

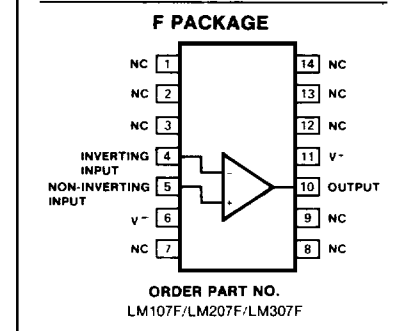
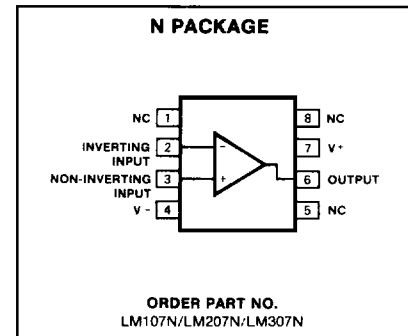
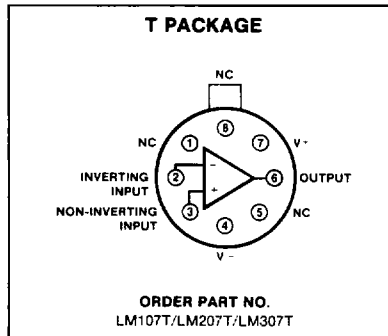
**DESCRIPTION**

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  $\mu A709$ . Standard pin out allows plug in replacement for the  $\mu A709$ , LM101, LM101A, and the  $\mu A741$ .

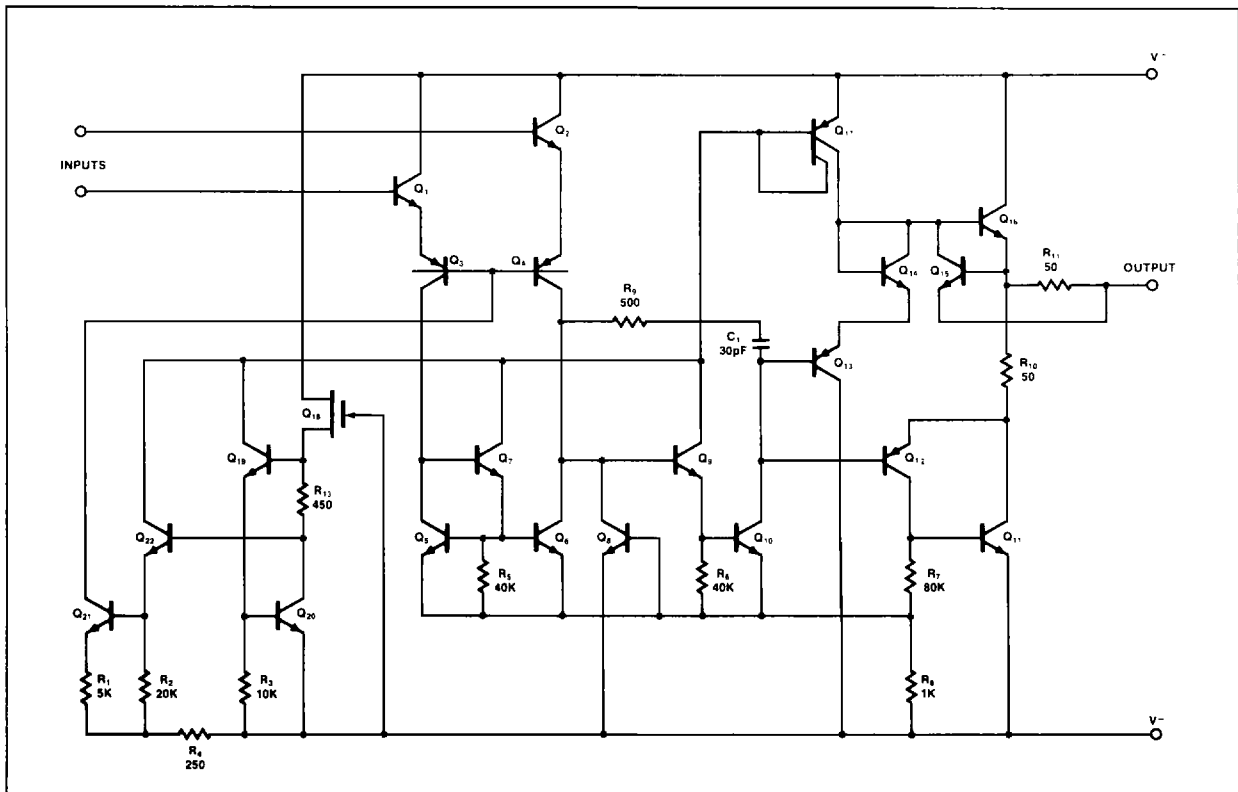
**FEATURES**

- 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
- MII std 883A,B,C available

**PIN CONFIGURATIONS**



**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	°C
LM207	-25 to +85	°C
LM307	0 to +70	°C
Storage temperature range	-65 to +150	°C
Lead temperature (soldering, 60sec)	300	°C

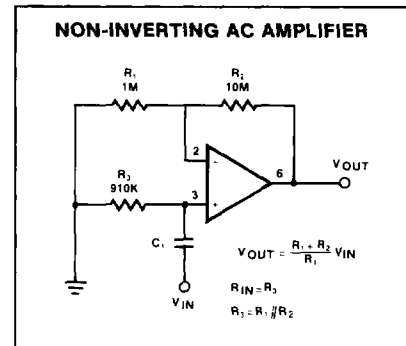
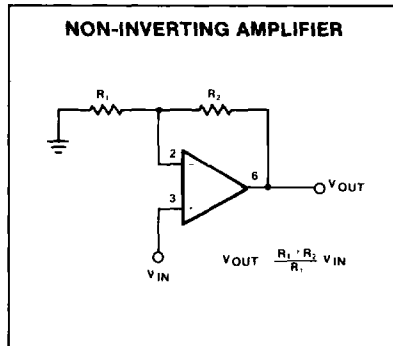
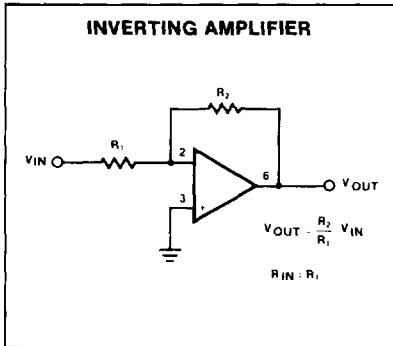
**DC ELECTRICAL CHARACTERISTICS**  $T_A = 25^\circ\text{C}$ ,  $\pm 5\text{V} \leq V_S \leq \pm 20\text{V}$  unless otherwise specified.

PARAMETER	TEST CONDITIONS	LM107/LM207			LM307 <sup>4</sup>			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. $R_S \leq 50\text{k}\Omega$		0.7	2.0 3.0				mV mV
$V_{OS}$ Drift	$R_S \leq 50\text{k}\Omega$ , over temp. $R_S = 0\Omega$ , over temp.		3.0	15	2.0 6.0	7.5 30		mV $\mu\text{V}/^\circ\text{C}$
$I_{OS}$ 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		nA/ $^\circ\text{C}$ 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		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	160		25	160		V/mV V/mV
Supply current	$T_A = +125^\circ\text{C}$ , $V_S = \pm 20\text{V}$		1.2	2.5				mA

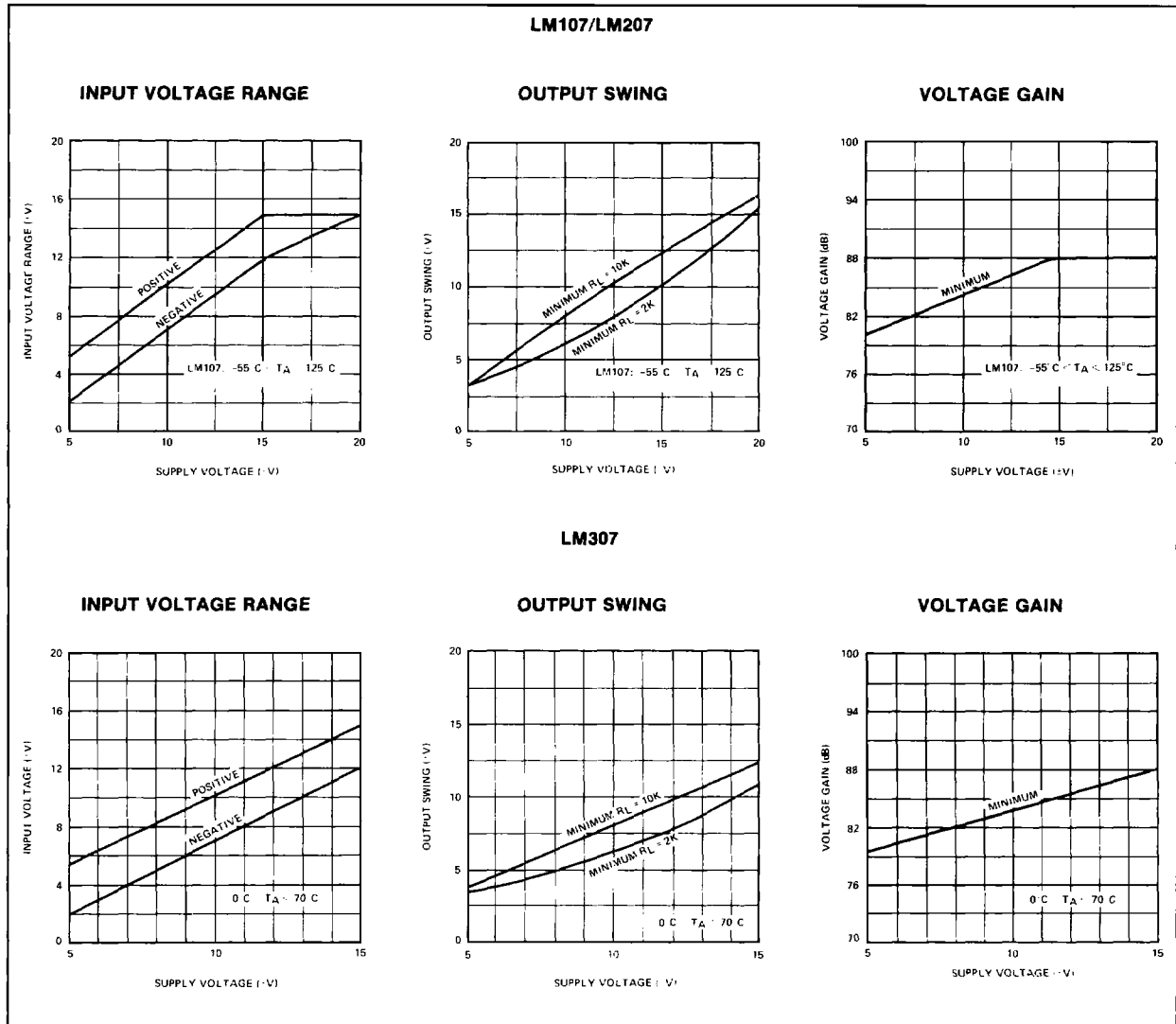
NOTES

- 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 ±15V, 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



TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (Cont'd)

