CORPORATION

350MHz High Speed Buffer

CLM4125

FEATURES

- High Slew Rate. 3500V/µs
- Wide Bandwidth. 350MHz
- Peak Output Current 100mA
- No Oscillations with Capacitive Loads
- Fully Specified to Drive 50Ω Lines

APPLICATIONS

- Pulse and Video Amplifier
- Coaxial Cable Driver
- Video Switching and Routing

GENERAL DESCRIPTION

The CLM4125 is a high speed unity gain buffers that slew at 3500V/µs, and a small signal bandwidth of 350MHz.

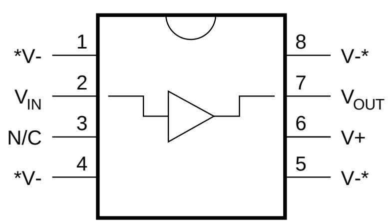
This device is ideal to drive a active load CRT amplifier.

ORDERING INFORMATION

Part	Package	Temperature Range
CLM4125 N	NO8A (Plastic P Dip 8 Lead)	-40^{o}C to 85^{o}C
CLM4125 M	MO8B (SOIC 8 Lead)	-40^{o}C to 85^{o}C

CONNECTION DIAGRAMS

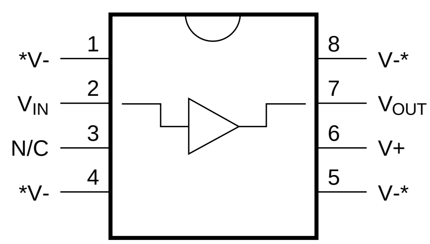
Plastic DIP



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

Package NO8A

Plastic SO



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

Package MO8B

ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage . . . . ±20
Input Voltage . . . . ±Vsupply
Storage Temperature Range . . . . -65°C to +150°C
Lead Temperature
(Soldering 10 seconds) . . . . 260°C
Power Dissipation . . . . (Note 4)

ESD Tolerance (Note 3) . . . . ±2000V
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 = +12, -10V, V_{CM} = 0, $R_L \geq$ 100KΩ and R_S = 50Ω unless otherwise noted. **Boldface** limits apply for $T_A = T_J = T_{MIN}$ to T_{MAX}; all other limits $T_A = T_J$ = 25°C.

SYMBOL	CHARACTERISTICS	TYP	Limit (Note 5)	UNITS	CONDITIONS
A_{V1}	Voltage Gain 1	0.99	0.96	V/V Min	R_L = 1K, V_{IN} = ±10V
A_{V2}	Voltage Gain 2	0.92	0.89		R_L = 100Ω, V_{IN} = ±10V
A_{V3}	Voltage Gain 3	0.92	0.89		R_L = 50Ω, V_{IN} = ±5V
V_{OS}	Offset Voltage	10	15 **25**	mV Max	R_L = 1K
I_B	Input Bias Current	1	5 **7**	µA Max	R_L = 1KΩ, R_S = 10kΩ,
R_{IN}	Input Resistance	0.3		MΩ	R_L = 50Ω
C_{IN}	Input Capacitance	3.5		pF	
R_O	Output Resistance	3	5 **10**	Ω Max	I_{OUT} = ±10mA
I_{S1}	Supply Current 1	20	30 **30**	mA Max	$R_L = \infty$
V_{O1}	Output Swing 1	11	9	±V Min	R_L = 1K
V_{O2}	Output Swing 2	9	8		R_L = 100Ω
V_{O3}	Output Swing 3	9	8	V_{PP} Min	R_L = 50Ω

AC ELECTRICAL CHARACTERISTICS

The following specifications apply for Supply Voltage = +12, -10V, V_{CM} = 0, $R_L \geq 100K\Omega$ and $R_S = 50\Omega$ unless otherwise noted. **Boldface** limits apply for $T_A = T_J = T_{MIN}$ to T_{MAX}; all other limits $T_A = T_J = 25^oC$.

SYMBOL	CHARACTERISTICS	TYP	Limit (Note 5)	UNITS	CONDITIONS
SR_1	Slew Rate 1	3500	3000	V/µs	$V_{IN} = \pm 4.5V$, $R_L = 100\Omega$ (Note 2)
SR_2	Slew Rate 2	2250	2000		$V_{IN} = \pm 4V$, $R_L = 50\Omega$ (Note 2)
SS_{BW}	Small Signal Bandwidth	350	300	MHz	$V_{IN} = \pm 100mV_{PP}$, $R_L = 50\Omega$ $C_L \leq 10pF$
LS_{BW}	Large Signal Bandwidth	140	120		$V_{OUT} = \pm 4.5V$, $R_L = 100\Omega$ $C_L \leq 10pF$
P_{BW}	Power Bandwidth	130	110		$V_{IN} = \pm 4V$, $C_L \leq 100pF$
t_r, t_f	Rise Time Fall Time	2.5	3.5	ns	$C_L \leq 100pF$ $V_O = 4V_{PP}$
t_{pd}	Propagation Delay Time	2.0		ns	$R_L = 50\Omega$, $C_L \leq 10pF$ $V_O = 4V_{PP}$
O_S	Overshoot	3		%	$R_L = 50\Omega$, $C_L \leq 10pF$ $V_O = 100mV_{PP}$

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^{o}C. For accurate measurements, the input slew rate should be at least 5000V/µs.

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

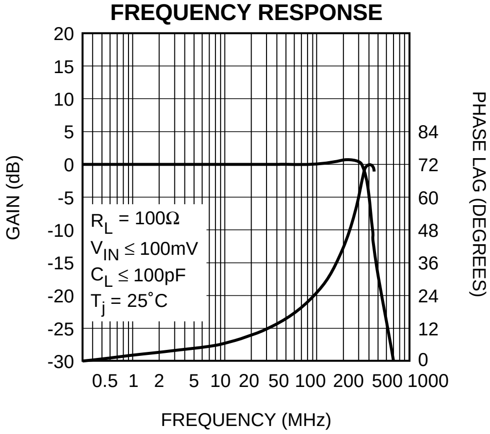
Note 4: The maximum power dissipation is a function of $T_{J(max)}$, θ_{JA} and T_A. The maximum allowable power dissipation at any ambient temperature is $P_D = (T_{J(max)} - T_A)/\theta_{JA}$.

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

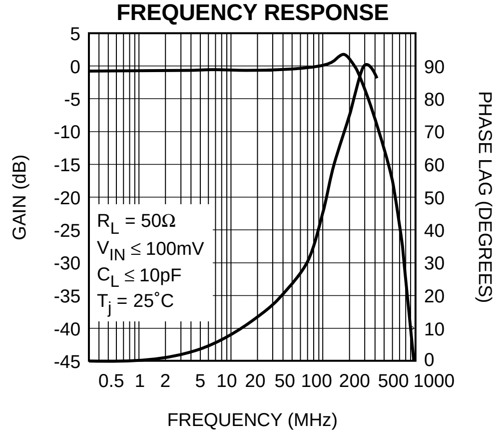
Note 6: For M & N package, θ_{JA} is measured by soldering the unit directly on a printed circuit board and V^- pins are connected to 2 square inches of 2 oz copper.

TYPICAL PERFORMANCE CHARACTERISTICS

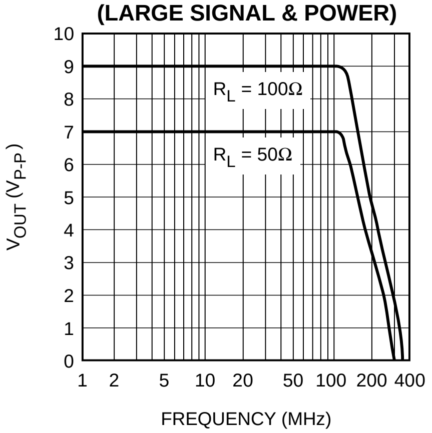
FREQUENCY RESPONSE



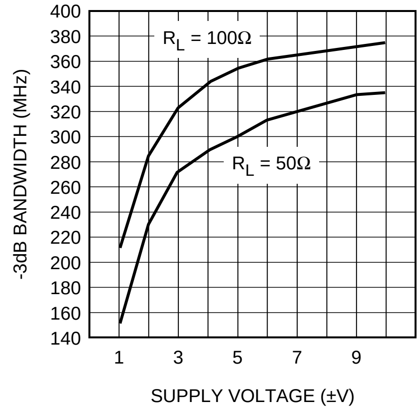
FREQUENCY RESPONSE



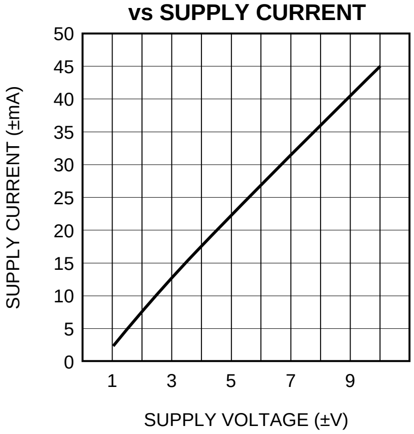
BANDWIDTH
(LARGE SIGNAL & POWER)



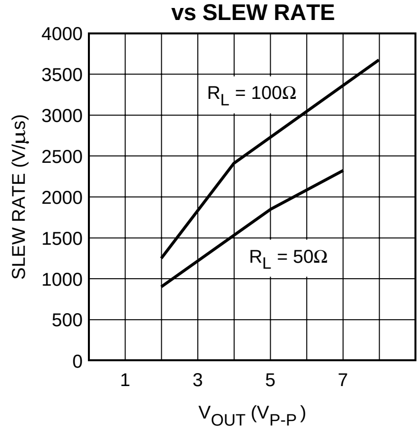
SUPPLY VOLTAGE
vs BANDWIDTH



SUPPLY VOLTAGE
vs SUPPLY CURRENT



OUTPUPT VOLTAGE
vs SLEW RATE



CALOGIC CORPORATION, 237 Whitney Place, Fremont, California 94539, Telephone: 510-656-2900, FAX: 510-651-3025