

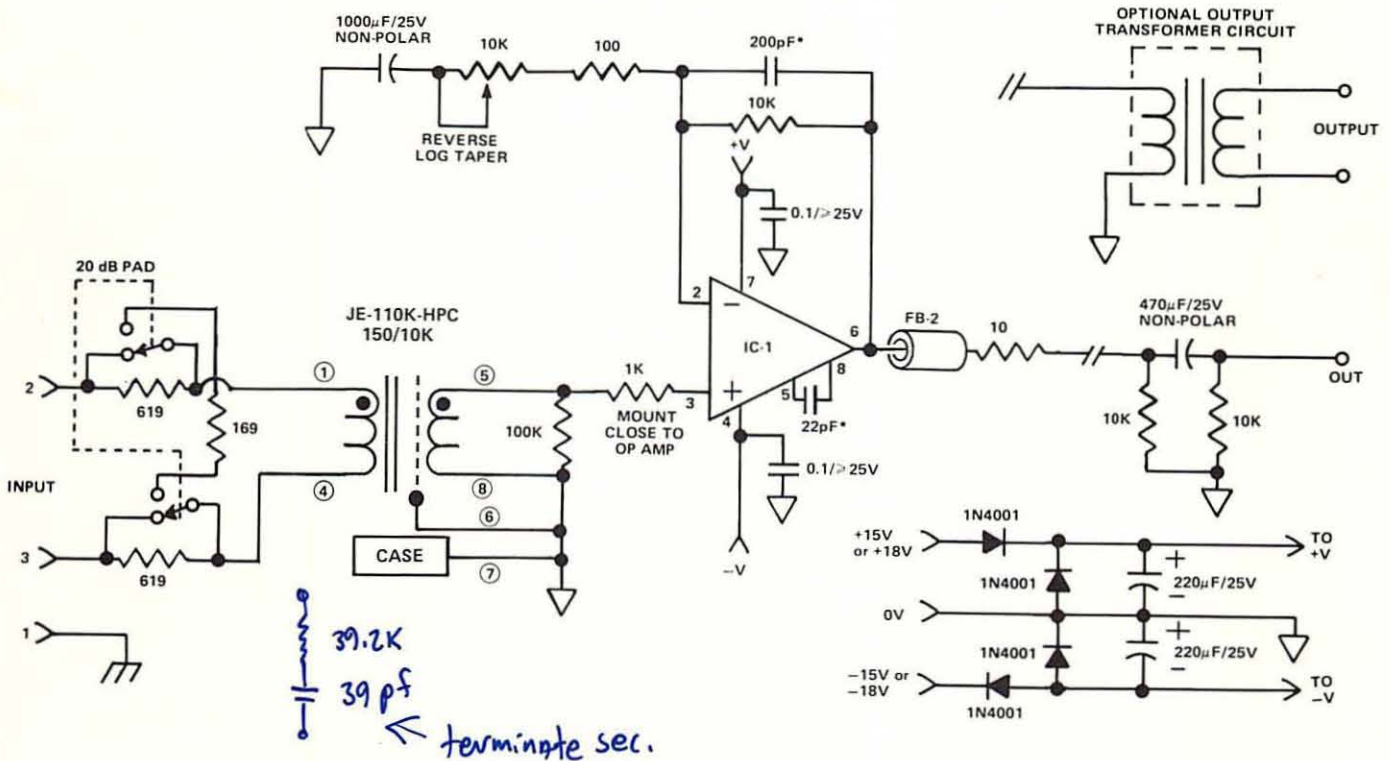
Data Sheet

jensen transformers
INCORPORATED

JE-110K-HPC MICROPHONE INPUT TRANSFORMER

The JE-110K-HPC is a printed circuit type 150/10K with a winding similar to the JE-115K-E. The multiple interleaved layer winding exhibits very low leakage inductance requiring no series RC network across the 100K ohm secondary load resistor when used with an amplifier incorporating $2\mu\text{S}$ phase lead compensation in the feedback circuit. Since the PC bobbin contains a smaller stack of laminations than the wire lead JE-115K-E, the JE-110K-HPC uses more total turns of smaller wire. The result is higher maximum level capability at low frequencies and the distortion is the lowest of all types in this size (0.11% @ 20Hz), but the higher series losses increase the noise by 0.9dB, compared to the wire lead version JE-115K-E.

The pin pattern is compatible with the JE-6110K-APC.



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

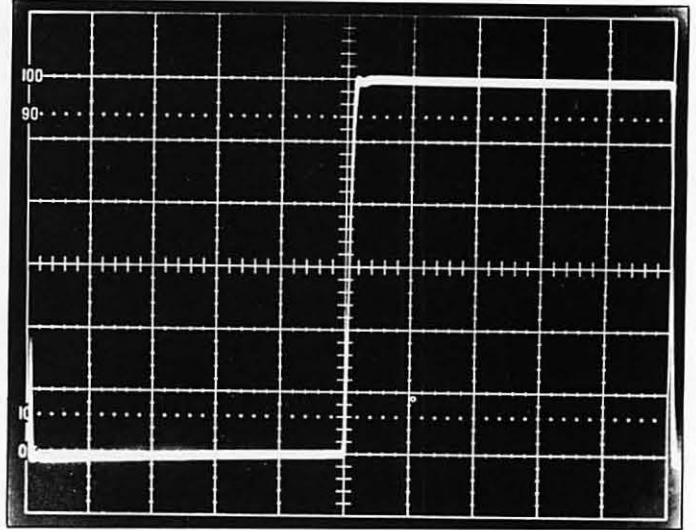
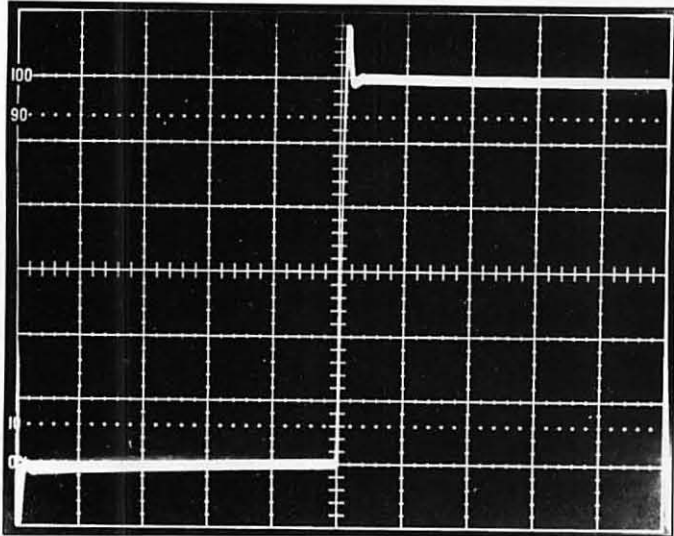
NOTES:

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 = $2\mu\text{sec}$ compensation.
6. FB-2 = ferrite bead available from Jensen.
7. Capacitors marked * = polystyrene or polypropylene.

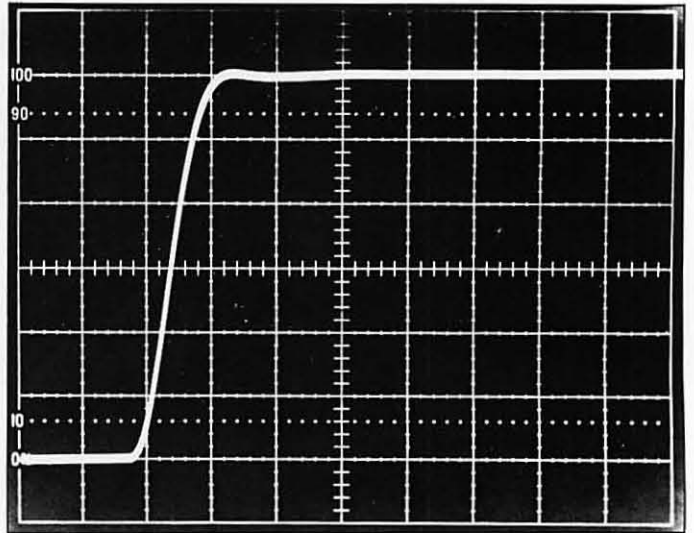
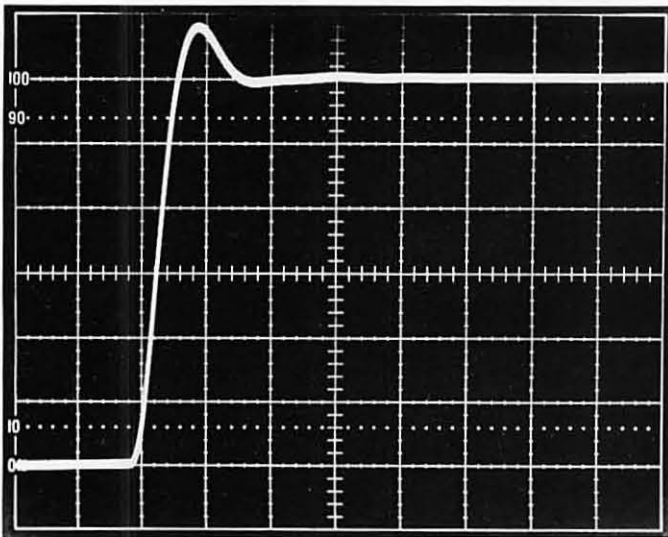
REGARDING THE OSCILLOSCOPE PHOTOS

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.

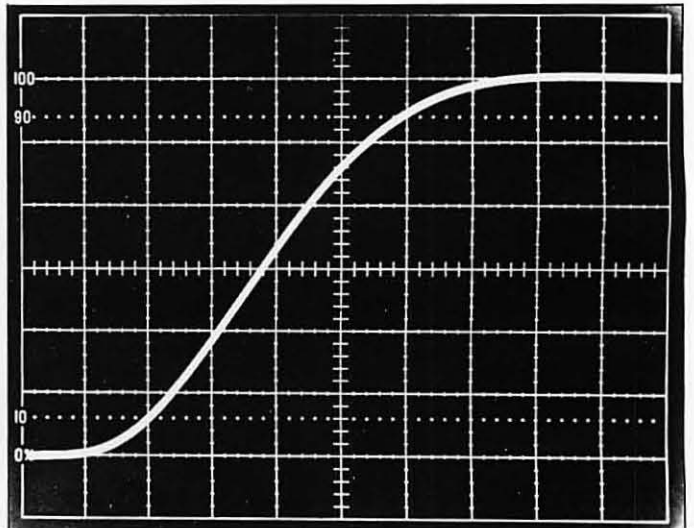
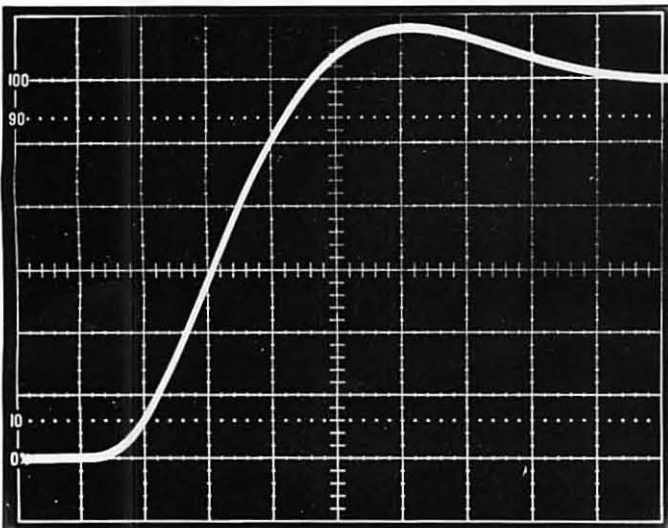
2kHz Square Wave



50 μ S/division



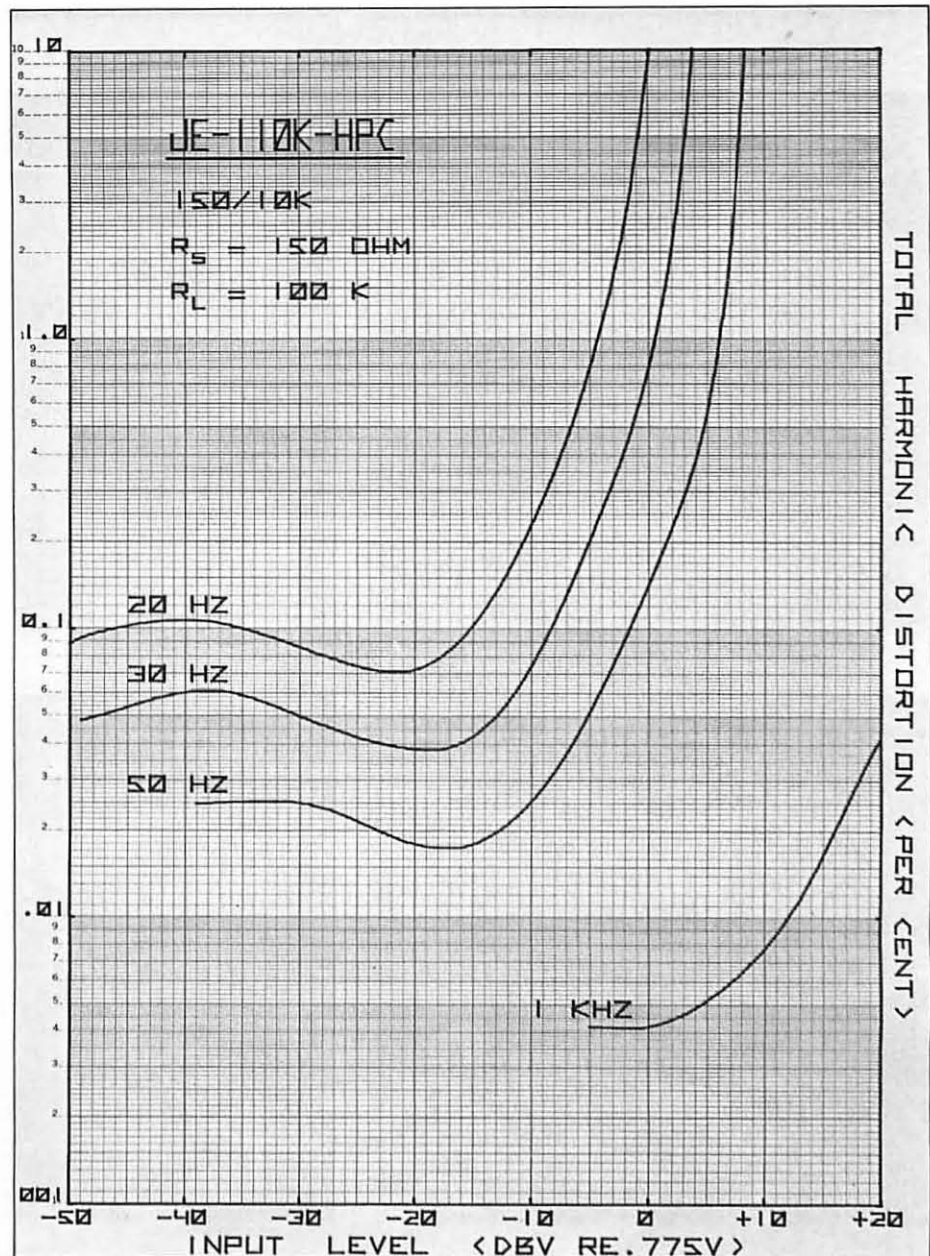
5 μ S/division



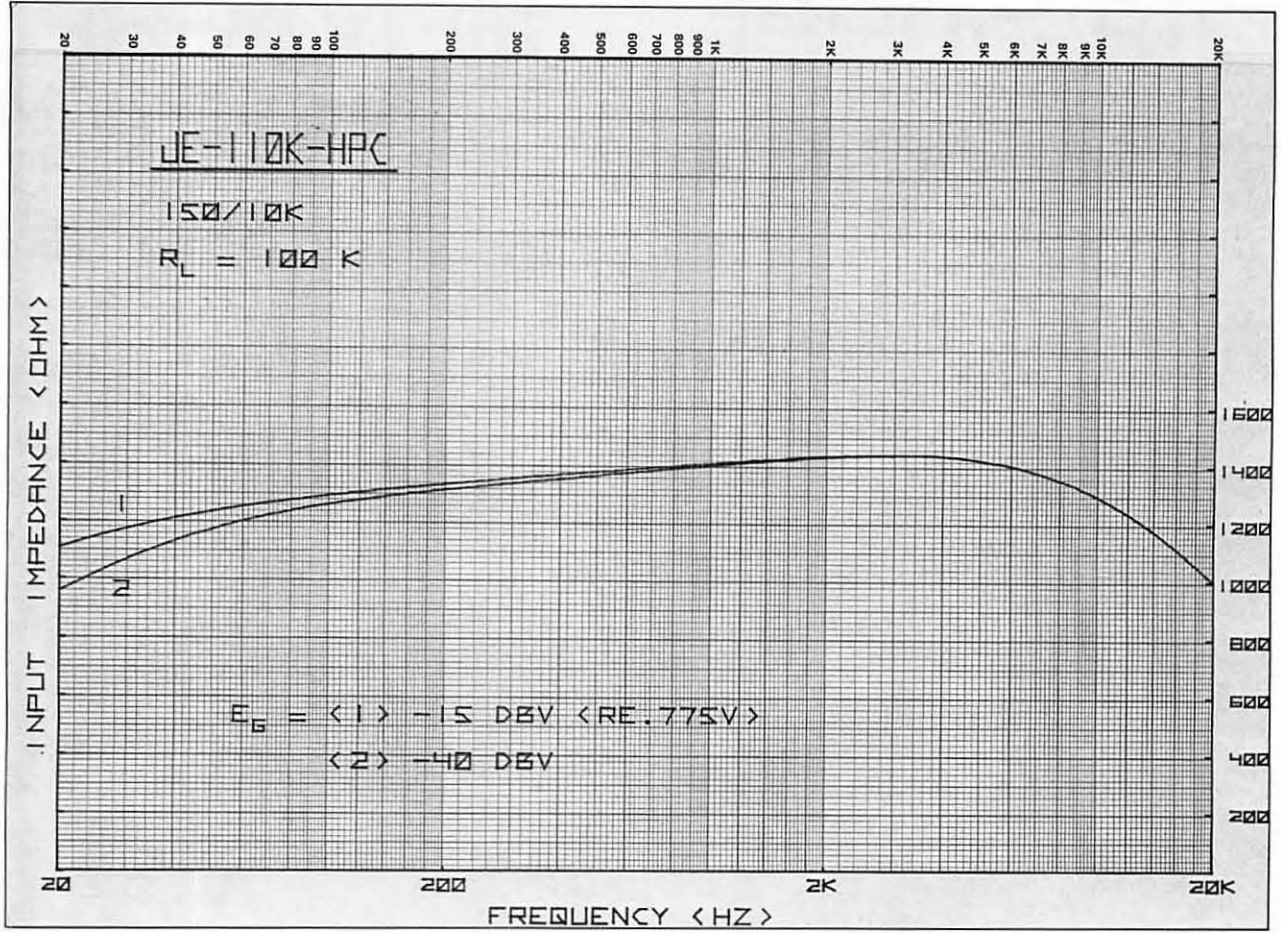
1 μ S/division

All curves were generated by a Hewlett-Packard 9815A/9862A programmable calculator/plotter. All calculations were either derived from or verified by actual measurements. The distortion measurements employed a Sound Technology 1710A Analyzer. Verified accuracies are on the order of one pen-line width.

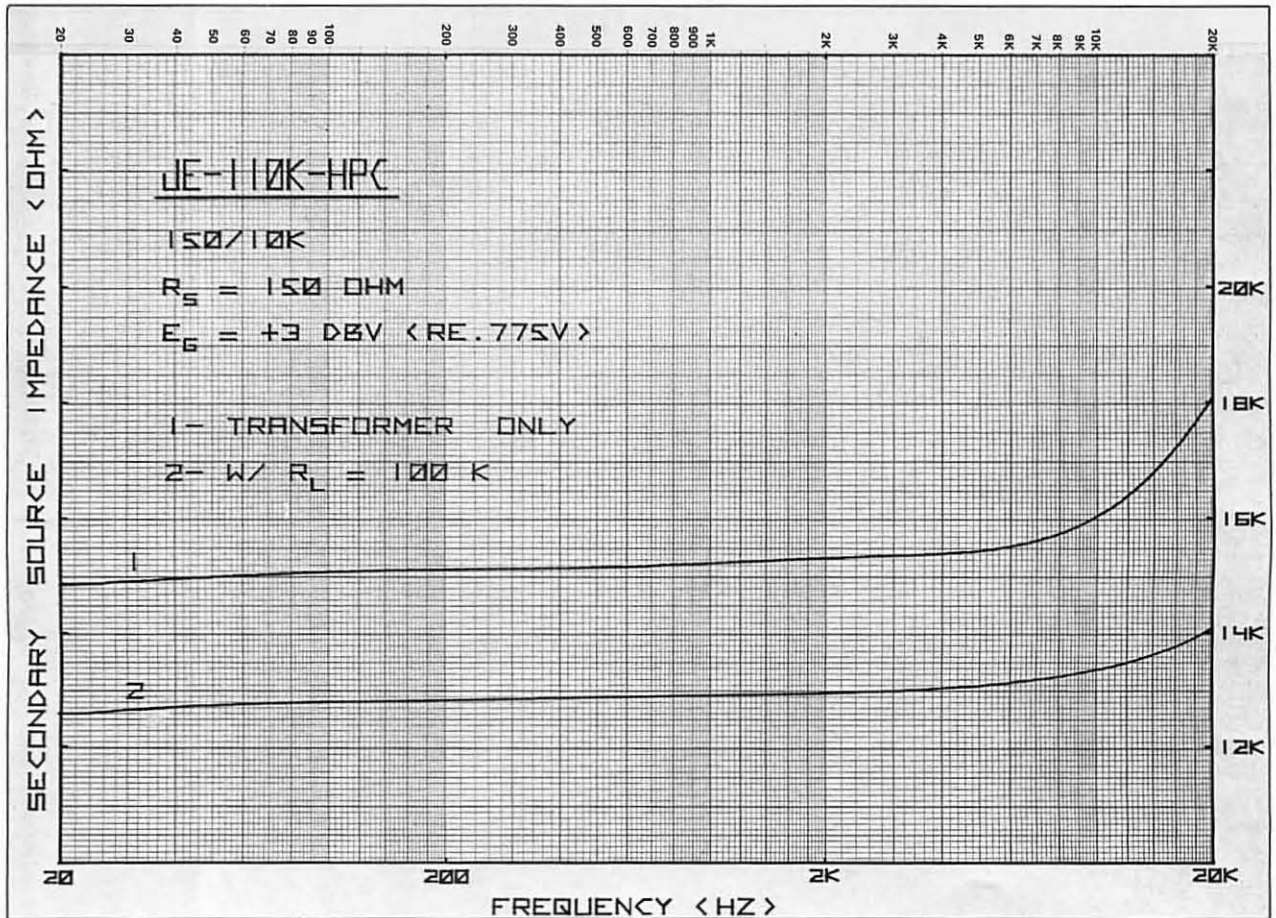
DISTORTION



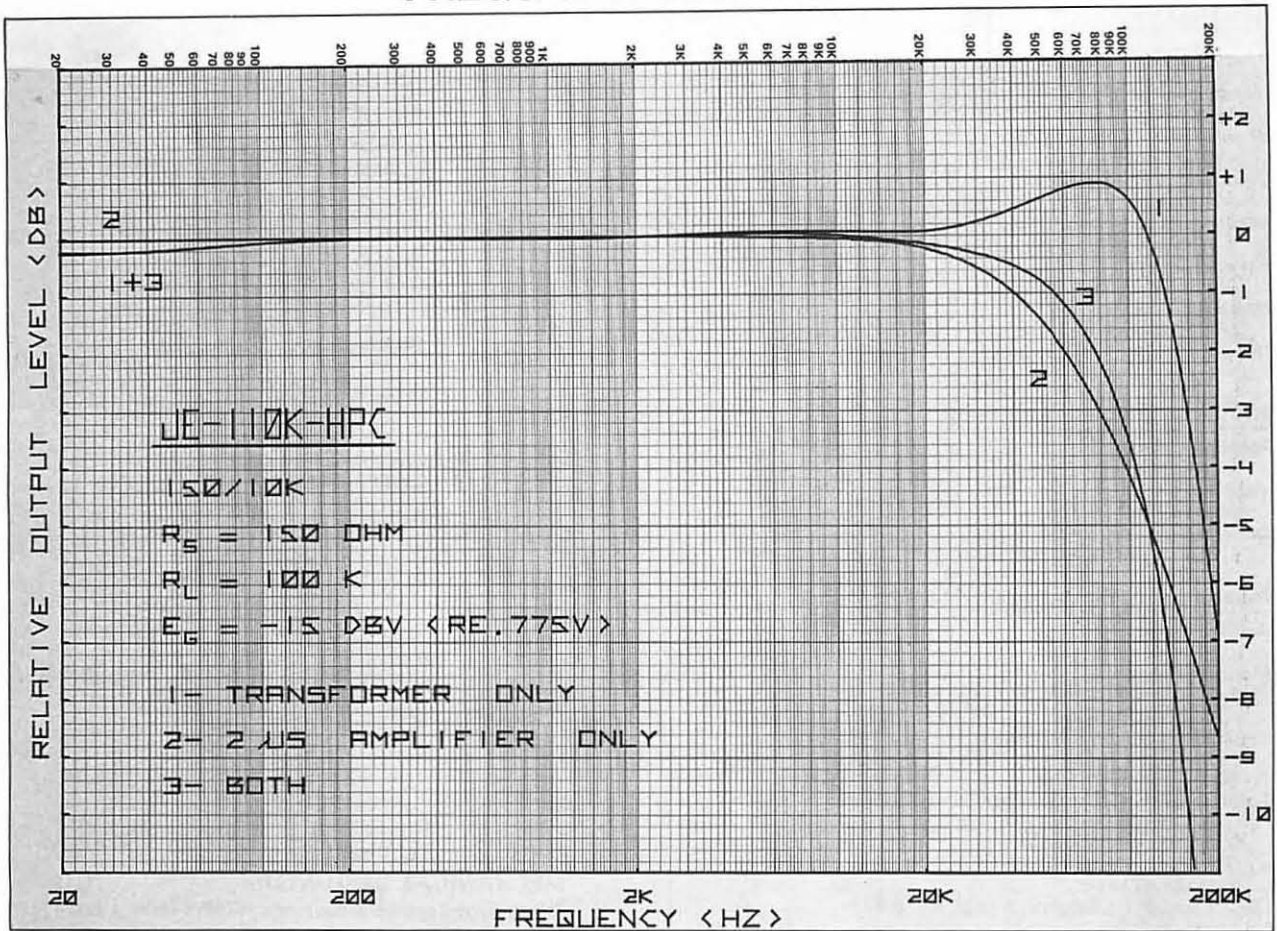
INPUT IMPEDANCE



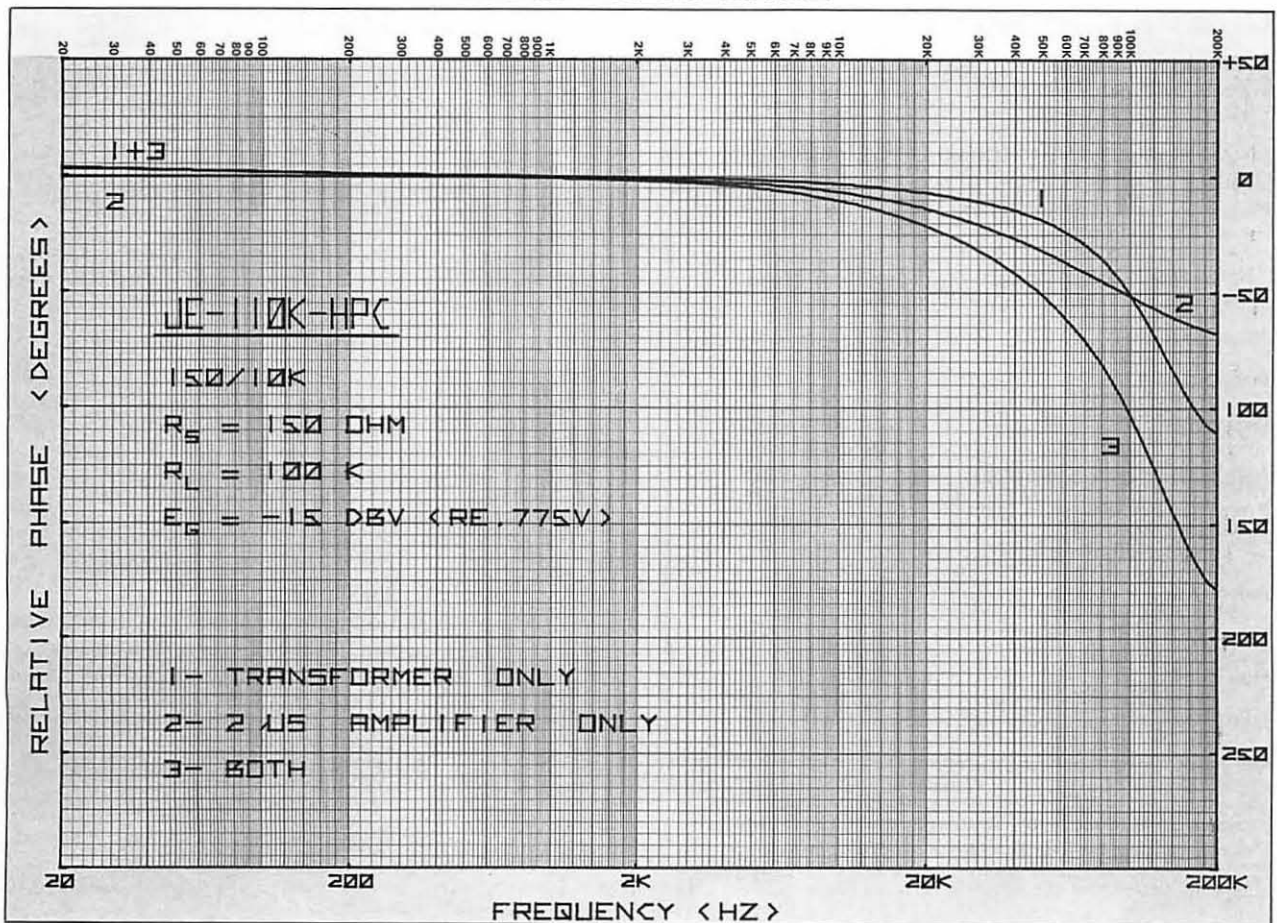
SECONDARY SOURCE IMPEDANCE



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
None required
Faraday Shield
Separate pin
Magnetic Shield
30dB, separate case pin
Maximum Input Level at 20Hz
-1dBv (Re: 0.775v)

PHYSICAL CHARACTERISTICS

Package
Mu-metal can
Termination
PC pins
Dimensions
1-1/8" diameter, 1-1/16" high

TYPICAL PERFORMANCE

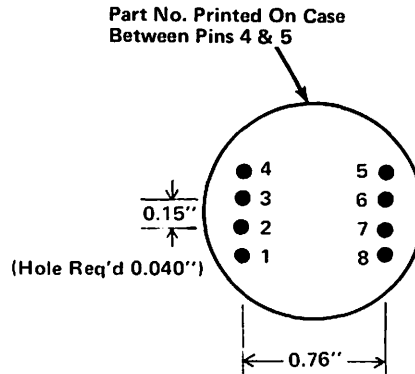
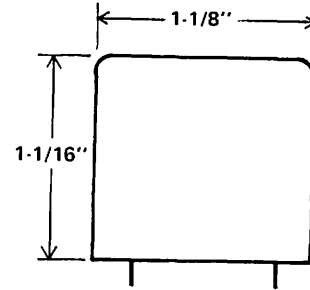
Voltage Gain
17.8dB
Input Impedance
1400 ohms @ 1kHz
1300 ohms @ 10kHz
Secondary Source Impedance
15.2K ohms @ 1kHz
16.1K ohms @ 10kHz
Total Harmonic Distortion (Below Saturation)
0.11% maximum @ 20Hz
0.06% maximum @ 30Hz
0.025% maximum @ 50Hz
0.0042% @ 1kHz
Input Level @ 1% Saturation (dBv Re: 0.775v)
-4dBv @ 20Hz
+0.5dBv @ 30Hz
+6dBv @ 50Hz
Common-Mode Voltage (maximum)
> 200v peak
Common-Mode Rejection Ratio
> 85dB @ 1kHz
> 65dB @ 10kHz
Transformer Noise Figure*
2.4dB Re: 134.5 ohms**

(TRANSFORMER WITH SECONDARY TERMINATION ONLY)

Frequency Response (Re: 1kHz)
-0.2dB @ 20Hz
+0.1dB @ 20kHz
+0.9dB @ 80kHz (peak)
Bandwidth
158kHz @ -3dB
Phase Response
-7.5° @ 20kHz
Rise Time
2.2μs (10%-90%)
Overshoot
13.3%

(INCLUDING 2μs AMPLIFIER)

Frequency Response (Re: 1kHz)
-0.2dB @ 20Hz
-0.2dB @ 20kHz
(No resonance peak)
Bandwidth
92kHz @ -3dB
Phase Response
-21.5° @ 20kHz
Rise Time
3.9μs (10%-90%)
Overshoot
< 1%



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

jensen transformers
INCORPORATED

10735 BURBANK BOULEVARD
N. HOLLYWOOD, CALIFORNIA 91601

(213) 876-0059

(Visitors by Appointment Only)

*Add to amplifier NF referred to impedance of 13.8K ohms.
(Parallel value of secondary source impedance and load)

**Parallel value of source impedance and input impedance.