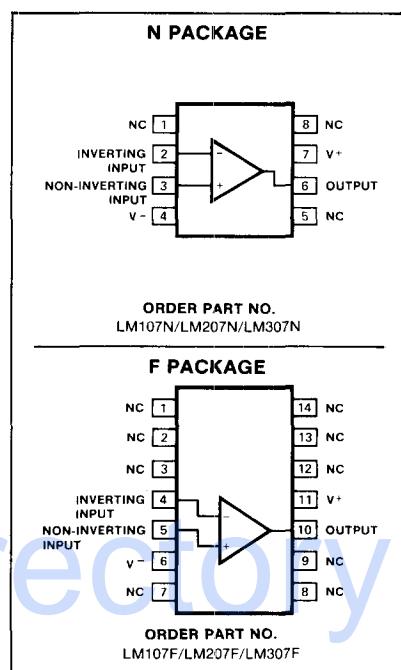
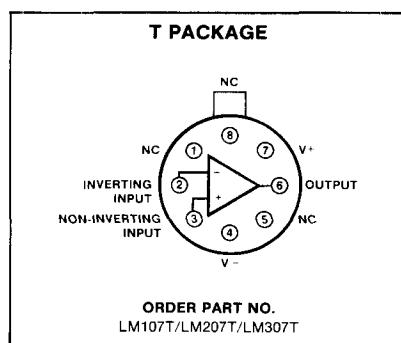


DESCRIPTION

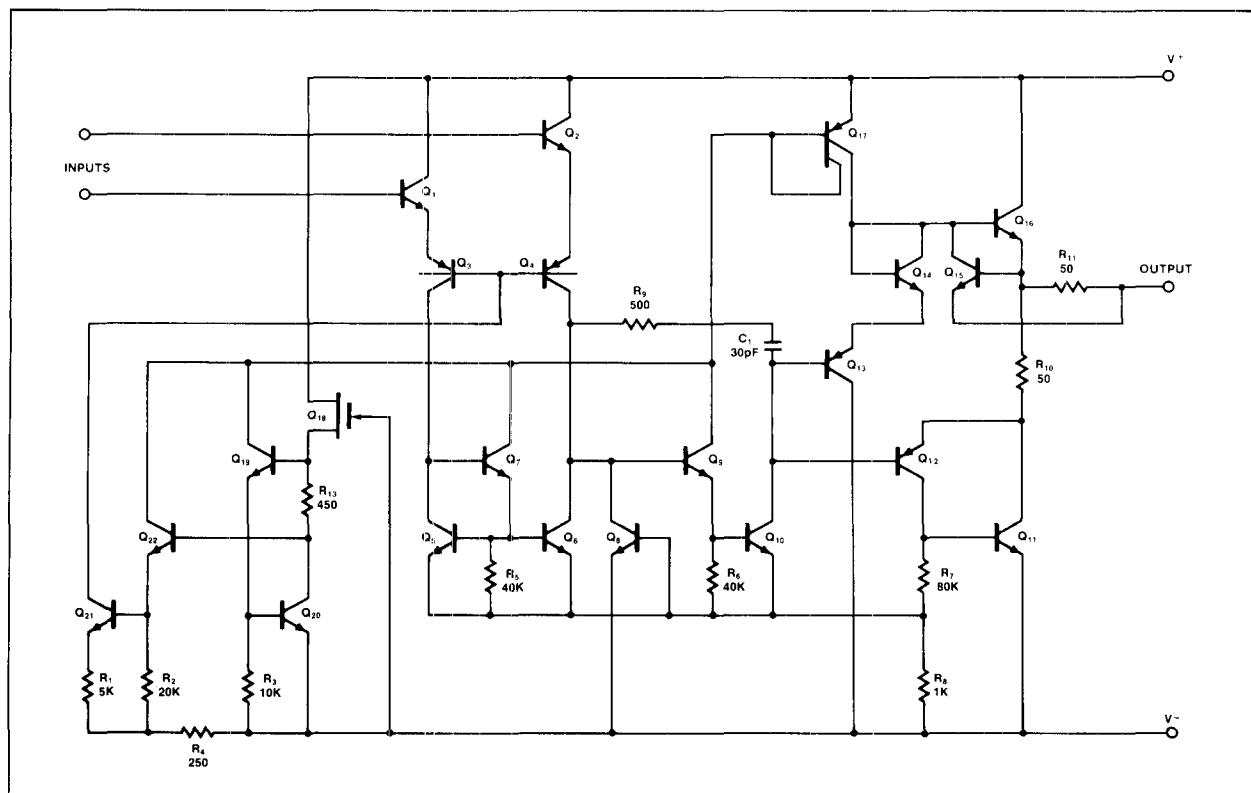
The LM107/207/307 is a general purpose internally compensated operational amplifier. Advanced processing techniques provide input currents which are an order of magnitude lower than the μ A709. Standard pin out allows plug in replacement for the μ A709, LM101, LM101A, and the μ A741.

FEATURES

- 3mV max offset voltage over temp
- 100nA max input current over temp
- 20nA max input offset current over temp
- Offsets guaranteed over common mode range
- Input/output short circuit protected
- Mil std 883A,B,C available

PIN CONFIGURATIONS

Datasheet.DIRECTORY

EQUIVALENT SCHEMATIC

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Supply voltage LM107	± 22	V
LM307	± 18	V
Power dissipation	500	mW
Differential input voltage	± 30	V
Input voltage	± 15	V
Output short circuit duration	Indefinite	
Operating temperature range LM107	-55 to +125	$^{\circ}\text{C}$
LM207	-25 to +85	$^{\circ}\text{C}$
LM307	0 to +70	$^{\circ}\text{C}$
Storage temperature range	-65 to +150	$^{\circ}\text{C}$
Lead temperature (soldering, 60sec)	300	$^{\circ}\text{C}$

DC ELECTRICAL CHARACTERISTICS $T_A = 25^{\circ}\text{C}, \pm 5\text{V} \leq V_S \leq \pm 20\text{V}$ unless otherwise specified.

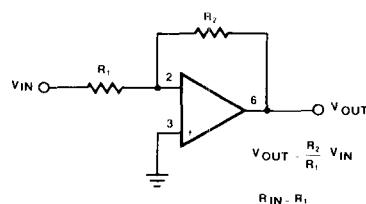
PARAMETER	TEST CONDITIONS	LM107/LM207			LM307 ⁴			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OS}	Offset voltage $R_S \leq 10\text{k}\Omega$ $R_S \leq 10\text{k}\Omega$, over temp. $R_S \leq 50\text{k}\Omega$ $R_S \leq 50\text{k}\Omega$, over temp. $R_S = 0\Omega$, over temp.		0.7	2.0 3.0		2.0	7.5 10	mV mV mV mV $\mu\text{V}/^{\circ}\text{C}$
V_{OS}	Drift		3.0	15		6.0	30	$\mu\text{V}/^{\circ}\text{C}$
I_{OS}	Offset current Over temp.		1.5	10 20		3	50 70	nA nA
I_{OS}	Drift $25^{\circ}\text{C} \leq T_A \leq T_{max}$ $T_{min} \leq T_A \leq 25^{\circ}\text{C}$		0.01 0.02	0.1 0.2		0.01 0.02	0.3 0.6	$\text{nA}/^{\circ}\text{C}$ $\text{nA}/^{\circ}\text{C}$
I_{BIAS}	Input current Over temp.		30	75 100		70	250 300	nA nA
V_{CM}	Common mode voltage range $V_S = \pm 20\text{V}$, over temp. $V_S = \pm 15\text{V}$, over temp.	± 15			± 12			V V
CMRR	Common mode rejection ratio $R_S \leq \pm 10\text{k}$, over temp. $R_S \leq 50\text{k}$, over temp.	80	96			70	90	dB dB
R_{IN}	Input resistance	1.5	4		0.5	2		$\text{M}\Omega$
A_{VOL}	Large signal voltage gain $R_L \geq 2\text{k}\Omega, V_{OUT} \pm 10\text{V}, V_S = \pm 15\text{V}$ $R_L \geq 2\text{k}\Omega, V_{OUT} \pm 10\text{V}, V_S = \pm 15\text{V}$, over temp.	50 25	160		25 15	160		V/mV V/mV
Supply current	$T_A = +125^{\circ}\text{C}, V_S = \pm 20\text{V}$		1.2	2.5				mA

NOTES

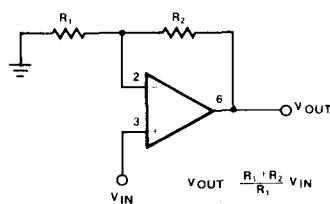
- The maximum junction temperature of the LM1XX is 150°C , while that of the LM2XX is 100°C . For operating at elevated temperatures, devices must be derated based on the thermal resistance of the package as given in the package information section.
- For supply voltages less than $\pm 15\text{V}$, the absolute maximum input voltage is equal to the supply voltage.
- Continuous short-circuit is allowed for case temperatures to 70°C and ambient temperatures to 55°C .
- All specifications shown for LM307 are $\pm 5\text{V} \leq V_S \leq \pm 15\text{V}$.

TYPICAL APPLICATIONS

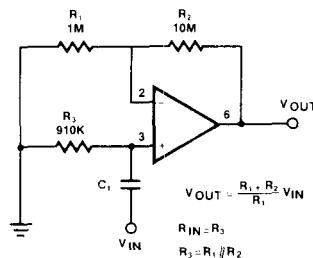
INVERTING AMPLIFIER



NON-INVERTING AMPLIFIER



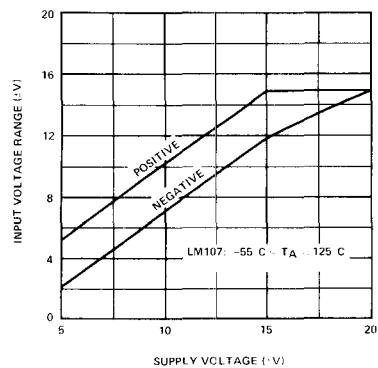
NON-INVERTING AC AMPLIFIER



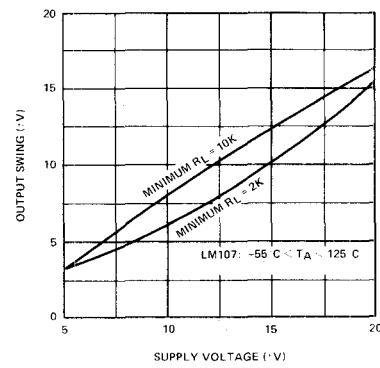
TYPICAL PERFORMANCE CHARACTERISTICS

LM107/LM207

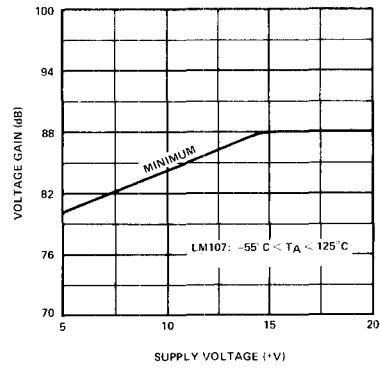
INPUT VOLTAGE RANGE



OUTPUT SWING

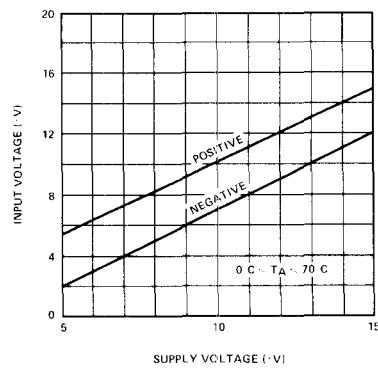


VOLTAGE GAIN

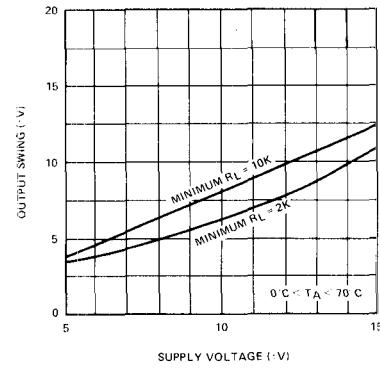


LM307

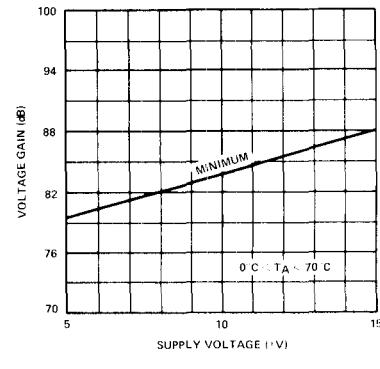
INPUT VOLTAGE RANGE



OUTPUT SWING

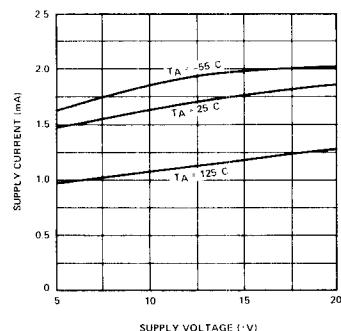


VOLTAGE GAIN

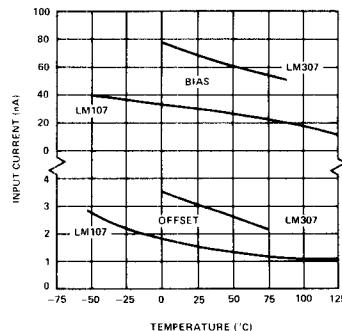


TYPICAL PERFORMANCE CHARACTERISTICS (Cont'd)

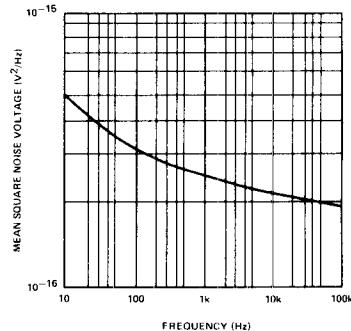
SUPPLY CURRENT



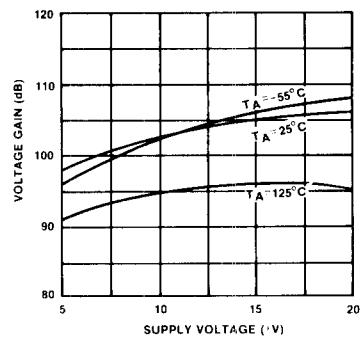
INPUT CURRENT



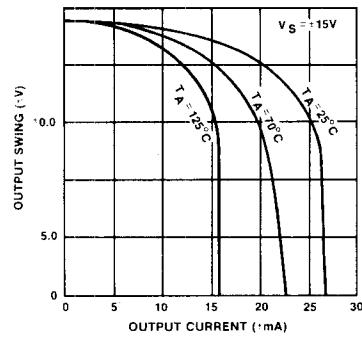
INPUT NOISE VOLTAGE



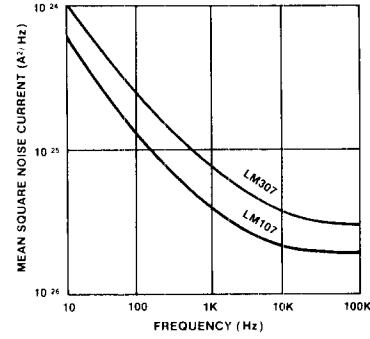
VOLTAGE GAIN



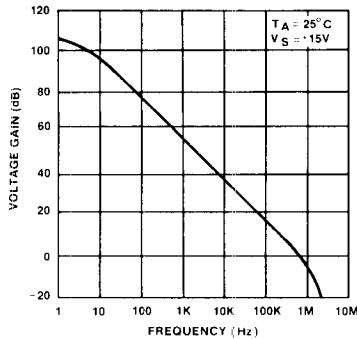
CURRENT LIMITING



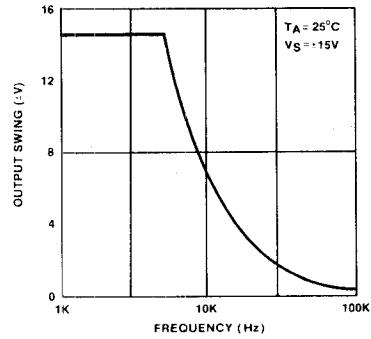
INPUT NOISE CURRENT



OPEN LOOP FREQUENCY RESPONSE



LARGE SIGNAL FREQUENCY RESPONSE



VOLTAGE FOLLOWER PULSE RESPONSE

