ALPHA
SEMICONDUCTOR
Excellence in Analog Power Products

LH0032/LH0032C

Ultra Fast FET-Input Operational Amplifier

FEATURES

- 500V/μs Slew Rate
- 70MHz Bandwidth
- $10^{12}\Omega$ Input Impedance
- As Low as 2mV Max Input Offset Voltage
- FET Input
- Offset Null with Single Pot
- No Compensation for Gains above 50
- Peak Output Current to 100mA

PRODUCT DESCRIPTION

The ALPHA Semiconductor LH0032 is a FET input, high slew rate amplifier capable of driving up to 100mA current.

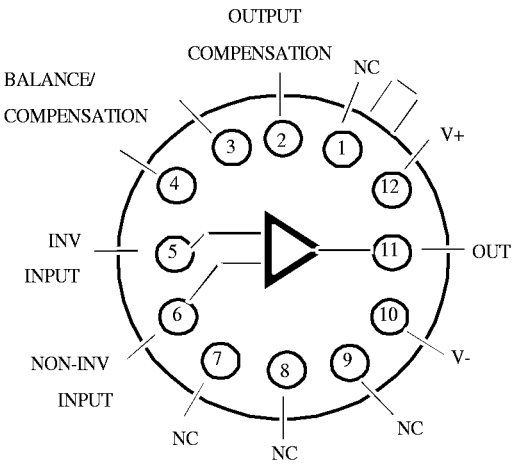
With wide bandwidth, high slew rate, high input impedance and high current drive capability, LH0032 is an ideal choice for many applications that includes high speed integrator, video amplifier, summing amplifier, high speed D/A converters, etc.

ORDERING INFORMATION

PART #	PACKAGE TYPE	TEMPERATURE RANGE
LH0032G	H12A (T08-12 Lead)	-55°C to +125°C
LH0032CG	H12A (T08-12 Lead)	-25°C to +85°C

PIN CONNECTIONS

LH0032



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ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V_S ..... ±18V
Input Voltage, V_{IN} ..... ±V_S
Input Voltage..... (Equal to Power Supply Voltage)
Differential Input Voltage..... ±30V or ±2V_S
Power Dissipation P_D
T_A = 25°C ..... 1.5W, derate 100°C/W to 125°C
T_C = 25°C ..... 2.2W, derate 70°C/W to 125°C

Operating Temperature Range, T_A
LH0032G ..... -55°C to +125°C
LH0032CG ..... -25°C to +85°C
Operating Junction Temperature, T_J ..... 175°C
Storage Temperature Range ..... -65°C to +150°C
Lead Tamp. (Soldering, 10 seconds)..... 300°C

DC ELECTRICAL CHARACTERISTICS:

V_S = ±15V, $T_{MIN} \le T_A \le T_{MAX}$ unless otherwise noted (Note 1) ($T_A = T_j$)

		LH0032			LH0032C			
Parameter	Conditions	Min	Typ	Max	Min	Typ	Max	Units
Input Offset Voltage	$T_A = T_J$ = 25°C (Note 3)		2	5 10		2	15 20	mV
Average Offset Voltage Drift	(Note 4)		15	50		15	50	µV/°C
Input Offset Current	T_J = 25°C (Note 2) T_A = 25°C (Note 3)			25 250 25			50 500 5	pA pA nA
Input Bias Current	T_J = 25°C (Note 2) T_A = 25°C (Note 3)			100 1 50	0.96	0.98	500 5 15	pA nA nA
Input Voltage Range	Note 6	±10	±12		±10	±12		V
Common Mode Rejection Ratio	ΔV_{IN} = ±10V	50	60		50	60		dB
Open-Loop Voltage Gain	V_O = ±10V T_J = 25°C f = 1kHz R_L = 1kΩ (Note 7)	60 57	70		60 57	70		dB
Output Voltage Swing	R_L = 1kΩ	±10	±13		±10	±13		V
Power Supply Current	T_A = 25°C I_O = 0 (Note 3)		18	20		20	22	mA
Power Supply Rejection Ratio	ΔV_S = 10V (±5 to ±15V)	50	60		50	60		dB

AC ELECTRICAL CHARACTERISTICS:

V_S = ± 15V, R_L = 1KΩ, T_J = 25°C (Note 5)

Parameter	Conditions	Min	Typ.	Max	Units
Slew Rate	A_V = +1	350	500		V/µs
Setting Time to 1% of Final Value	A_V = -1 ΔV_{IN} = 20V		100		
Setting Time to 0.1% of Final Value	A_V = -1 ΔV_{IN} = 20V		300		ns
Small Signal Rise Time	A_V = +1, ΔV_{IN} = 1V		8	20	
Small Signal Delay Time	A_V = +1, ΔV_{IN} = 1V		10	25	

Note 1: LH0032G/CG are a 100% production tested as specified at 25°C. Specifications at temperature extremes are verified by testing, periodic characterization, or correlation.
Note 2: Specification is at 25°C junction temperature due to requirements of high speed automatic testing. Acual values at operating temperature will exceed the value at T_J = 25°C. When supply voltages are ±15V, no load-operating junction temperature may rise 40-60°C above ambient, and more under load conditions. Accordingly, V_{OS} may change one to several mV, and I_B and I_{os} will change significantly during warm-up. Refer to I_B and I_{os} vs. Temperature graph for expected values.
Note 3: Measured in still air 7 minutes after application of power. Guaranteed through correlated automatic pulse testing.
Note 4: $\Delta V_{OS}/\Delta T$ is the average value calculated from measurements at 25°C and T_{MAX}, specifications at temperature are verified by testing, periodic characterization, or correlation.
Note 5: Not 100% production tested; verified by testing, periodic characterization, or correlation.
Note 6: Guaranteed by CMRR test condition.
Note 7: Guaranteed through correlated pulse testing at T_J = 25°C.