élantec
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

EHOS-200
200MHz Buffer Amplifier

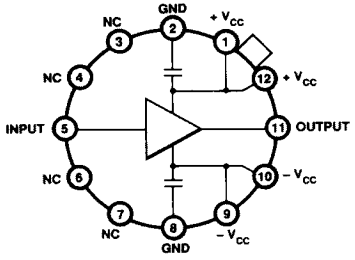
Features
- 200MHz bandwidth
- 1500V/μs slew rate
- Low quiescent power
- 100mA output current
- Internal bypass capacitors

Applications
- Current booster
- Cable/line driver
- A/D input buffer
- Isolation buffer

Ordering Information

Part No.	Temp. Range	Pkg.	Outline#
EHOS-200AH	-25 to +85°C	TO-8	MDP0002
EHOS-200AH/E+	-25 to +85°C	TO-8	MDP0002
EHOS-200SH	-55 to +125°C	TO-8	MDP0002
EHOS-200SH/883B	-55 to +125°C	TO-8	MDP0002

Connection Diagram



NC = NO CONNECTION

(Top View)

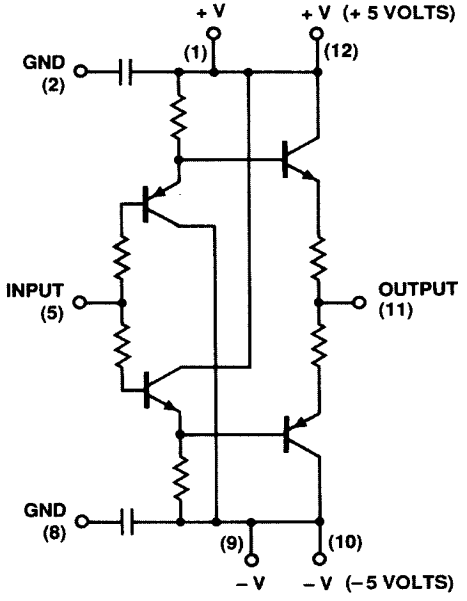
General Description

The EHOS-200 is a unity gain, high slew rate, high output current, bipolar buffer amplifier. The EHOS-200 has a -3dB bandwidth of 200MHz, and can deliver 100mA into a load. It operates from ±15V power supplies. For optimal AC performance, two 0.01μF power supply bypass capacitors are included in this device.

This high speed buffer may be used in a wide variety of applications in military, video and medical systems. Typical examples include coaxial cable drivers and A/D converter input buffers. The EHOS-200 is available in a 12-pin TO-8 metal can package.

Elantec's products and facilities comply with MIL-STD-883 Revision C, MIL-STD-1772, MIL-I-45208A, and other applicable quality specifications. For information on Elantec's military processing, see the Elantec document, QRA-3: *Elantec's 883B Program for Hybrid Integrated Circuits.*

Equivalent Schematic



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Absolute Maximum Ratings

	Voltage Between V+ and V−	16V
	Internal Power Disssipation (See Curves)	1.5W
	Output Current, Continuous	100mA
	Output Current, Peak	250mA
	Input Voltage	$\pm V_S$
T_A	Operating Temperature Range:	
	EHOS-200AH	−25°C to +85°C
	EHOS-200SH	−55°C to +125°C
	Operating Junction Temperature	+175°C
T_{ST}	Storage Temperature	−65°C to +150°C
	Lead Temperature (soldering, 10 seconds)	+300°C

Important Note: All parameters having Min./Max. specifications are guaranteed. The Test Level column indicates the specific device testing actually performed during production and Quality Assurance inspection. Elantec performs most electrical tests using modern high-speed automatic test equipment, specifically the LTX 77 Series system. Unless otherwise noted, all tests are pulsed tests, therefore $T_J = T_C = T_A$.

Test Level	Test Procedure
I	100% production tested and QA sample tested per QA test plan QCX0002.
II	100% production tested at $T_A = 25°C$, and QA sample tested at $T_A = 25°C$, T_{MAX} and T_{MIN} per QA test plan QCX0002.
III	QA sample tested per QA test plan QCX0002.
IV	Parameter is guaranteed (but not tested) by Design and Characterization Data.
V	Parameter is typical value at $T_A = 25°C$ for information purposes only.

DC Electrical Characteristics

$V_S = \pm 5V$, $R_S = 50\Omega$, $T_A = T_{MIN}$ to T_{MAX}, unless otherwise specified.
FULL Temp. = >EHOS-200AH = −25°C to +85°C; EHOS-200SH = −55°C to +125°C

	Parameter	Test Conditions	Temp	EHOS-200SH Min.	Typ.	Max.	Test Level	EHOS-200AH Min.	Typ.	Max.	Test Level	Units
I_{IN}	Input Bias Current	$V_{IN} = 0V$; $R_S = 10k\Omega$	+25°C		8	20	I		8	25	I	μA
			T_{MIN}			30	I			40	III	μA
			T_{MAX}			20	I			40	III	μA
R_{IN}	Input Impedance	$V_{IN} = 1V_{RMS}$; f = 1kHz $R_L = 1k\Omega$	+25°C	40	70		I	40	70		I	kΩ
			FULL	20			I	20			III	kΩ
A_{V1}	Voltage Gain	$V_{IN} = \pm 1V$; $R_L = 1k\Omega$	+25°C	0.975	0.985		I	0.975	0.985		I	V/V
			FULL	0.975			I	0.975			III	V/V
A_{V2}	Voltage Gain	$V_{IN} = \pm 1V$; $R_L = 100\Omega$	+25°C	0.90	0.915		I	0.90	0.915		I	V/V
			FULL	0.90			I	0.90			III	V/V
V_{OS}	Output Offset Voltage		+25°C		10	15	I		12	25	I	mV
			T_{MIN}			18	I			40	III	mV
			T_{MAX}			15	I			40	III	mV
$\Delta V_{OS}/\Delta T$	Output Offset Voltage TC		FULL		25		V		25		V	μV/°C
R_{OUT}	Output Impedance	$V_{IN} = 1V_{RMS}$; f = 1kHz; $R_S = 500\Omega$; $R_L = 1k\Omega$	FULL		8	12	I		8	12	II	Ω
V_{OUT}	Output Voltage Swing	$R_S = 500\Omega$; $R_L = 1k\Omega$	+25°C	±4.0	±4.25		I	±4.0	±4.25		I	V
			T_{MIN}	±3.75			I	±3.75			III	V
			T_{MAX}	±4.0			I	±4.0			III	V

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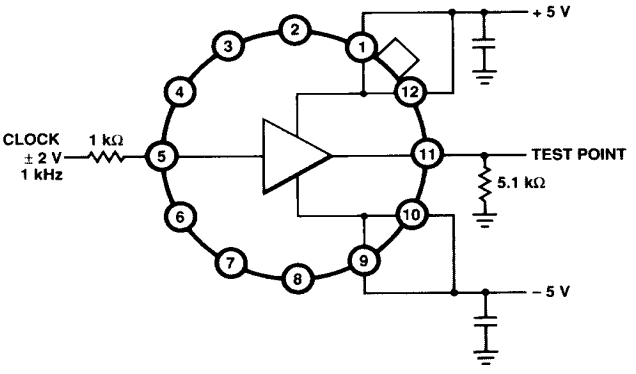
FULL Temp. = >EHOS-200AH = −25°C to +85°C; EHOS-200SH = −55°C to +125°C

	Parameter	Test Conditions	Temp	EHOS-200SH Min.	Typ.	Max.	Test Level	EHOS-200AH Min.	Typ.	Max.	Test Level	Units
I_{OUT}	Output Current	$V_{OUT} = 0\,V$	+25°C	±100			I	±100			I	mA
			FULL	±100			I	±100			III	mA
I_S	Supply Current	$V_{IN} = 0\,V$	+25°C		12	16	I		12	16	I	mA
			T_{MIN}			16	I			20mA	III	mA
			T_{MAX}			20	I			20	III	mA
P_C	Power Consumption	$V_{IN} = 0\,V$	+25°C		120	160	I		120	160	I	mW
			T_{MIN}			160	I			200mW	III	mW
			T_{MAX}			200	I			200	III	mW
P_{SRR}	Power Supply Rejection Ratio	$\Delta V_S = \pm 2.5\,V$	+25°C	40	45		I	40	45		I	dB
			FULL	40			I	40			III	dB

AC Electrical Characteristics
$V_S = \pm 5.0\,V$, $R_S = 50\,\Omega$, $R_L = 1\,k\Omega$, $T_A = +25°C$, unless otherwise specified.

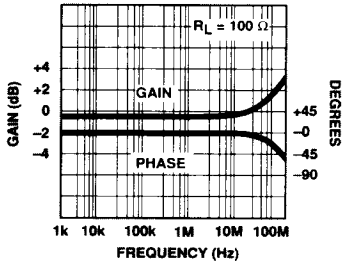
	Parameter	Test Conditions	EHOS-200SH Min.	Typ.	Max.	Test Level	EHOS-200AH Min.	Typ.	Max.	Test Level	Units
S_R	Slew Rate	$V_{IN} = \pm 2.5\,V$, measured at $V_{OUT} = \pm 1.25\,V$	1000	1500		III	1000	1500		III	V/μSec
BW	Bandwidth	$V_{IN} = 1\,V_{RMS}$		200		V		200		V	MHz
t_r	Rise Time	$\Delta V_{IN} = 0.5\,V$		1.5		V		1.5		V	ns
t_d	Propagation Delay	$\Delta V_{IN} = 0.5\,V$		1.5		V		1.5		V	ns
P_N	Phase Nonlinearity	BW = 1 to 20 MHz		2		V		2		V	°
HD	Harmonic Distortion			<0.1		V		<0.1		V	%

Burn-In Circuit

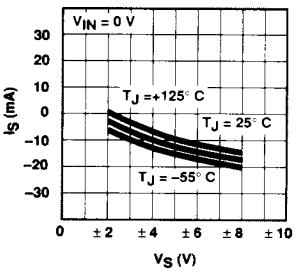


Typical Performance Curves

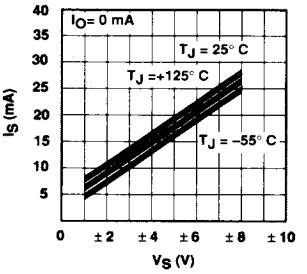
Phase and Gain vs Frequency



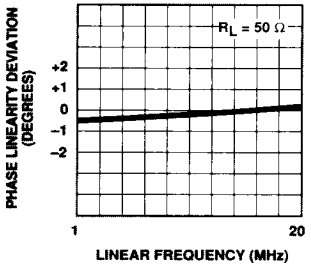
Input Current vs Supply Voltage



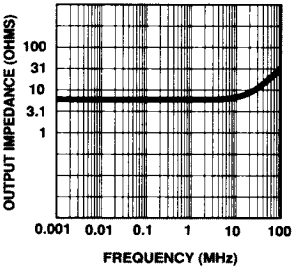
Quiescent Current vs Supply Voltage



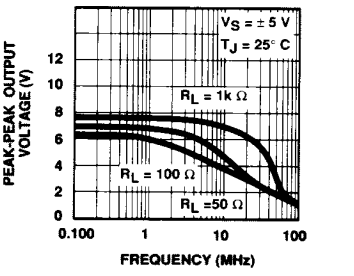
Deviation from Linear Phase



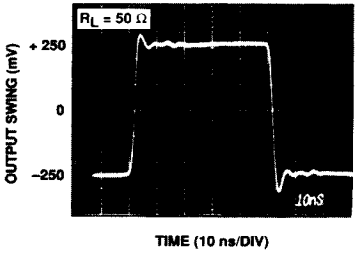
Output Impedance vs Frequency



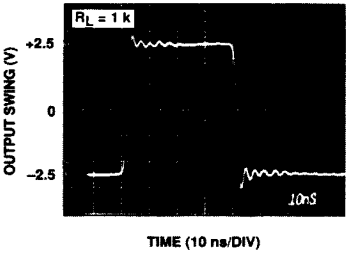
Maximum Undistortion Output Voltage vs Frequency



Small Signal Response



Large Signal Response



Maximum Power Dissipation