

FEATURES

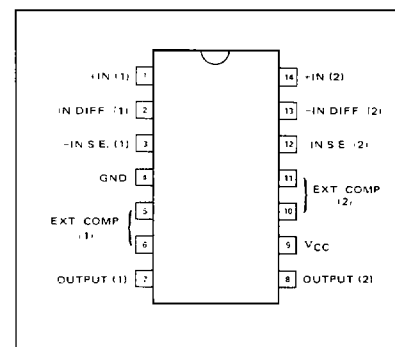
- LOW NOISE — $.5\mu\text{V}$ TOTAL INPUT NOISE
- HIGH GAIN — 112dB OPEN LOOP
- SINGLE SUPPLY OPERATION
- WIDE SUPPLY RANGE 9 TO 40V
- POWER SUPPLY REJECTION — 120dB
- LARGE OUTPUT VOLTAGE SWING ($V_{CC} - 2\text{V p-p}$)
- WIDE BANDWIDTH — 15MHz UNITY GAIN
- POWER BANDWIDTH — 75kHz, 20V p-p
- INTERNALLY COMPENSATED
- SHORT CIRCUIT PROTECTED

ABSOLUTE MAXIMUM RATINGS

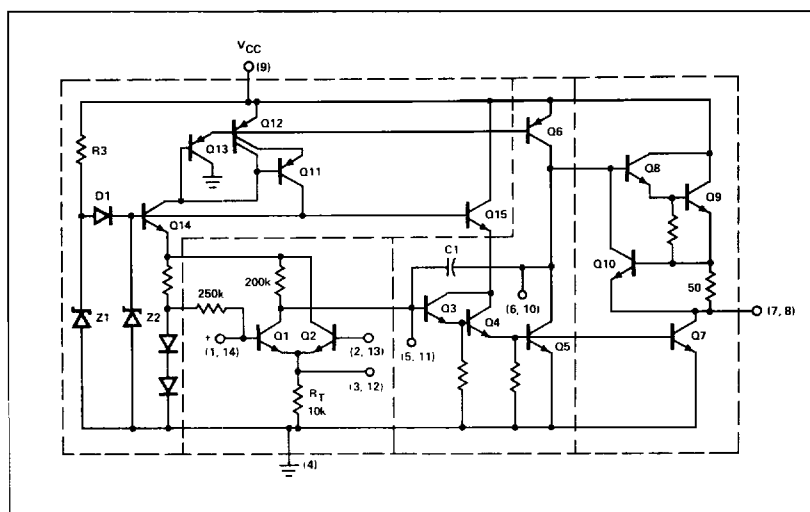
Supply Voltage
Power Dissipation
Operating Temperature Range
Storage Temperature Range
Lead Temperature (Soldering, 60 sec)

+40V
600mW
0°C to +70°C
-65°C to +150°C
+300°C

PIN CONFIGURATION

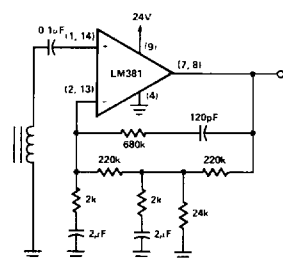


EQUIVALENT CIRCUIT

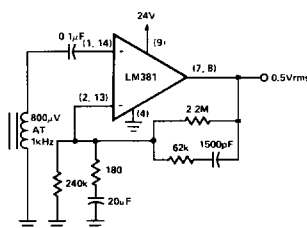


TYPICAL APPLICATIONS

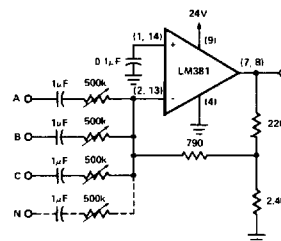
TWO-POLE FAST TURN-ON NAB TAPE PREAMP



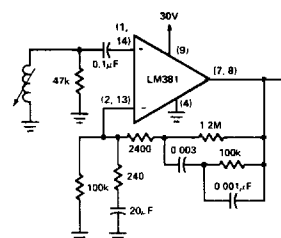
TYPICAL MAGNETIC PHONO PREAMP



TYPICAL MAGNETIC PHONO PREAMP



AUDIO MIXER

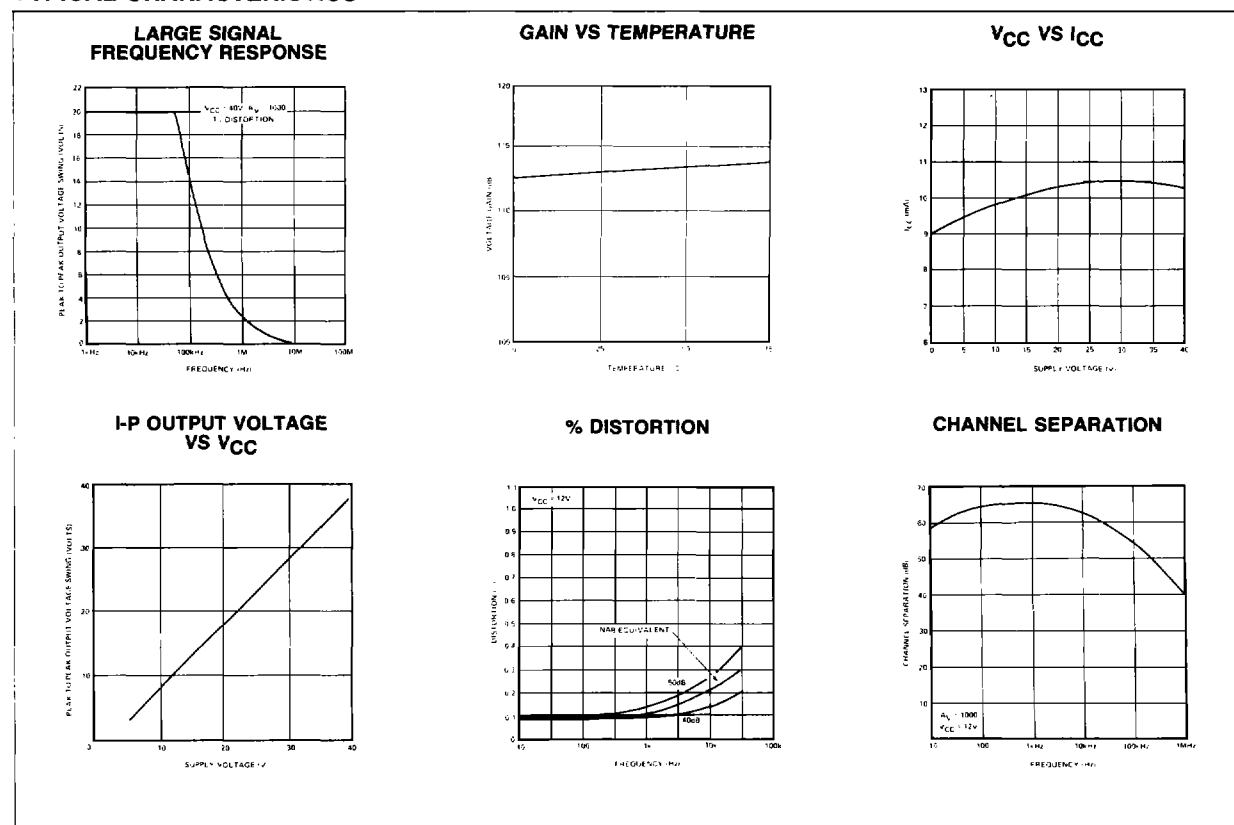


ELECTRICAL CHARACTERISTICS $T_A = +25^\circ\text{C}$, $V_{CC} = 14\text{V}$ (Unless Otherwise Noted)

PARAMETER	TEST CONDITIONS	LIMITS			UNIT
		MIN	TYP	MAX	
Voltage Gain	Open Loop (Differential Input)		160,000		V/V
	Open Loop (Single Ended)		320,000		V/V
Supply Current	V_{CC} 9 to 40V, $R_L = \infty$		10		mA
Input Resistance (Positive Input)			100		k Ω
Input Resistance (Negative Input)			200		k Ω
Input Current (Negative Input)			0.5		μA
Output Resistance	Open Loop		150		Ω
Output Current	Source		8		mA
	Sink		2		mA
Output Voltage Swing	Peak-to-Peak		$V_{CC} - 2$		V
Small Signal Bandwidth			15		MHz
Power Bandwidth	20V p-p ($V_{CC} = 24\text{V}$)		75		kHz
Maximum Input Voltage	Linear Operation			300	mVrms
Supply Rejection Ratio	$f = 1\text{kHz}$		120		dB
Channel Separation	$f = 1\text{kHz}$		60		dB
Total Harmonic Distortion	75dB Gain, $f = 1\text{kHz}$		0.1		%
Total Equivalent Input Noise	$R_S = 600\Omega$, 100–10,000Hz (Single Ended Input)				
LM381A			0.5	0.7	μVrms
LM381			0.5	1.0	μVrms
Noise Figure	50k Ω , 100–10,000Hz	(Single Ended Input)	$1/8$?		dB
	10k Ω , 100–10,000Hz		1.3		dB
	5k Ω , 100–10,000Hz				dB
	100–10,000Hz		1.6		dB

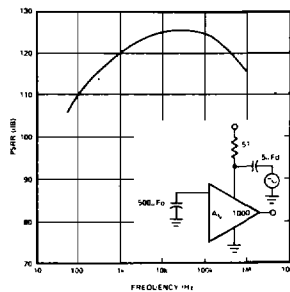
NOTE: ALL RESISTORS STANDARD AND ARE MEASURED IN OHMS.

TYPICAL CHARACTERISTICS

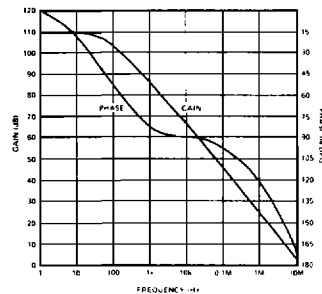


TYPICAL CHARACTERISTICS (Cont'd)

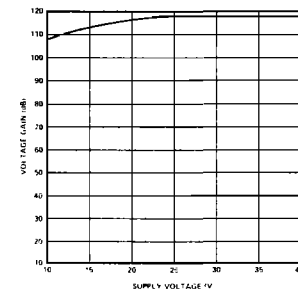
PSRR VS FREQUENCY



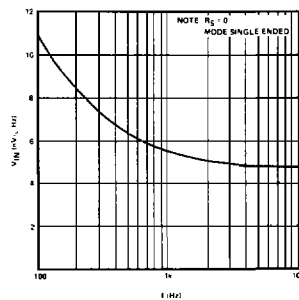
GAIN AND PHASE RESPONSE



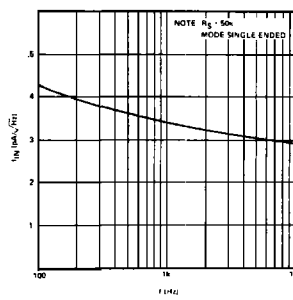
VOLTAGE GAIN VS SUPPLY VOLTAGE



NOISE CURRENT VS FREQUENCY



NOISE VOLTAGE VS FREQUENCY



PULSE RESPONSE

