ABSOLUTE MAXIMUM RATINGS

Power Supplies, Pins 9-19	±6V
Analog Input Voltage, Pin 22	±5V
Sample Inputs, Pins 1 & 3	±5V Differential
Current, Pins 6, 7, 20, 23,	50 mA

FUNCTIONAL SPECIFICATIONS

Typical at 25°C, ±15V and ±5V supplies with external LH0033 Buffer Amplifier unless otherwise noted.

INPUTS	
Input Voltage Range, Min.	±2.5V
Input Bias Current	25 μA
Maximum Source Impedance	51 Ohms
Input Impedance	10^6 Ohms
Sample Control Inputs[4]	Differential ECL 10,000 Positive Pulse on Pin 1 and Negative Pulse on Pin 3 gives Sample Mode
OUTPUT[1]	
Output Voltage Range, Min.	±2.5V
Output Current	±10 mA
Output Impedance	6 Ohms
PERFORMANCE	
Accuracy	0.1%
Gain	+0.995
Output Offset Voltage[2], Sample Mode	±100 mV max.
Output Offset Voltage Drift	±100 μV/°C max.
Sample to Hold Offset Error	±100 mV max.
Hold Mode Droop	50 μV/μsec.
Hold Mode Feedthrough	0.02%
DYNAMIC RESPONSE	
Acquisition Time, 5V Step to 0.2%	25 nsec.
Bandwidth, −3 dB, Sample Mode	50 MHz
Slew Rate	200V/μsec.
Aperture Delay Time	6 nsec.
Aperture Uncertainty Time	10 psec.
POWER REQUIREMENTS[3]	
Power Supply Voltage	±15V dc ±0.75V at 60 mA ±5V dc ±0.25V at 70 mA
PHYSICAL/ENVIRONMENTAL	
Operating Temperature Ranges	
SHM-HUMC	0 to +70°C
SHM-HUMM	−55 to +100°C
Storage Temperature Range	−65 to +150°C
Package Type	24 Pin Ceramic
Pins	0.010 x 0.018 inch Kovar
Weight	0.2 ounces (6 grams)

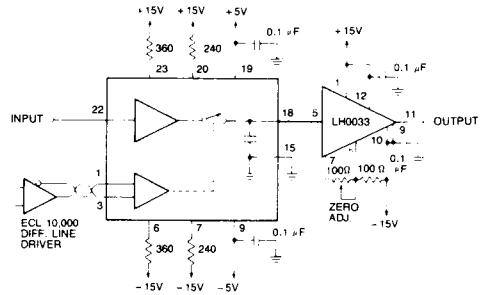
FOOTNOTES:

1. Output is from LH0033 amplifier and is not short circuit proof.
2. Output offset voltage adjustable to zero by LH0033 offset adjustment.
3. ±12V supplies can be used if the 360 ohm resistors at the Bias 1 pins are changed to 240 ohms and the 240 ohm resistors at the Bias 2 pins are changed to 160 ohms.
4. The SHM-HU can be driven by TTL logic input by biasing $\overline{\text{SAMPLE}}$ CONTROL input to +1.2V and driving the SAMPLE CONTROL with a positive pulse for sampling mode.

TECHNICAL NOTES

1. It is recommended that the ±5V supplies of the SHM-HU be bypassed with 0.1 μF ceramic capacitors as close as possible to pins 9 and 19. The ±15V supplies to the LH0033 should be bypassed with the same value capacitors.
2. It is essential that the output lead from pin 18 to pin 5 of the LH0033 be kept as short and direct as possible. Also, the complementary ECL driver should be as close as possible to pins 1 and 3 to minimize lead lengths to these pins.
3. With model SHM-HUMC the LH0033C should be used, and with model SHM-HUMM, model LH0033 should be used.
4. An external hold capacitor may be added from pin 18 to pin 15. This capacitor should be an MOS or polystyrene type. Hold mode Droop and sample-to-hold offset error will decrease proportionately with the size of this capacitor and acquisition time will increase proportionately.

CONNECTION DIAGRAM



ORDERING INFORMATION

MODEL NO.	OPERATING TEMP. RANGE
SHM-HUMC	0 to +70 °C
SHM-HUMM	-55 to +100 °C
SHM-HUMM-QL	-55 to +100 °C