LM13700 Dual Operational Transconductance Amplifiers With Linearizing Diodes and Buffers

1 Features

- g_m Adjustable Over 6 Decades
- Excellent g_m Linearity
- Excellent Matching Between Amplifiers
- Linearizing Diodes for reduced output distortion
- High Impedance Buffers
- High Output Signal-to-Noise Ratio

2 Applications

- Current-Controlled Amplifiers
- Stereo Audio Amplifiers
- Current-Controlled Impedances
- Current-Controlled Filters
- Current-Controlled Oscillators
- Multiplexers
- Timers
- Sample-and-Hold Circuits

3 Description

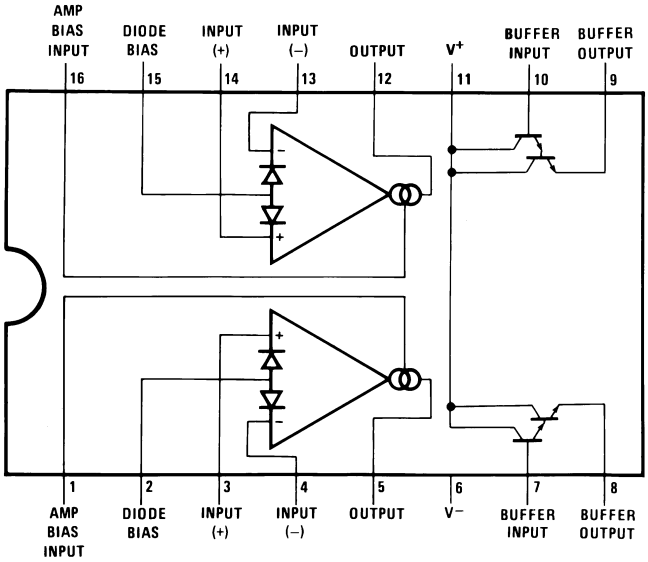
The LM13700 series consists of two current-controlled transconductance amplifiers, each with differential inputs and a push-pull output. The two amplifiers share common supplies but otherwise operate independently. Linearizing diodes are provided at the inputs to reduce distortion and allow higher input levels. The result is a 10-dB signal-to-noise improvement referenced to 0.5 percent THD. High impedance buffers are provided which are especially designed to complement the dynamic range of the amplifiers. The output buffers of the LM13700 differ from those of the LM13600 in that their input bias currents (and thus their output DC levels) are independent of I_{ABC}. This may result in performance superior to that of the LM13600 in audio applications.

Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
LM13700	SOIC (16)	3.91 mm × 9.90 mm
	PDIP (16)	6.35 mm × 19.304 mm

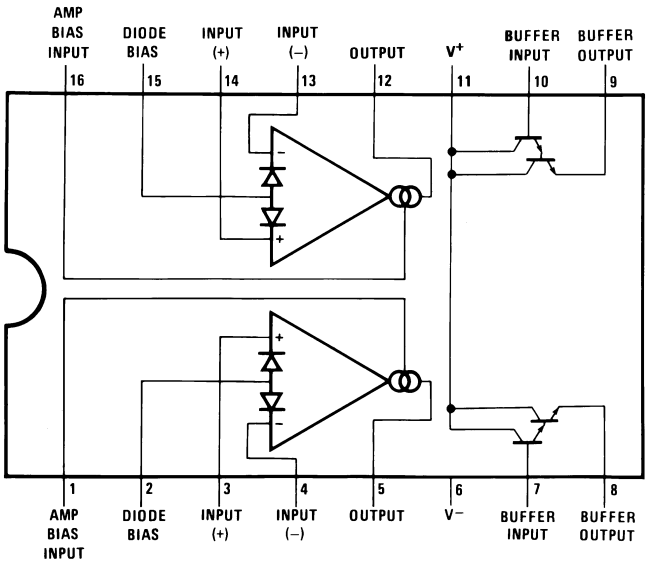
(1) For all available packages, see the orderable addendum at the end of the data sheet.

Connection Diagram



5 Pin Configuration and Functions

D or NFG Package
16-Pin SOIC or PDIP
Top View



Pin Functions

PIN		I/O	DESCRIPTION
NAME	NO.		
Amp bias input	1, 16	A	Current bias input
Buffer input	7, 10	A	Buffer amplifier input
Buffer output	8, 9	A	Buffer amplifier output
Diode bias	2, 15	A	Linearizing diode bias input
Input+	3, 14	A	Positive input
Input–	4, 13	A	Negative input
Output	5, 12	A	Unbuffered output
V^+	11	P	Positive power supply
V^-	6	P	Negative power supply