



4mW, 180MHz, 2000V/μs High Speed Buffer

CLM4122 / CLM4322

FEATURES

- High Slew Rate. 2000V/μs
- Wide Bandwidth. 180MHz
- Low Supply Current 800μA
- No Oscillations with Capacitive Loads
- Fully Specified to Drive 50Ω Lines

APPLICATIONS

- Coaxial Cable Driver
- Flash A/D Converter Driver
- Video DAC Buffer
- Video Amplifier
- Wide Bandwidth Signal Conditioning

GENERAL DESCRIPTION

The CLM4122 family are low power, high speed unity gain buffers that slew at 2000V/μs, having a small signal bandwidth of 180MHz, delivers 60mA, yet draws only 800μA supply current.

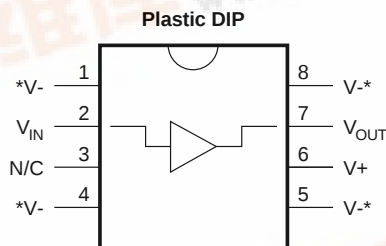
The 4mW power consumption, fast slew rate, wide bandwidth, and high output drive make the CLM4122 family the ideal choice for battery operated equipment.

These same characteristics are the excellent choices for driving coaxial and switched pair cables.

ORDERING INFORMATION

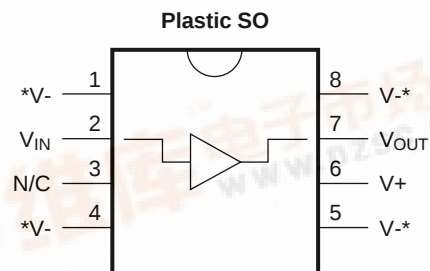
Part	Package	Temperature Range
CLM4122 N	NO8A (Plastic P Dip 8 Lead)	-40°C to 85°C
CLM4122 M	MO8B (SOIC 8 Lead)	-40°C to 85°C
CLM4322 N	NO8A (Plastic P Dip 8 Lead)	-25°C to 70°C
CLM4322 M	MO8B (SOIC 8 Lead)	-25°C to 70°C

CONNECTION DIAGRAMS



*Heat-sinking pins. Pin 1 and Pin 8 must be connected to the negative supply.

Package NO8A



*Heat-sinking pins. Pin 1 and Pin 8 must be connected to the negative supply.

Package MO8B

ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage +10
 Input Voltage $\pm V_{\text{supply}}$
 Storage Temperature Range -65°C to $+150^{\circ}\text{C}$
 Lead Temperature
 (Soldering 10 seconds) 260°C
 Power Dissipation (Note 4)

ESD Tolerance (Note 3) $\pm 2000\text{V}$
 Thermal Resistance (θ_{JA}) (Note 6)
 N Package 50°C/W
 M Package 60°C/W
 Maximum Junction Temperature 150°C

DC ELECTRICAL CHARACTERISTICS

The following specifications apply for Supply Voltage = +5V, $V_{\text{CM}} = 0$, $R_{\text{L}} \geq 100\text{k}\Omega$ and $R_{\text{S}} = 50\Omega$ unless otherwise noted.

Boldface limits apply for $T_{\text{A}} = T_{\text{J}} = T_{\text{MIN}}$ to T_{MAX} ; all other limits $T_{\text{A}} = T_{\text{J}} = 25^{\circ}\text{C}$.

SYMBOL	CHARACTERISTICS	TYP	CLM4122	CLM4322	UNITS	CONDITIONS
			Limit (Note 5)	Limit (Note 5)		
A_{V1}	Voltage Gain 1	0.970	0.950	0.950	V/V Min	$R_{\text{L}} = 1\text{k}\Omega$, $V_{\text{IN}} = +3\text{V}$
A_{V2}	Voltage Gain 2	0.900	0.800	0.800		$R_{\text{L}} = 50\Omega$, $V_{\text{IN}} = +3\text{V}$
V_{OS}	Offset Voltage	5	25	40	mV Max	$V_{\text{IN}} = 2.5\text{V}$
I_{B}	Input Bias Current	1	6	10	μA Max	$R_{\text{L}} = 1\text{k}\Omega$, $R_{\text{S}} = 10\text{k}\Omega$,
C_{IN}	Input Capacitance	3.5			pF	
R_{O}	Output Resistance	3	5 10	5 6	Ω Max	$I_{\text{OUT}} = 0$ to 1mA
I_{S}	Supply Current	825	1100	1200	μA Max	$R_{\text{L}} = \infty$
V_{O1}	Output Swing 1	4.5	4	4	V	$R_{\text{L}} = 1\text{k}\Omega$
V_{O2}	Output Swing 2	3.5	3.0	3.0		$R_{\text{L}} = 100\Omega$
I_{OUT}	Output Current	60	44	44	mA	$V_{\text{IN}} = +4\text{V}$

AC ELECTRICAL CHARACTERISTICS

The following specifications apply for Supply Voltage = +5V, $R_{\text{L}} \geq 100\text{k}\Omega$ and $R_{\text{S}} = 50\Omega$ unless otherwise noted.

Boldface limits apply for $T_{\text{A}} = T_{\text{J}} = T_{\text{MIN}}$ to T_{MAX} ; all other limits $T_{\text{A}} = T_{\text{J}} = 25^{\circ}\text{C}$.

SYMBOL	CHARACTERISTICS	TYP	CLM4122	CLM4322	UNITS	CONDITIONS
			Limit (Note 5)	Limit (Note 5)		
SR_1	Slew Rate 1	2000	1500	1200	V/ μs	$R_{\text{L}} = 1\text{k}\Omega$ (Note 2), $V_{\text{IN}} = 3.5\text{V}_{\text{PP}}$
SR_2	Slew Rate 2	1000	700	600		$R_{\text{L}} = 50\Omega$ (Note 2)), $V_{\text{IN}} = 3.5\text{V}_{\text{PP}}$
SS_{BW}	Small Signal Bandwidth	180	140	100	MHz	$V_{\text{IN}} = 100\text{mV}_{\text{PP}}$, $R_{\text{L}} = 50\Omega$, $C_{\text{L}} \leq 10\text{pF}$
LS_{BW}	Large Signal Bandwidth	170	130	100		$V_{\text{IN}} = +4\text{V}$, $R_{\text{L}} = 1\text{k}\Omega$, $C_{\text{L}} \leq 10\text{pF}$
PBW	Power Bandwidth	100	70	60		$V_{\text{IN}} = +4\text{V}$, $R_{\text{L}} = 50\Omega$, $C_{\text{L}} \leq 10\text{pF}$
t_{r} , t_{f}	Rise Time Fall Time	2.0	2.5	3.5	ns	$R_{\text{L}} = 50\Omega$, $C_{\text{L}} \leq 10\text{pF}$, $V_{\text{O}} = 100\text{mV}_{\text{PP}}$
t_{pd}	Propagation Delay Time	3.0			ns	$R_{\text{L}} = 50\Omega$, $C_{\text{L}} \leq 10\text{pF}$, $V_{\text{O}} = 100\text{mV}_{\text{PP}}$
O_{S}	Overshoot	10			%	$R_{\text{L}} = 50\Omega$, $C_{\text{L}} \leq 10\text{pF}$, $V_{\text{O}} = 100\text{mV}_{\text{PP}}$

Note 1: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. DC and AC electrical specifications do not apply when operating the device beyond its rated operating conditions.

Note 2: Slew rate is measured with 50Ω source impedance at 25°C with input DC offset to 2.5V. For accurate measurements, the input slew rate should be at least $5000\text{V}/\mu\text{s}$.

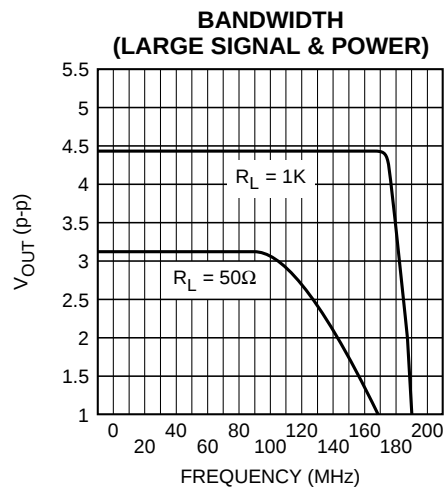
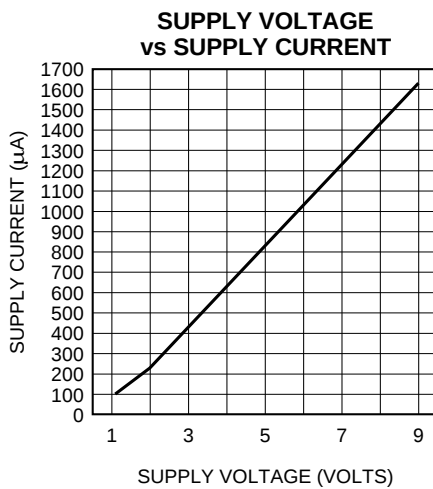
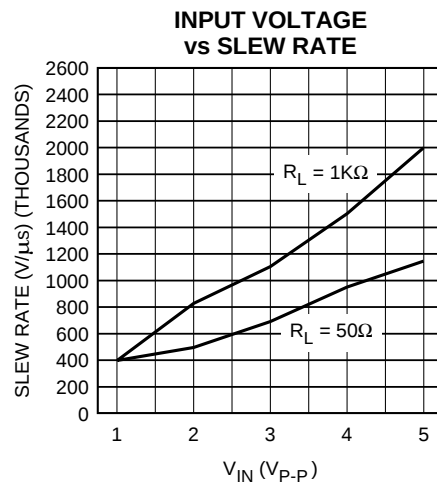
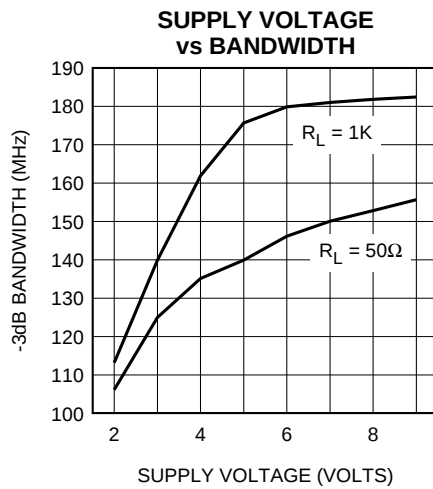
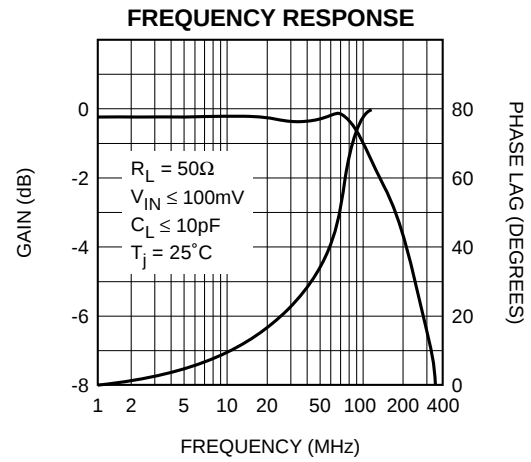
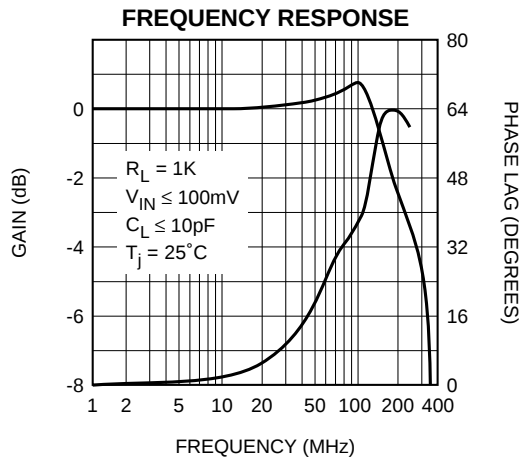
Note 3: The test circuit consists of the human body model of 120pF in series with 1500Ω .

Note 4: The maximum power dissipation is a function of $T_{\text{J(max)}}$, θ_{JA} and T_{A} . The maximum allowable power dissipation at any ambient temperature is $P_{\text{D}} = (T_{\text{J(max)}} - T_{\text{A}})/\theta_{\text{JA}}$.

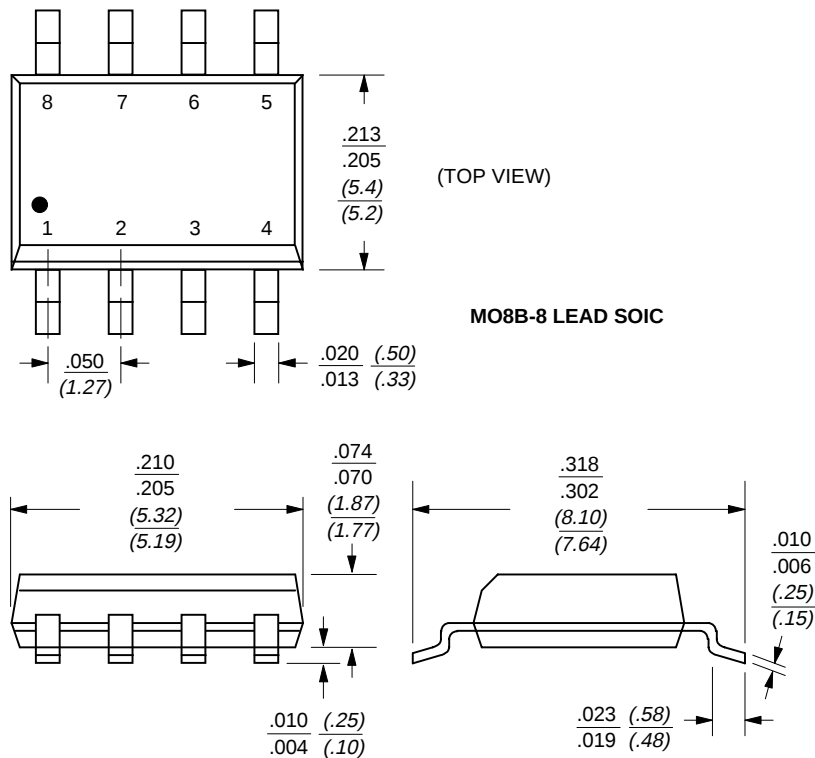
Note 5: Limits are guaranteed by testing, correlation or periodic characterization.

Note 6: For M & N package, θ_{JA} is measured by soldering the unit directly on a printed circuit board and V pins are connected to 2 square inches of 2 oz copper.

TYPICAL PERFORMANCE CHARACTERISTICS



MO8B DIMENSIONS



NO8A DIMENSIONS

