoders is not recommended.



AIC-221

TYPICAL CIRCUIT CONFIGURATION—MFM DATA



DATA RATE

PART NUMBER

*DELAY LINE VALUE

5.0 MHz
7.5 MHz

AIC-221-5
AIC-221-7.5

60 nsecs
40 nsecs

NOTE: The use of the AIC-221 Hybrid VCO in the above configuration is recommended only with the AIC-250 MFM encoder/decoder. The use of this part with other MFM encoders/decoders is not recommended.

ABSOLUTE MAXIMUM RATINGS

Operating Free Air Temperature Range	0°C to 70°C
Storage Temperature Range	-30°C to 80°C
Power Supply Voltage (VCC)	7.0 Volts
Input Voltages	5.0 Volts

NOTE: Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

POWER SUPPLY REQUIREMENTS

PIN	DESCRIPTION	RANGE	CURRENT	COMMENT
25	Vcc	4.75 to 5.25 Volts	45 mA	Digital +5 Volts
24	+5 Volts	4.75 to 5.25 Volts	70 mA	Separately Regulated
12	-5 Volts	-5.25 to -4.75 Volts	45 mA	Separately Regulated

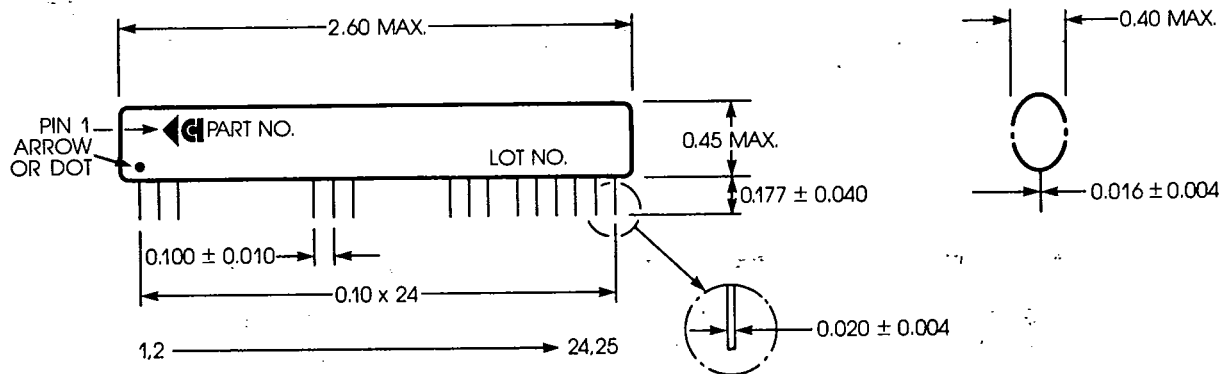
LAYOUT CONSIDERATIONS

An analog ground plane is recommended for the grounds of the HVCO and the +5 volt and -5 volt regulators. The regulated supplies should not be used by any circuitry other than the HVCO. The analog ground plane

should have a single-point-contact to digital ground as near as possible to the grounds of the following:
Buffered delay line, phase detector enable flip-flop driving PHASE input,

and 74S04 driven by VCO-OUT output. The remaining digital components should be grounded as near as possible to the ground single-point-contact.

OUTLINE DIMENSIONS (IN INCHES)



COATING: Black or green-colored synthetic resin (by dipping process).

MARKING: White on black, or black on green.

NC pins 4, 5, 6, 7, 8, 9, 13, 14, 15, and 16 are deleted.

NOTE: Part No. and Lot No. may appear on either side of the SIP.