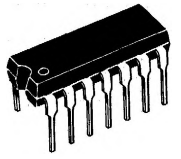
MC1303P

. . . designed for amplifying low-level stereo audio signals with two preamplifiers built into a single monolithic semiconductor.

Each Preamplifier Features:

- Low Input Noise Voltage — 0.5 μV typical
- Large Output Voltage Swing — 4.5 V rms min
- High Open-Loop Voltage Gain = 8,000 min
- Channel Separation = 60 dB min at 10 kHz
- Short-Circuit-Proof Design

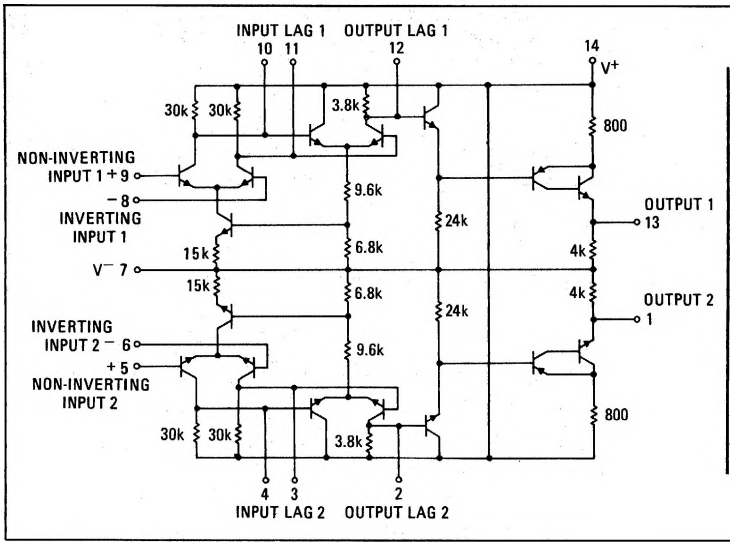


CASE 93
(TO-116)
"P" SUFFIX

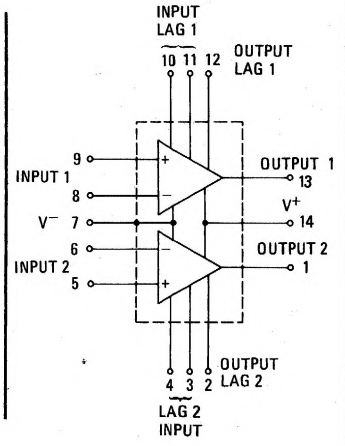
MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage	V^+ V^-	+15 -15	Vdc Vdc
Power Dissipation (Package Limitation) Derate above 25°C	P_D	415 3.3	mW mW/°C
Operating Temperature Range	T_A	0 to +75	°C

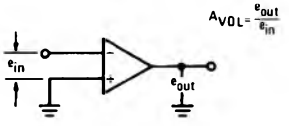
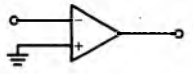
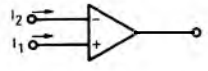
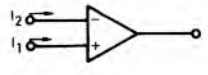
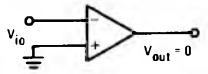
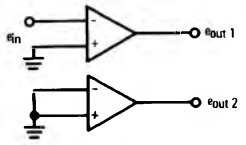
CIRCUIT SCHEMATIC



EQUIVALENT CIRCUIT

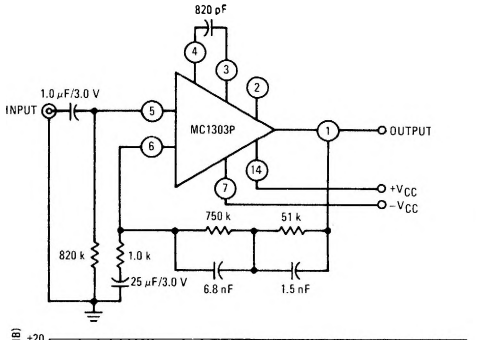


ELECTRICAL CHARACTERISTICS (Each Preamplifier) (V^+ = +13 Vdc, V^- = -13 Vdc, T_A = 25°C unless otherwise noted)

Characteristic Definitions (linear operations)	Characteristic	Symbol	Min	Typ	Max	Unit
	Open Loop Voltage Gain	A_{VOL}	8,000	10,000	12,000	V/V
	Output Voltage Swing (R_L = 10 kΩ)	V_{out}	4.5	5.5	-	V rms
	Input Bias Current $I_b = \frac{I_1 + I_2}{2}$	I_b	-	1.0	10	μA
	Input Offset Current ($I_{io} = I_1 - I_2$)	I_{io}	-	0.2	0.4	μA
	Input Offset Voltage	V_{io}	-	1.5	10	mV
	DC Power Dissipation (Power Supply = ±13 V, V_{out} = 0)	P_D	-	-	300	mW
	Channel Separation (f = 10 kHz)	$\frac{e_{out\ 1}}{e_{out\ 2}}$	60	70	-	dB

TYPICAL PREAMPLIFIER APPLICATIONS

FIGURE 1 – MAGNETIC PHONO PLAYBACK PREAMPLIFIER/RIAA EQUALIZED



TYPICAL PERFORMANCE CHARACTERISTICS

Voltage Gain	:	34 dB (50) @ 1.0 kHz
Input Overload Point	:	100 mVrms @ 1.0 kHz
Output Voltage Swing	:	5.0 Vrms @ 1.0 kHz @ 0.1% THD
Output Noise Level	:	Better Than 70 dB Below 10 mV Phono Input (Input Shorted)

FIGURE 2 – BROADBAND AUDIO AMPLIFIER

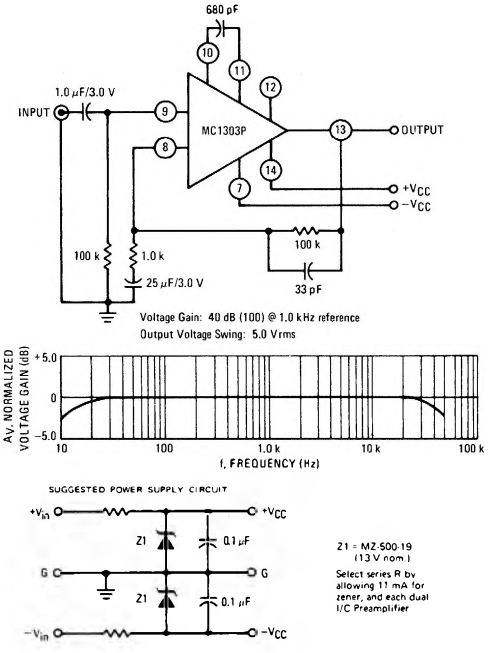
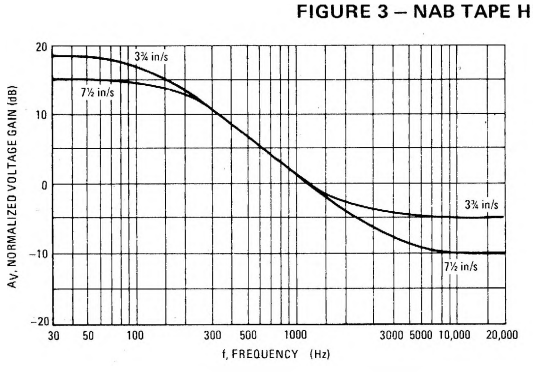


FIGURE 3 – NAB TAPE HEAD EQUALIZATION



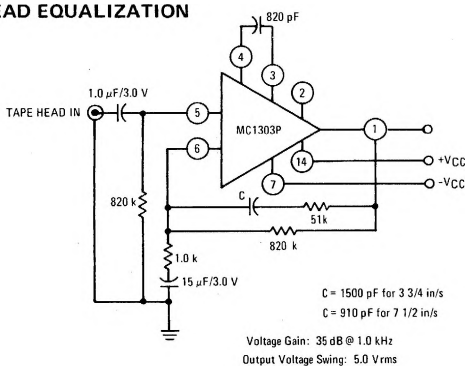


FIGURE 4 – POWER DISSIPATION versus SUPPLY VOLTAGE

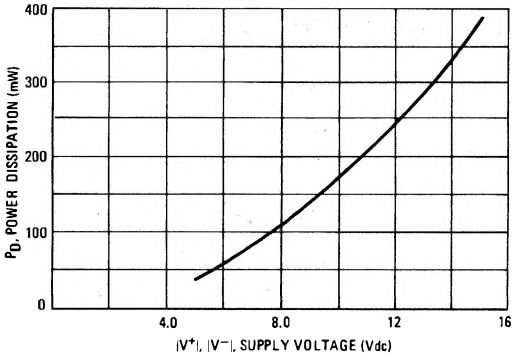


FIGURE 5 – OUTPUT LINEARITY

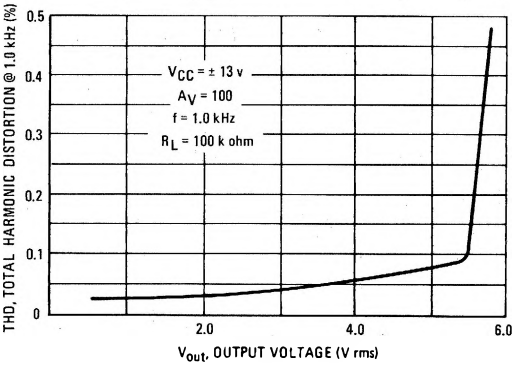
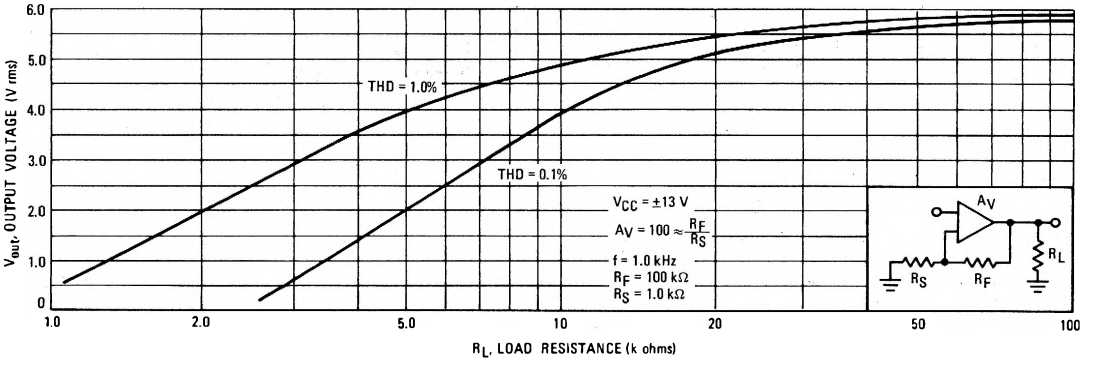


FIGURE 6 – INFLUENCE OF OUTPUT LOADING



NOISE CHARACTERISTICS

FIGURE 7A – INFLUENCE OF SOURCE RESISTANCE & BANDWIDTH

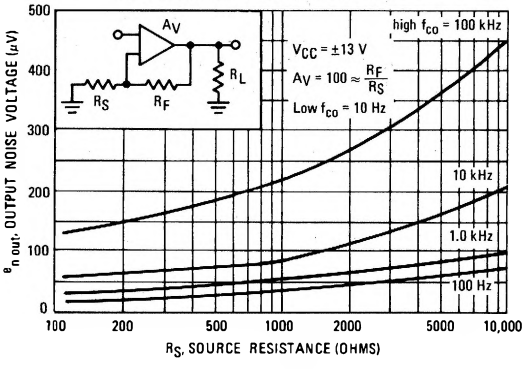


FIGURE 7B – INFLUENCE OF VOLTAGE GAIN & BANDWIDTH