

Data Sheet

jensen transformers
INCORPORATED

JE-MB-C MICROPHONE BRIDGING TRANSFORMER

The JE-MB-C is a 1:1 turns ratio microphone bridging transformer with a single primary and a single secondary winding, each surrounded with its separate Faraday shield.

The JE-MB-C can be used to isolate and balance an unbalanced pre-amplifier input or to bridge a balanced microphone line, which is terminated with a balanced preamplifier input, to feed a second balanced preamplifier input.

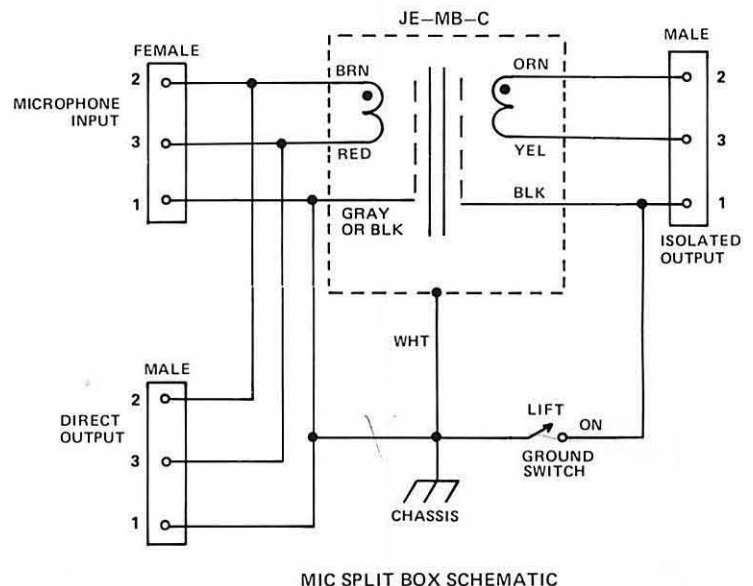
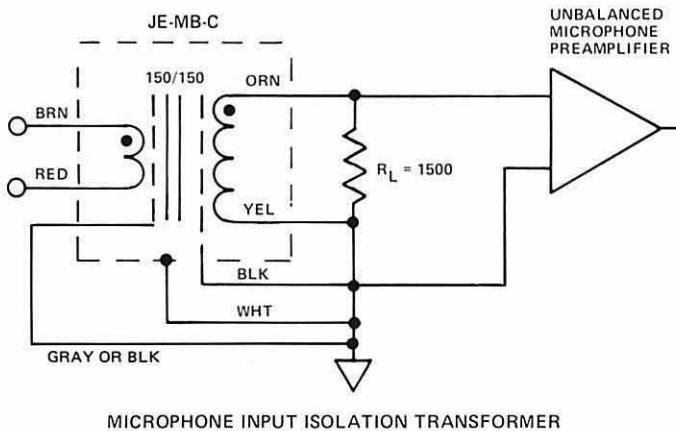
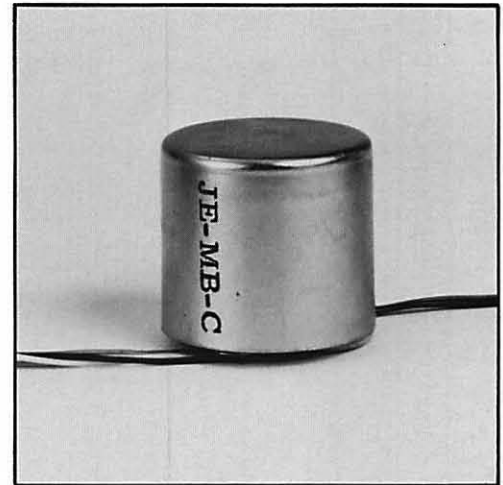
The transformer, with separate Faraday shields for each winding, isolates and rejects the common-mode noise caused by the noise voltage difference between the chassis of the two mixers. With this type of isolation, the microphone shield can be connected through to the chassis of one mixer but need not be connected through to the second mixer chassis. Instead, the chassis (shield) of the second mixer connects only to the Faraday shield of the secondary. This eliminates the ground loop which would be caused if the microphone shield were connected through to both mixers.

Phantom power can be provided by the mixer which terminates the microphone directly.

If cables with the shell connected to pin 1 (shield) are used in the system, insulated mounting will be required for the connectors.

The design is optimized for a source impedance at the primary of 150 ohms (microphone) and a secondary load of 1000 ohms (typical microphone preamplifier input impedance). No resistors are used in the usual application of a "mic-split box."

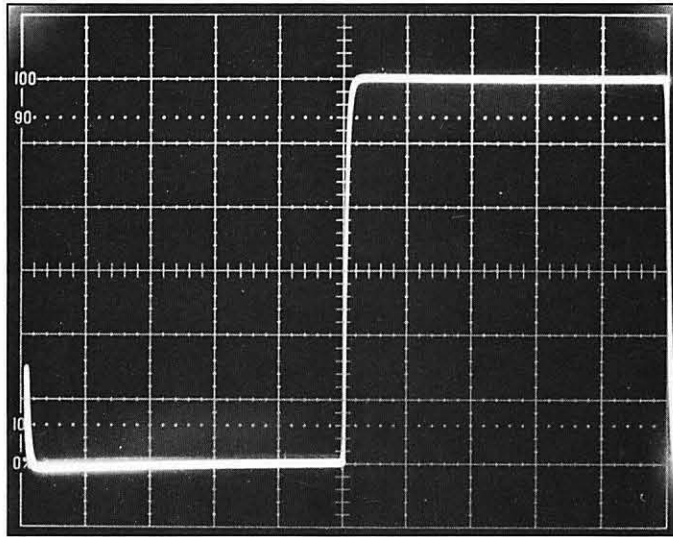
If the transformer is used to balance an unbalanced preamplifier input, a secondary termination resistor may be necessary to result in a load of 1000 to 2000 ohms. A higher secondary load impedance may result in a ringing response.



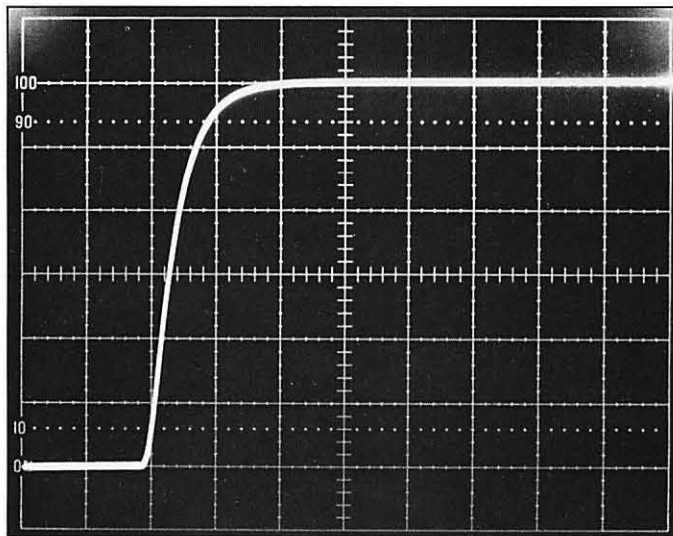
REGARDING THE OSCILLOSCOPE PHOTOS

Actual oscilloscope photos were made from a Tektronix Model 453A (certified calibration).

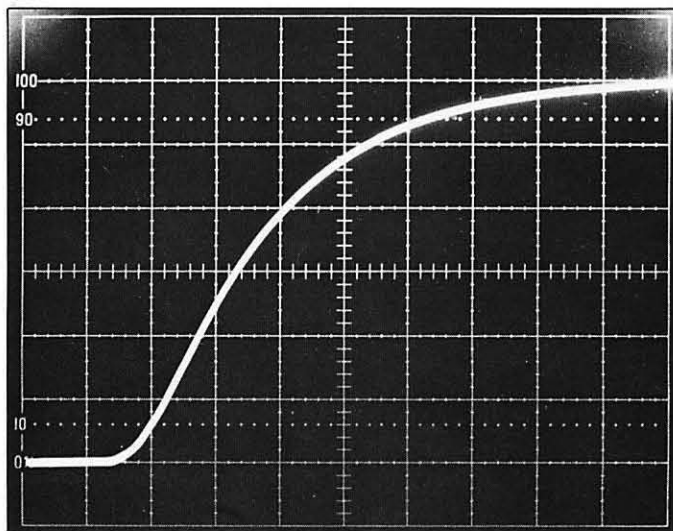
2kHz Square Wave



50 μS/division



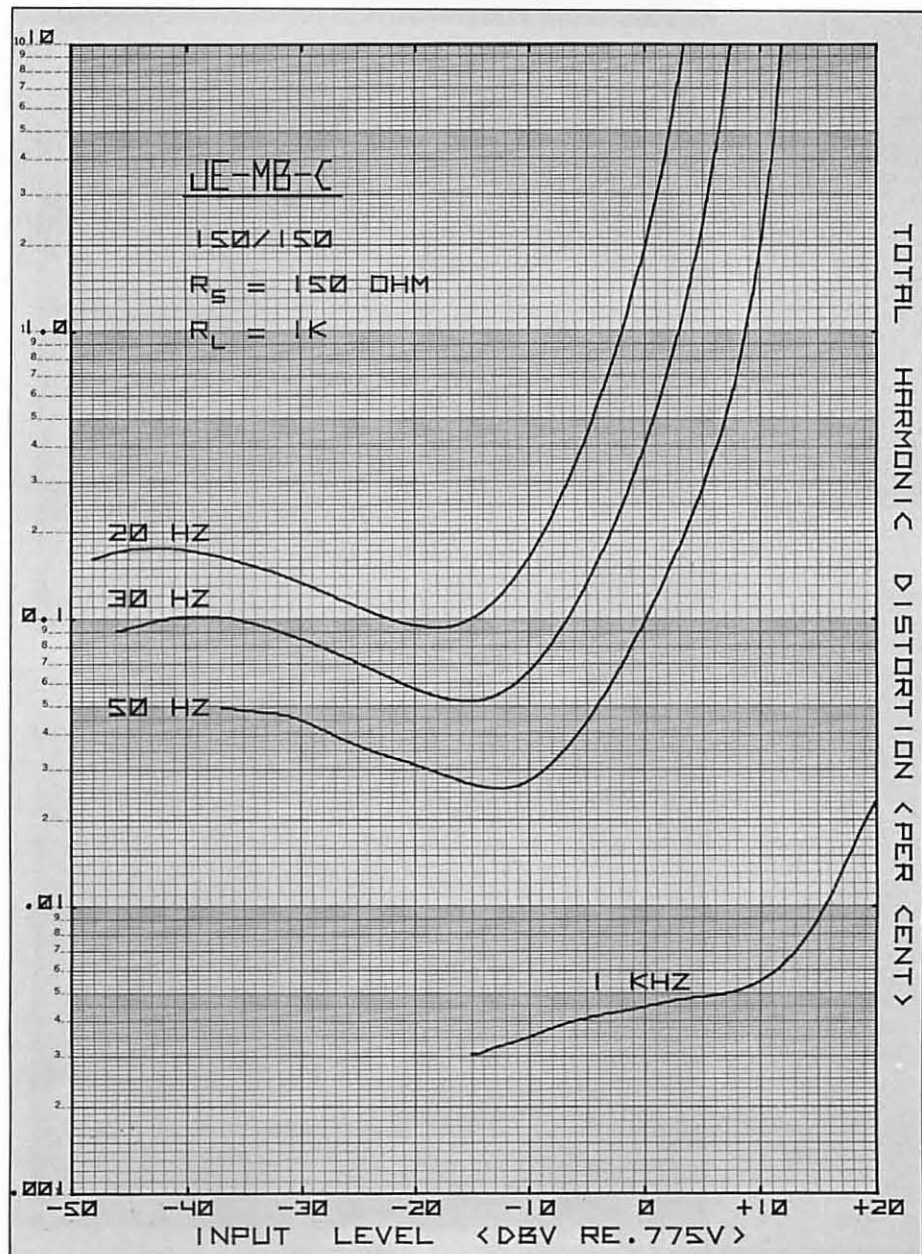
5 μS/division



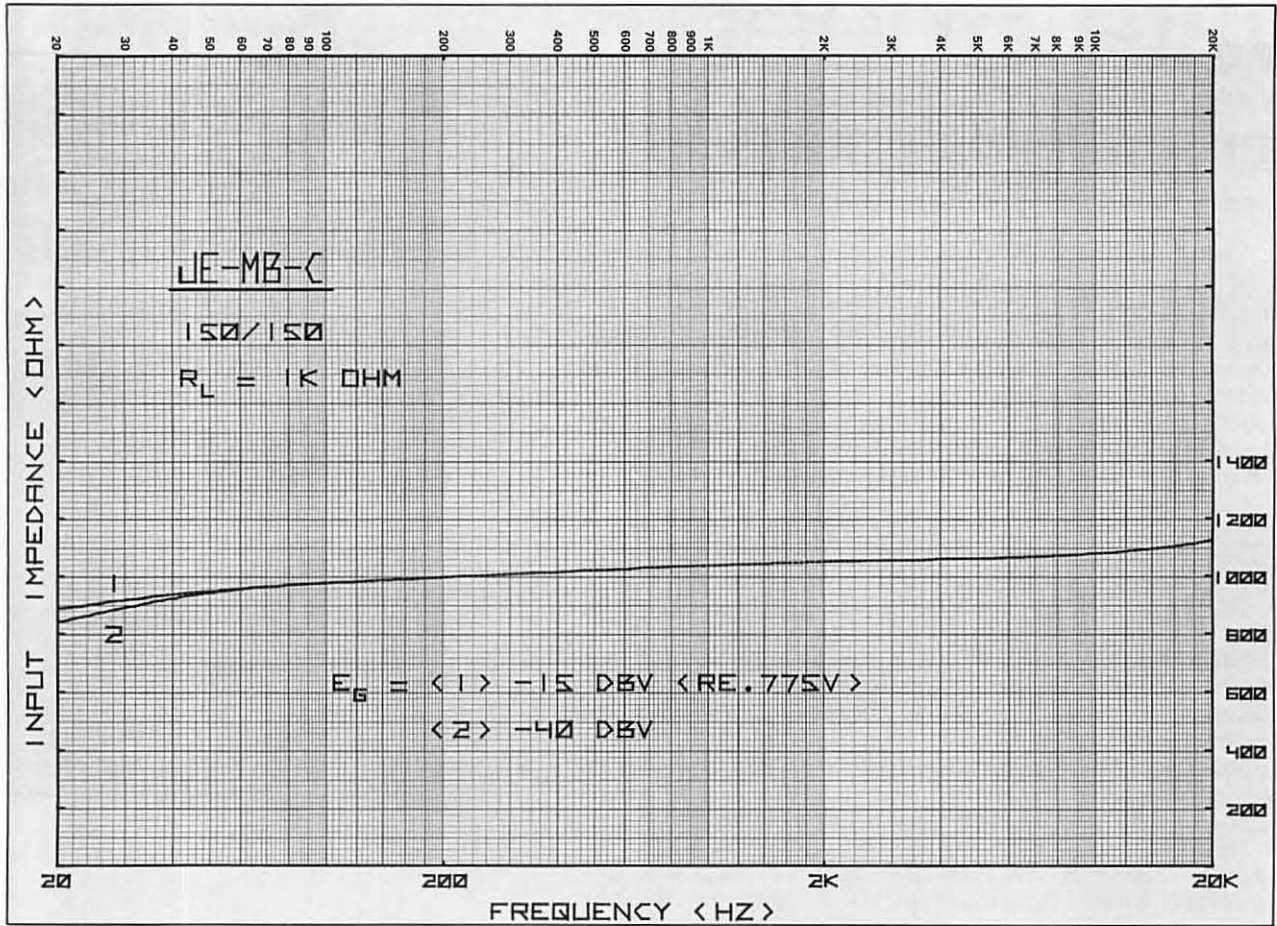
1 μS/division

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.

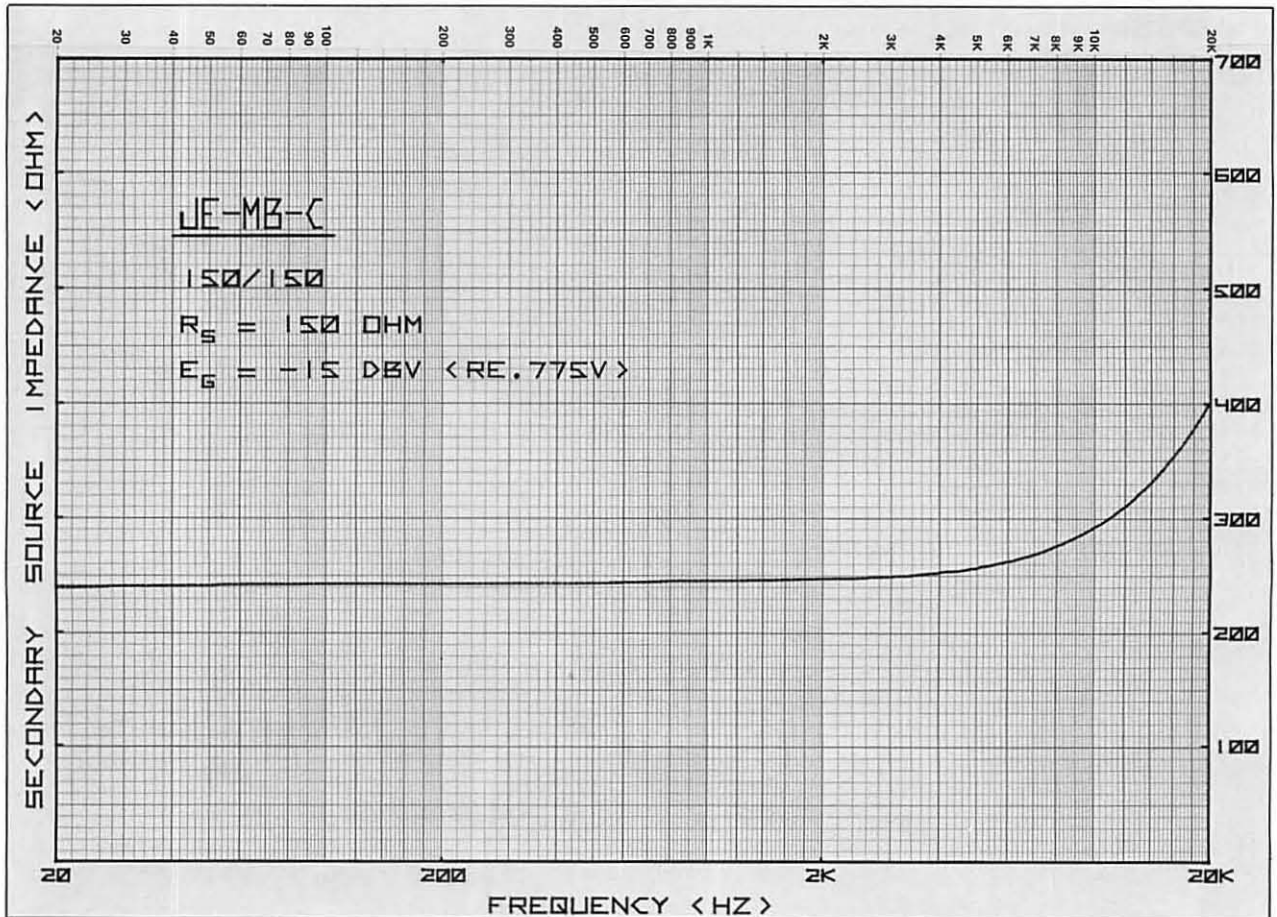
DISTORTION



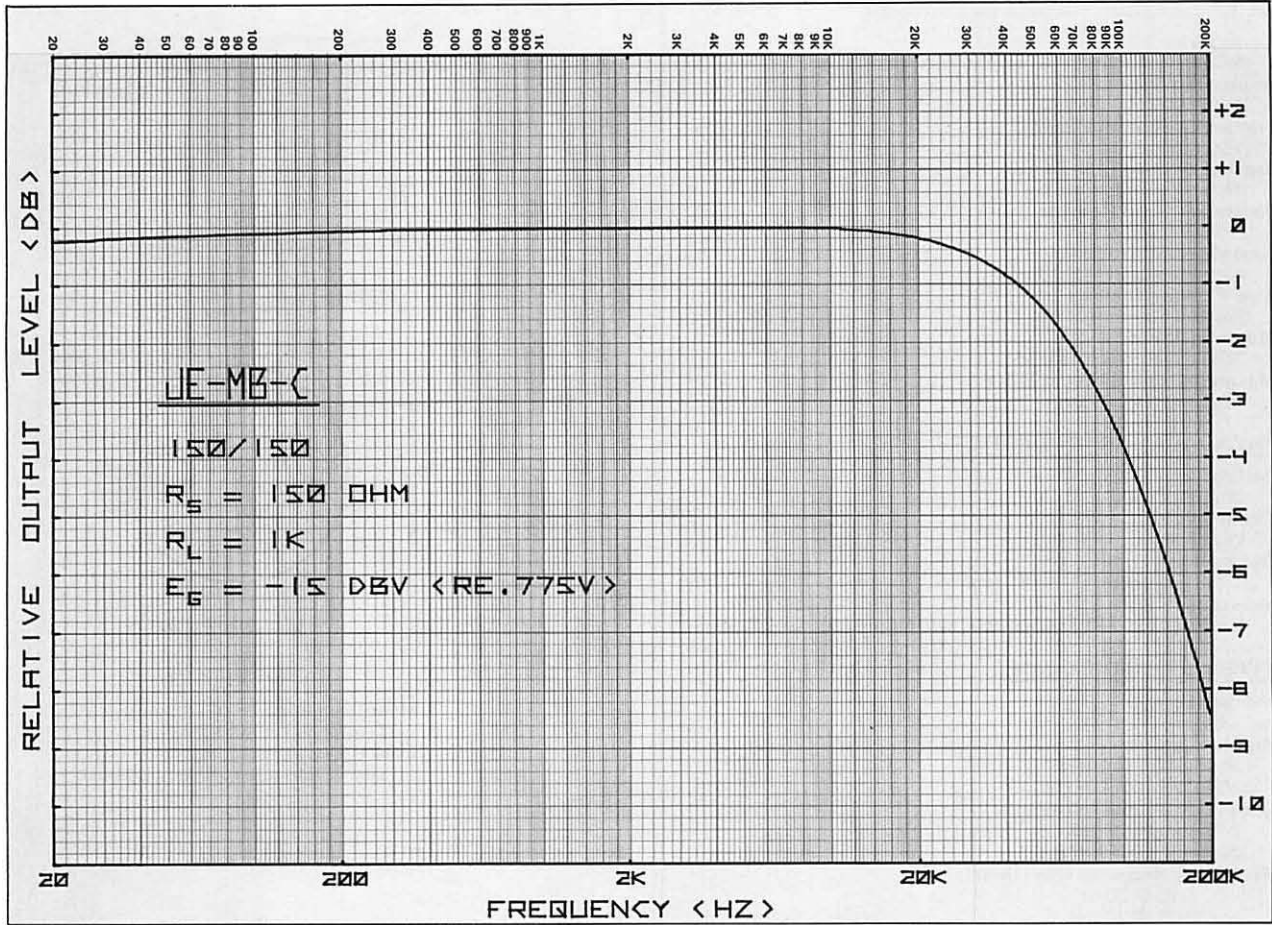
INPUT IMPEDANCE



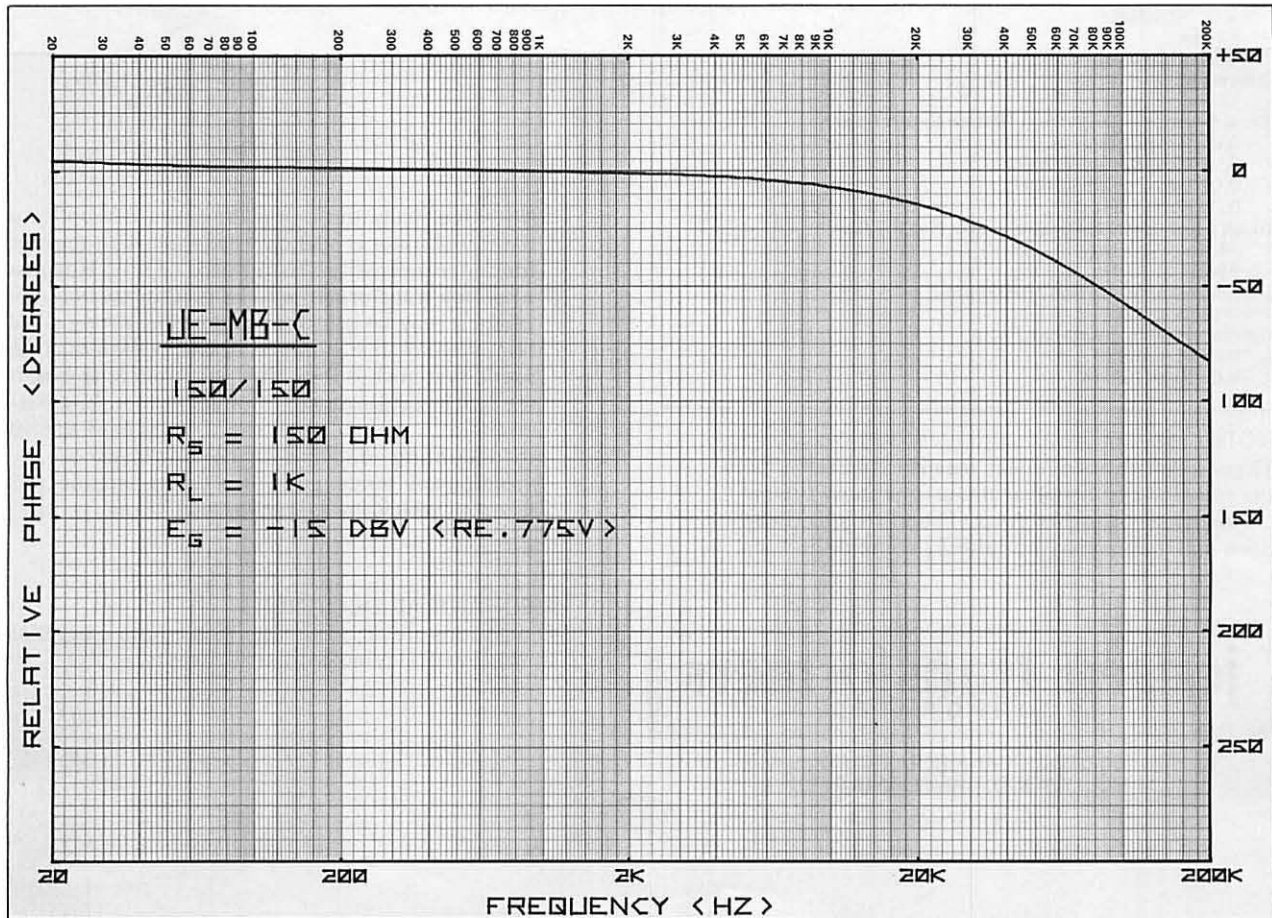
SECONDARY SOURCE IMPEDANCE



FREQUENCY RESPONSE



PHASE RESPONSE



JE-MB-C GENERAL CHARACTERISTICS

Turns Ratio

1:1

Impedance Ratio

150/150

Primary Source Impedance

150 ohms

Secondary Load Impedance

1K ohms (mic pre-amp)

Secondary Load Resistor

None required

Secondary RC Network

None required

Two Faraday Shields

Separate leads

Magnetic Shield

30dB, separate case lead

Maximum Input Level at 20Hz

+2dBv (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

-0.8dB

Input Impedance

1040 ohms @ 1kHz

1080 ohms @ 10kHz

Secondary Source Impedance

245 ohms @ 1kHz

290 ohms @ 10kHz

Frequency Response (Re: 1kHz)

-0.16dB @ 20Hz

-0.13dB @ 20kHz

(no resonance peak)

Bandwidth

100kHz @ -3dB

Phase Response

-12° @ 20kHz

Rise Time

4.3μS (10%-90%)

Overshoot

< 1%

Total Harmonic Distortion (Below Saturation)

0.05% maximum @ 20Hz

0.03% maximum @ 30Hz

0.02% maximum @ 50Hz

0.003% @ 1kHz

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

+1dBv @ 20Hz

+6dBv @ 30Hz

Common-Mode Voltage (maximum)

> 200v peak

Common-Mode Rejection Ratio

>85dB @ 1kHz

>65dB @ 10kHz

NOTE:

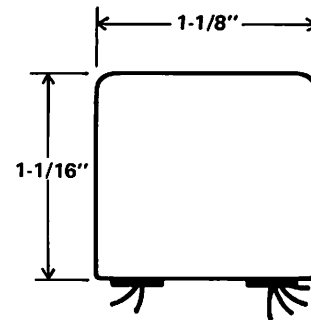
These specifications reflect recent improvements to the transformer, however the graphs show typical performance of earlier units. Therefore specifications and graphs may not always coincide.

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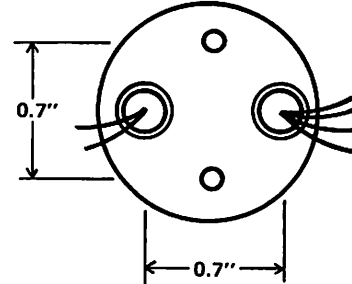
10735 BURBANK BOULEVARD
N. HOLLYWOOD, CALIFORNIA 91601

(213) 876-0059

(Visitors by Appointment Only)



Side View



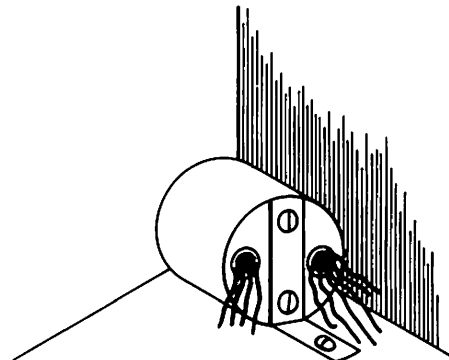
Bottom View

Mounting Holes

Clearance for #4 screw

Lead Holes

Use 0.35" hole to clear grommet



Note: Normally the L-bracket which is supplied with the transformer is adequate for mounting the transformer to a chassis, circuit board or box. However, when the transformer is to be used in applications where it may be subjected to regular, strong vibration or shock (i.e., shipped in trucks with portable sound systems), it should be mounted as shown here; the bracket still secures the transformer, but it is oriented so the mu metal can is being held against the mounting box. This further braces the can, avoiding any tendency for the can to separate from its lid to which the L-bracket is attached.

MECHANICAL DESIGNERS:

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