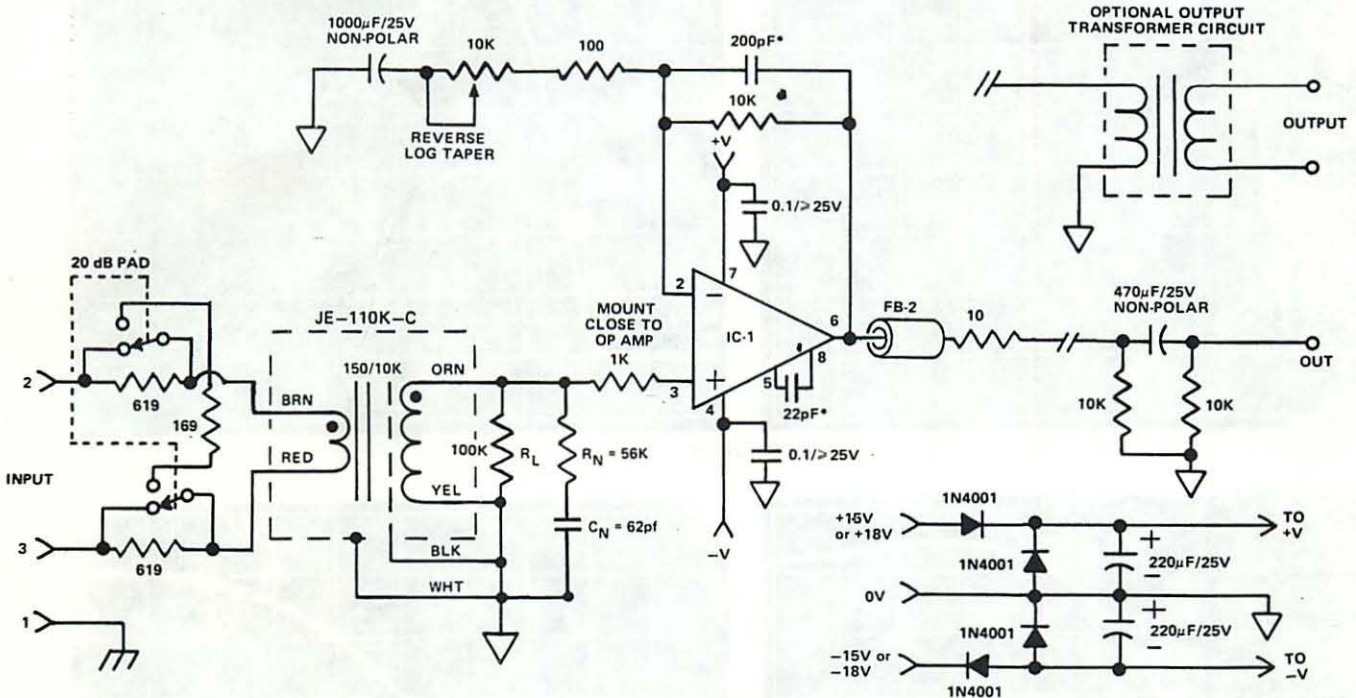
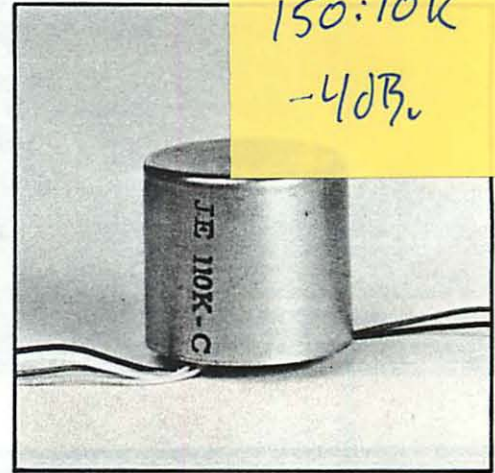


# Data Sheet

**jensen transformers**  
INCORPORATED

## JE-110K-C MICROPHONE INPUT TRANSFORMER

The JE-110K-C is a wire lead type 150/10K of earlier design than the JE-115K-E. The winding is a less complex configuration of interleaved layers exhibiting higher leakage inductance, so a series RC network of 56K ohms and 62pf should be connected across the 100K ohm secondary load resistor for minimum transient distortion. The resulting high frequency performance of this type is close to the more complex winding but at lower cost. The total turns and core size are similar to the JE-115K-E yielding similar low frequency maximum level capability and distortion. The higher series leakage inductance yields a 2.0dB noise figure compared to the 1.5dB noise figure of the JE-115K-E.



SCHEMATIC DIAGRAM OF TYPICAL MICROPHONE PREAMPLIFIER UTILIZING JE-110K-C

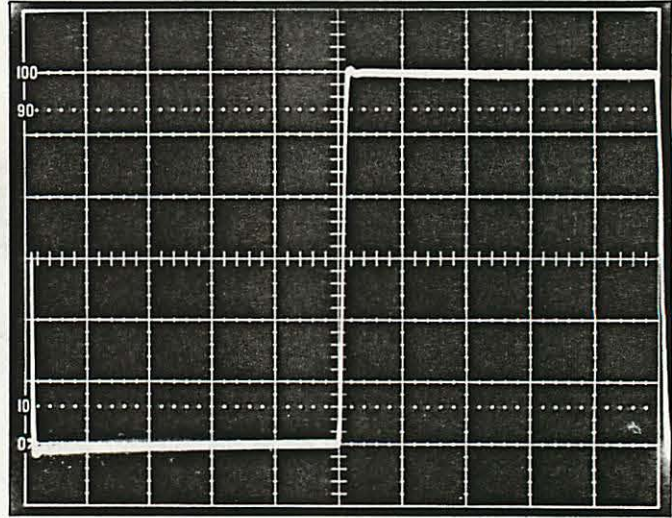
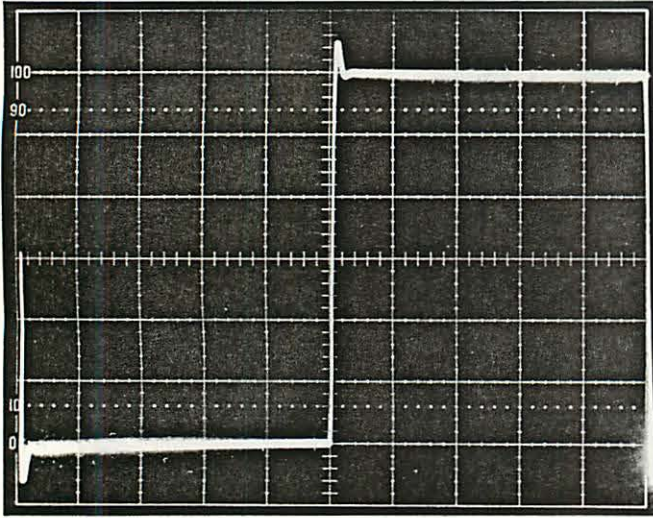
**NOTES:**

1. IC-1 = integrated circuit opamp such as MA-332 or NE-5534.
2. Gain Range: +24dB → +58dB.
3. Keep traces short between transformer and opamp.
4. All resistors = 1%, metal film.
5. 200pF cap in feedback = 2 µsec compensation.
6. FB-2 = ferrite bead available from Jensen.
7. Capacitors marked \* = polystyrene or polypropylene.

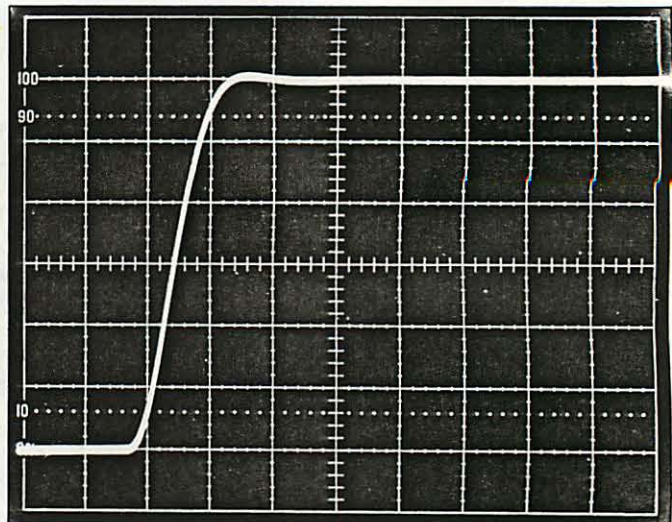
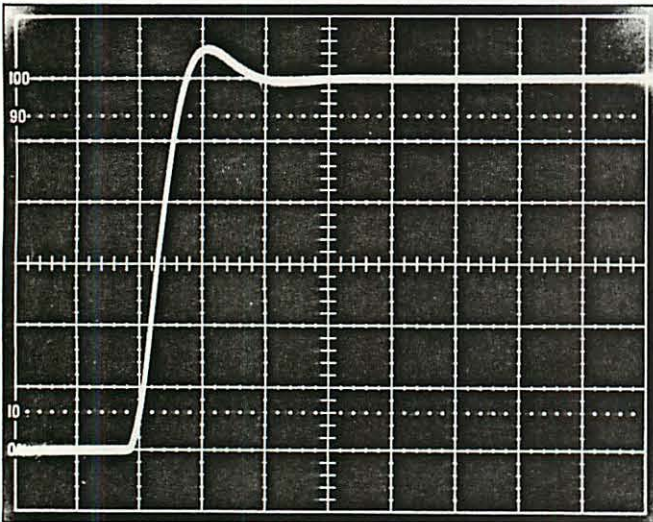
## REGARDING THE OSCILLOSCOPE PHOTOS

Actual oscilloscope photos were made from a Tektronix Model 453A (certified calibration).  
Left column is transformer with secondary termination network and right column includes a 2 microsecond amplifier.

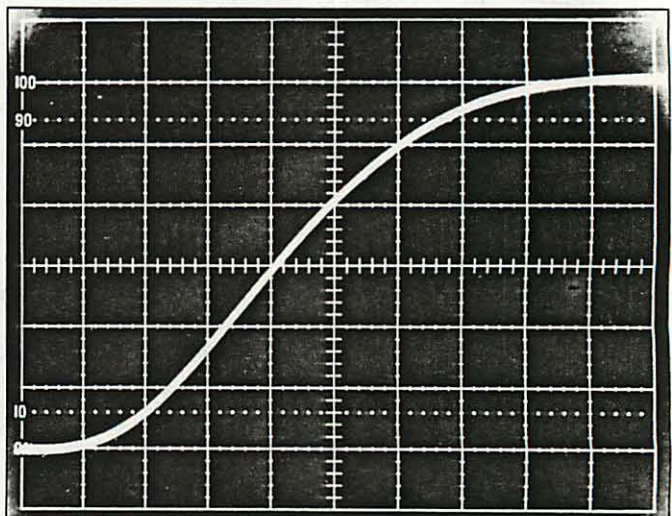
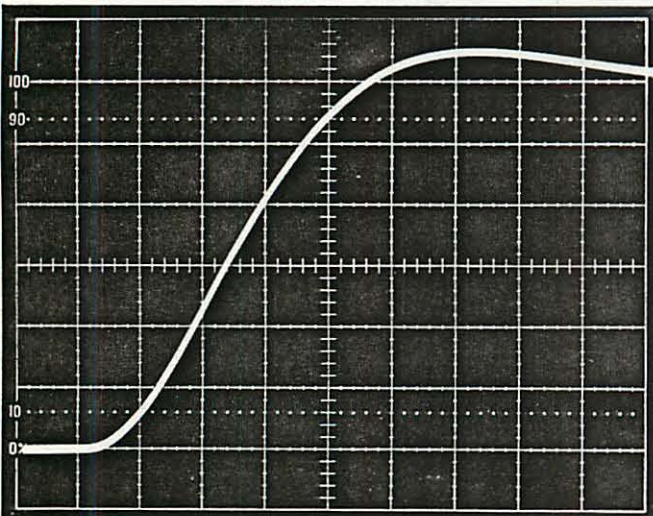
2kHz Square Wave



50 $\mu$ S/division



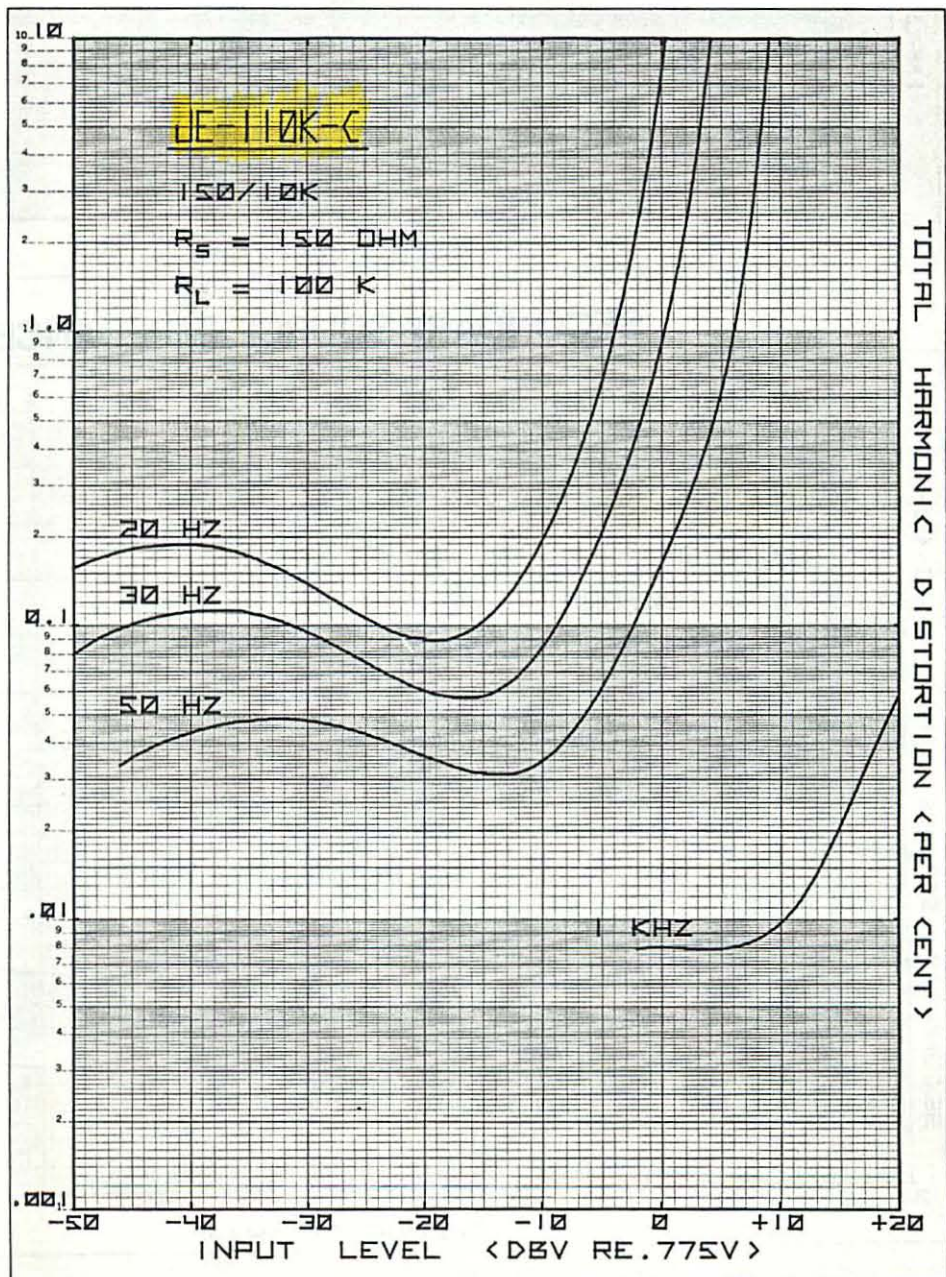
5 $\mu$ S/division



1 $\mu$ S/division

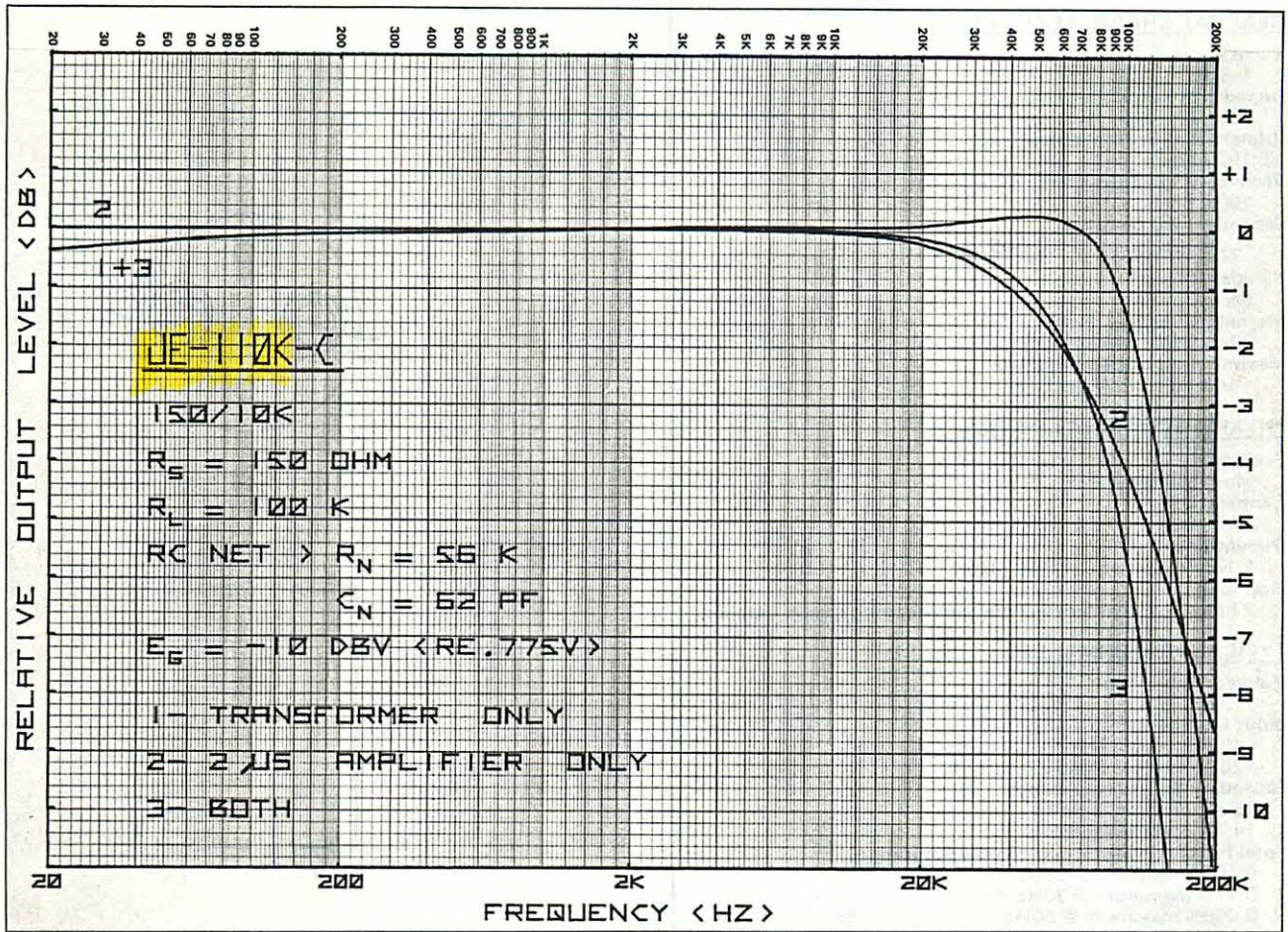
All curves were generated by a Hewlett-Packard 9815A/9862A programmable calculator/plotter. All calculations were either derived from or verified by actual measurements. Verified accuracies are on the order of one pen-line width.

## DISTORTION

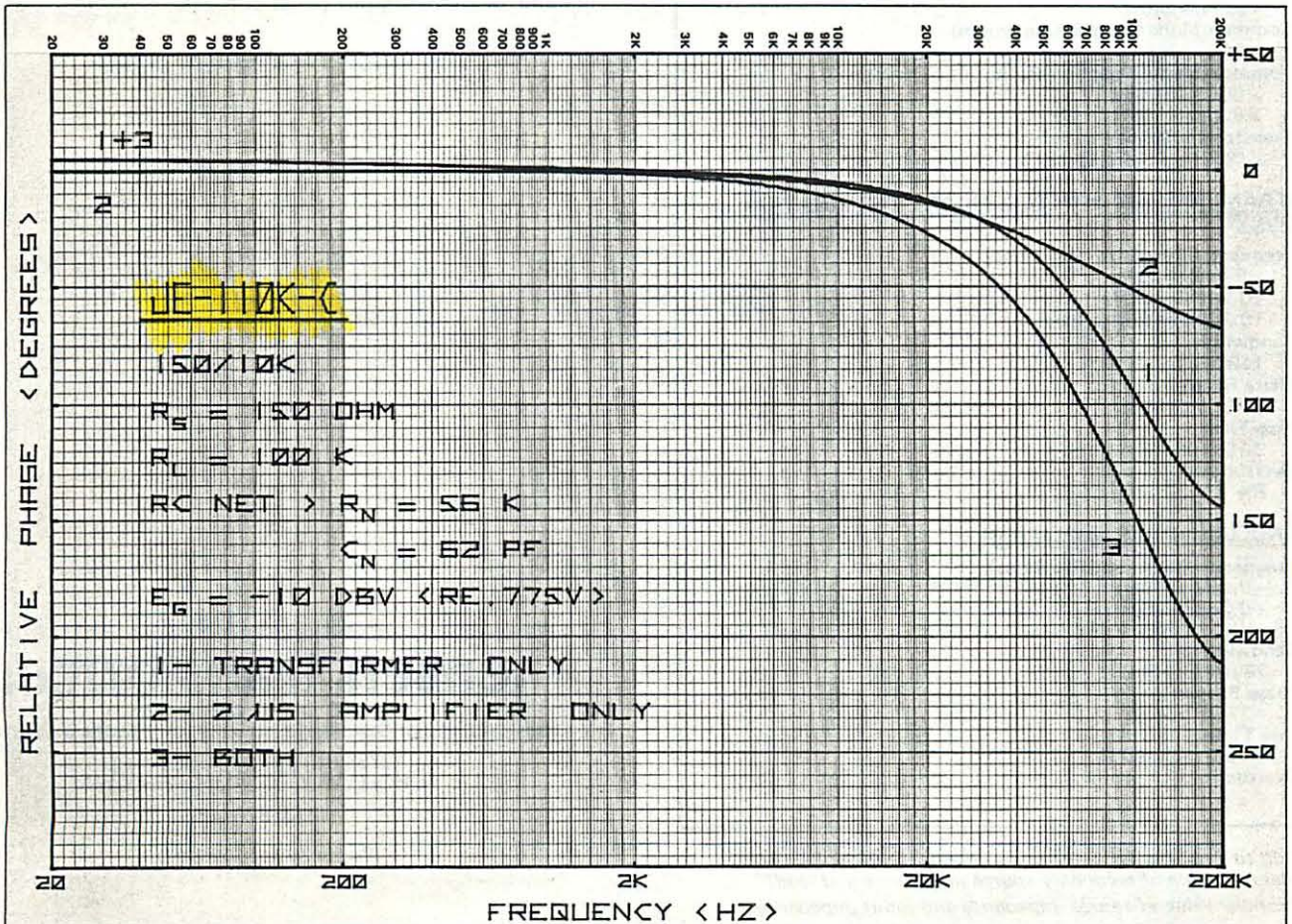




# FREQUENCY RESPONSE



# PHASE RESPONSE



### GENERAL CHARACTERISTICS

**Turns Ratio**

1:8.16

**Impedance Ratio**

150/10K

**Primary Source Impedance**

150 ohms

**Secondary Load Resistor**

100K ohms

**Secondary RC Network**

$R_N = 56K$  ohms     $C_N = 62pf$

**Faraday Shield**

Separate lead

**Magnetic Shield**

30dB, separate case lead

**Maximum Input Level at 20Hz**

-1dBv (Re: 0.775v)

### PHYSICAL CHARACTERISTICS

**Package**

Mu-metal can

**Termination**

Wire leads

**Dimensions**

1-1/8" diameter, 1-1/16" high

**Mounting**

2 holes, 0.7" center-to-center, self-tapping screws supplied

### TYPICAL PERFORMANCE

**Voltage Gain**

17.9dB

**Input Impedance**

1400 ohms @ 1kHz

1250 ohms @ 10kHz

**Secondary Source Impedance**

13.8K ohms @ 1kHz

14.7K ohms @ 10kHz

**Total Harmonic Distortion (Below Saturation)**

0.19% maximum @ 20Hz

0.11% maximum @ 30Hz

0.048% maximum @ 50Hz

0.008% @ 1kHz

**Input Level @ 1% Saturation (dBv Re: 0.775v)**

-4dBv @ 20Hz

0dBv @ 30Hz

+6dBv @ 50Hz

**Common-Mode Voltage (maximum)**

>200v peak

**Common-Mode Rejection Ratio**

>85dB @ 1kHz

>65dB @ 10kHz

**Transformer Noise Figure\***

2.0dB Re: 134.9 ohms\*\*

### (TRANSFORMER WITH SECONDARY TERMINATION ONLY)

**Frequency Response (Re: 1kHz)**

-0.4dB @ 20Hz

+0.1dB @ 20kHz

+0.25dB @ 50kHz (peak)

**Bandwidth**

118kHz @ -3dB

**Phase Response**

-13° @ 20kHz

**Rise Time**

3μS (10%-90%)

**Overshoot**

8%

### (INCLUDING 2μS AMPLIFIER)

**Frequency Response (Re: 1kHz)**

-0.4dB @ 20Hz

-0.2dB @ 20kHz

(No resonance peak)

**Bandwidth**

75kHz @ -3dB

**Phase Response**

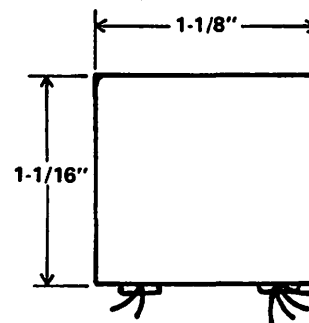
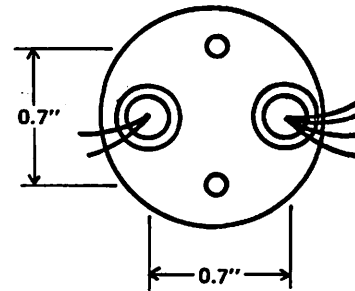
-27° @ 20kHz

**Rise Time**

4.7μS (10%-90%)

**Overshoot**

<2%



**MECHANICAL DESIGNERS:**

Dimensions are approximate. Please have a transformer in hand when laying out panel cutouts.



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(Visitors by Appointment Only)

\*Add to amplifier NF referred to impedance of 12.8K ohms.  
(Parallel value of secondary source impedance and load)

\*\*Parallel value of source impedance and input impedance.