# MFC8040

## AUDIO PREAMPLIFIER

## Advance Information

### LOW NOISE AUDIO PREAMPLIFIER

. . . designed for high-gain, low-noise applications.

- Special Monolithic "State-of-the-Art" Process to Insure Low Noise – 1.0 μV (Typ)
- Can be Externally Equalized for NAB, RIAA
- Low Distortion – 0.1% (Typ) @ $A_V$ = 100
- Large Dynamic Range – 7.0 V(rms) Out
- Low Output Impedance – 100 Ohms (Max)

**LOW NOISE AUDIO PREAMPLIFIER**

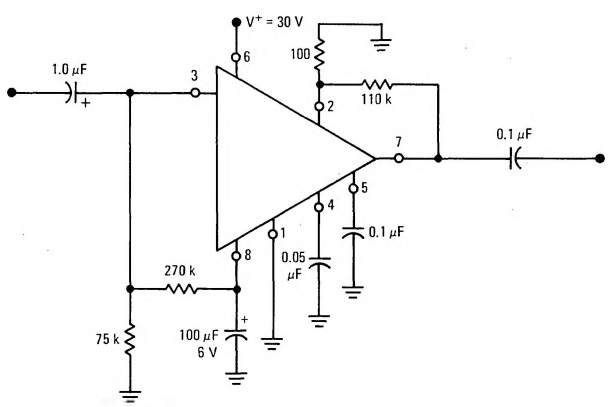
**Silicon Monolithic Functional Circuit**

CASE 644A
PLASTIC PACKAGE

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

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Power Supply Voltage | $V^+$ | 33 | Vdc |
| Power Dissipation @ $T_A$ = 25°C (Package Limitation) | $P_D$ | 1.0 | Watt |
| Derate above $T_A$ = 25°C | $1/\theta_{JA}$ | 10 | mW/°C |
| Operating Temperature Range | $T_A$ | -10 to +75 | °C |

**FIGURE 1 – TYPICAL WIDEBAND AMPLIFIER CIRCUIT ($A_V$ = 60 dB)**




See Packaging Information Section for outline dimensions.

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

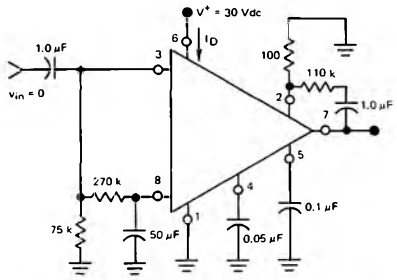
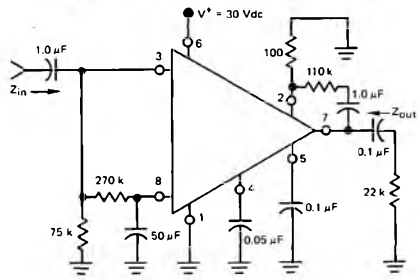
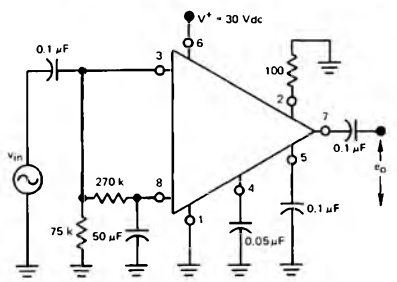
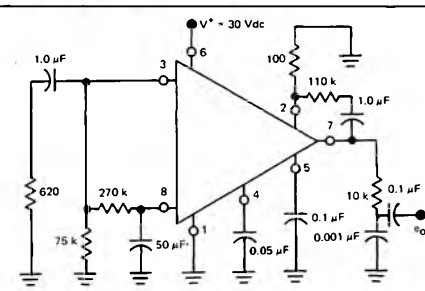
| Circuit | Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
|  | Drain Current | $I_D$ | – | 8.0 | 12 | mA |
|  | Total Harmonic Distortion ($v_o$ = 1.0 V, f = 1.0 kHz) | THD | – | <0.1 | 0.25 | % |
| | Input Impedance | $Z_{in}$ | – | 75 | – | k ohms |
| | Output Impedance | $Z_{out}$ | – | 100 | – | ohms |
|  | Open Loop Voltage Gain ($v_{in}$ = 100 µV(rms) @ f = 1.0 kHz) | $A_{VOL}$ | 80 | – | – | dB |
|  | Wideband Input Noise (-3.0 dB Bandwidth, 10 Hz to 16 kHz, $A_V$ = 60 dB @ 1.0 kHz, $\left(e_n = \frac{e_o}{A_V}\right)$ | $e_n$ | – | 1.0 | 3.0 | µV (rms) |

**FIGURE 2 – CIRCUIT SCHEMATIC**

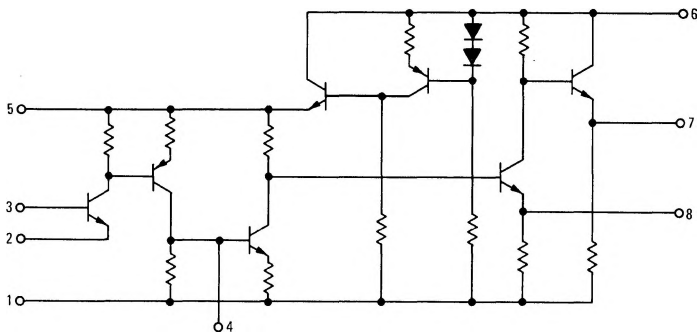



**FIGURE 3 – INPUT NOISE**

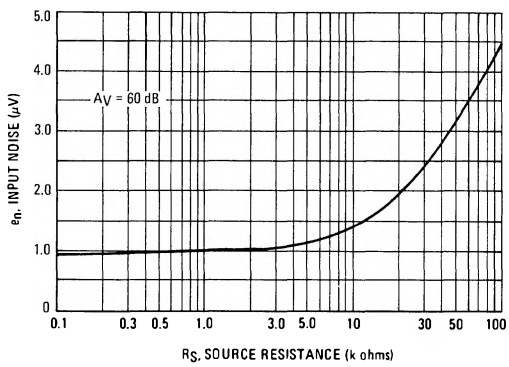



**FIGURE 4 – OPEN LOOP TOTAL HARMONIC DISTORTION**

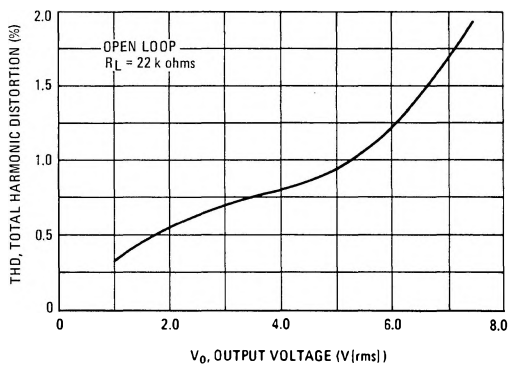



**FIGURE 5 – AVAILABLE OUTPUT VOLTAGE**