Data Sheet

jensen transformers
By REICHENBACH ENGINEERING

JE-MB-D
MICROPHONE BRIDGING TRANSFORMER

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

The JE-MB-D can be used to bridge a balanced microphone line, which is terminated with a balanced preamplifier input, to feed second and third balanced preamplifier inputs.

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 multiple 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 or third mixer chassis. Instead, the chassis (shields) of the second and third mixers connect only to the Faraday shield of the appropriate secondary. This eliminates the ground loops which would be caused if the microphone shield were connected through to multiple mixers.

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

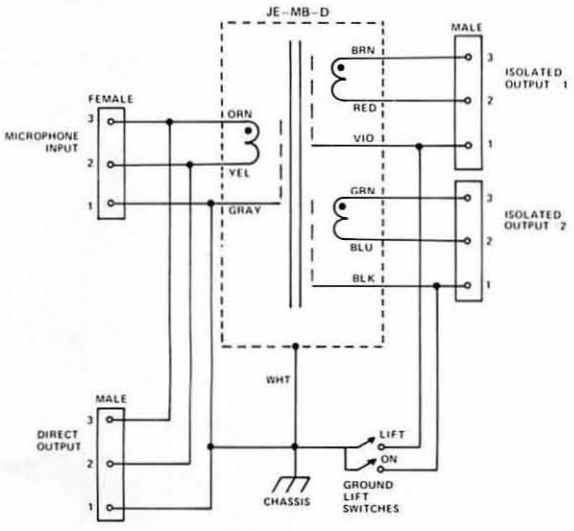
The design is optimized for a source impedance at the primary of 150 ohms (microphone) and secondary loads of 1000 ohms (typical microphone preamplifier input impedance). No resistors are used in the usual application of a "mic-split box."

The primary winding is interleaved equally with both secondary windings for matched transfer characteristics to both secondaries and to minimize variations in response with an unloaded secondary.

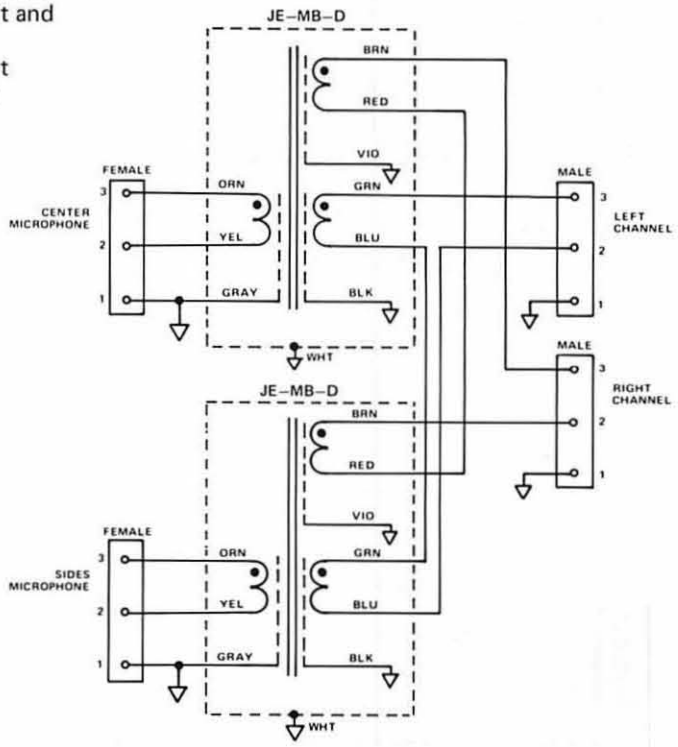
If cables with the shell connected to pin 1 (shield) are used in the system, insulated mounting will be required for the connectors.

STEREO MIC MATRIX

A pair of these 3 winding 1:1:1 transformers can be used to matrix the Sum and Difference signals of a stereo microphone to the Left and Right format. Connect each microphone to a primary, and cross-connect the secondaries in series and anti-series for Left and Right outputs. The Faraday shields can be connected together as one in applications not requiring separate shields.



MIC SPLIT BOX SCHEMATIC

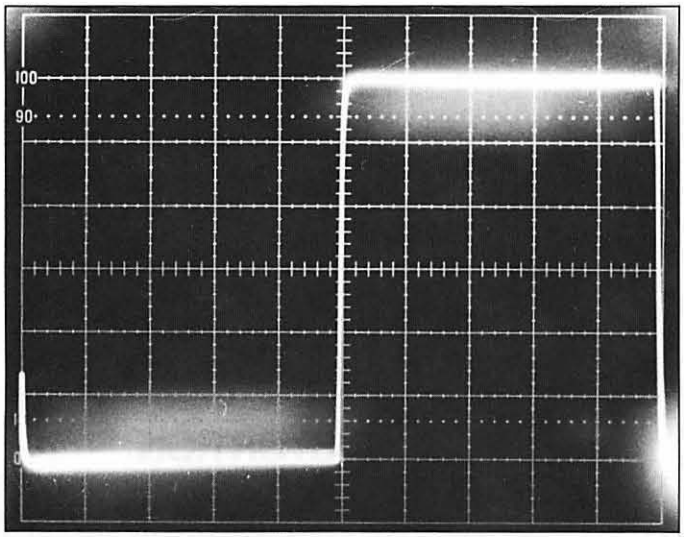


STEREO MICROPHONE MATRIX SCHEMATIC

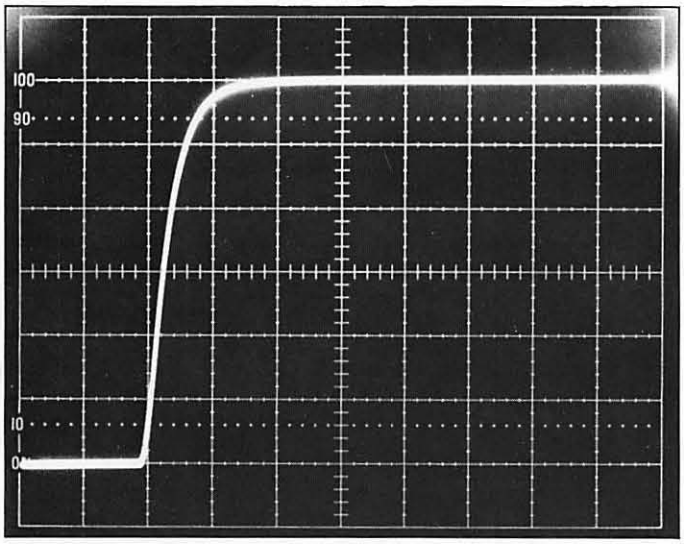
REGARDING THE OSCILLOSCOPE PHOTOS

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

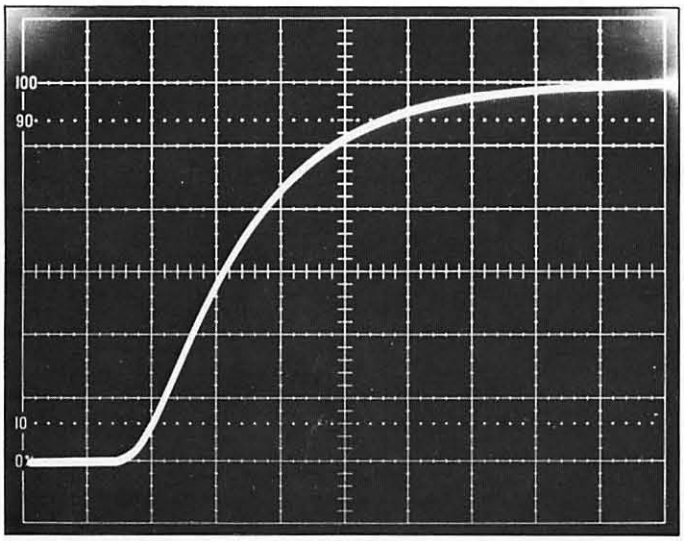
2kHz Square Wave



50μS/division



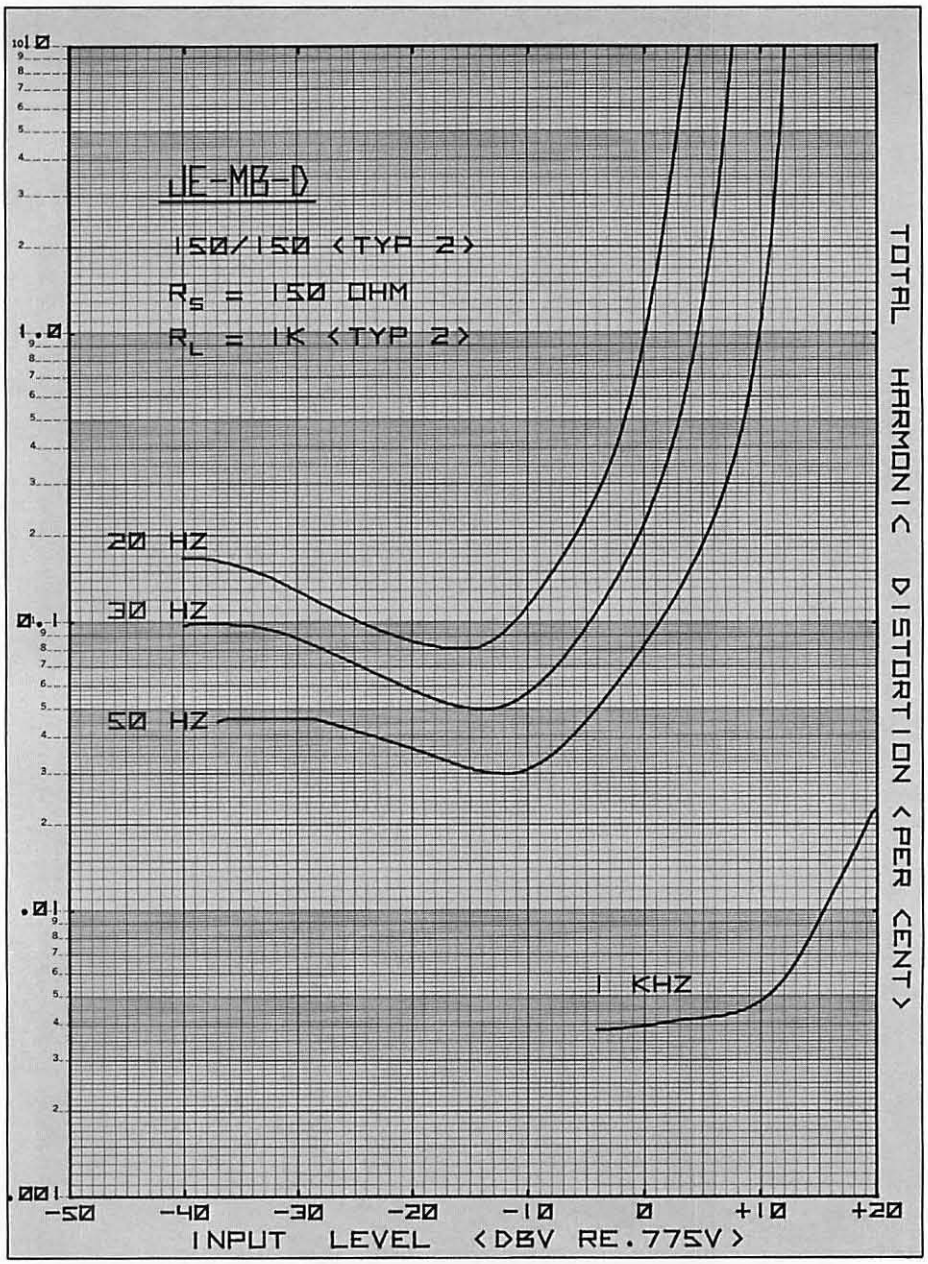
5μS/division



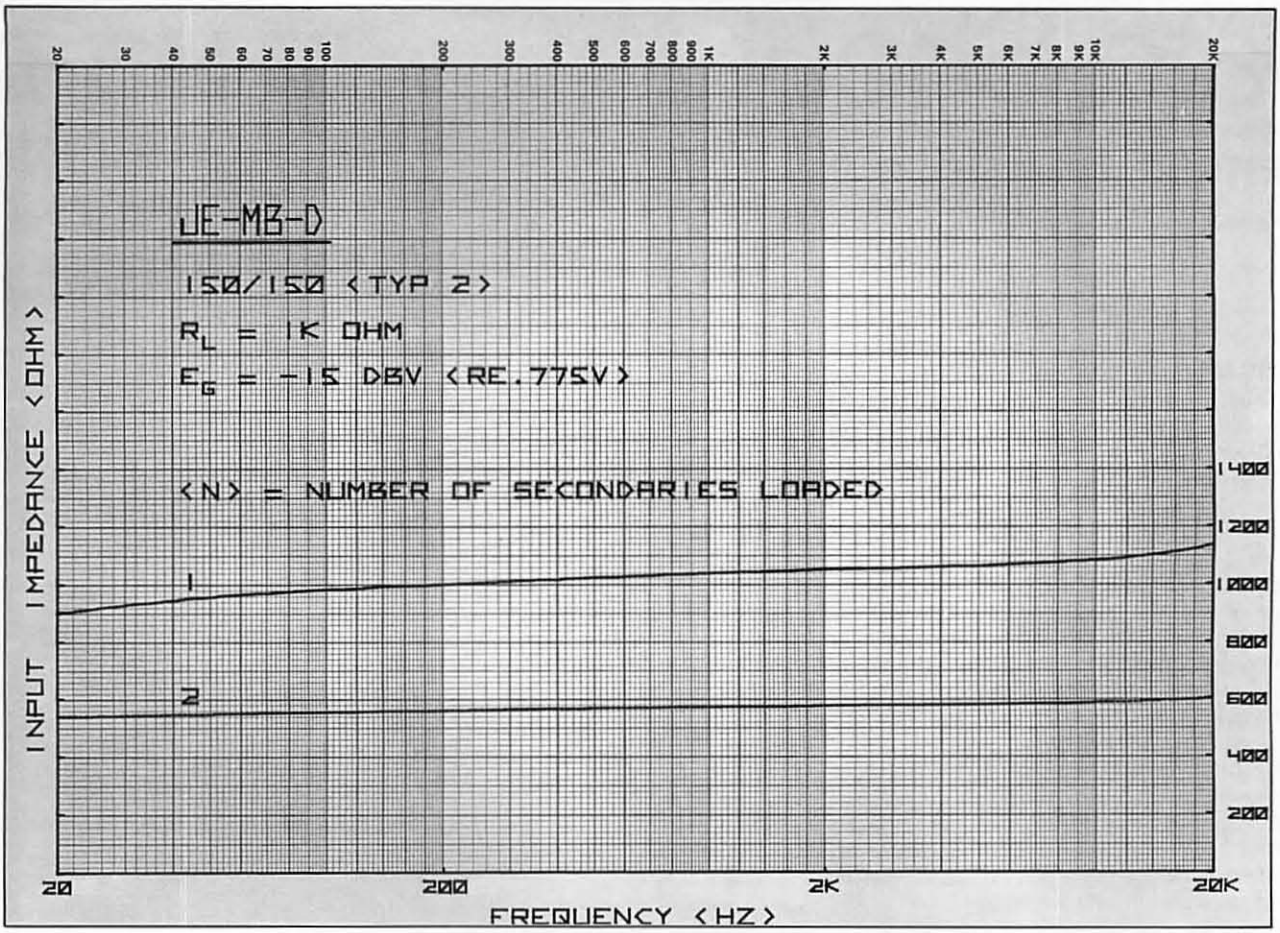
1μS/division

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.

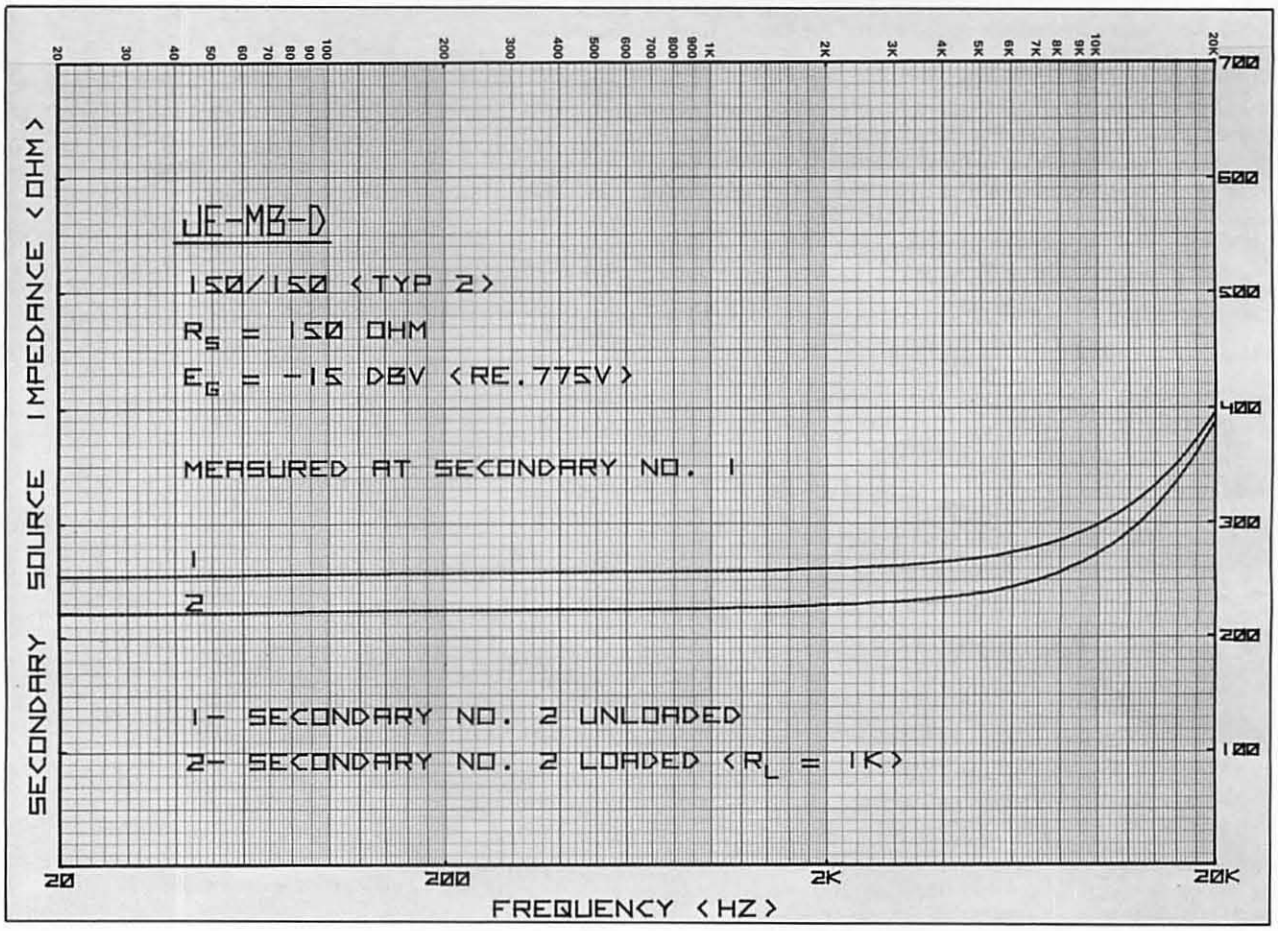
DISTORTION



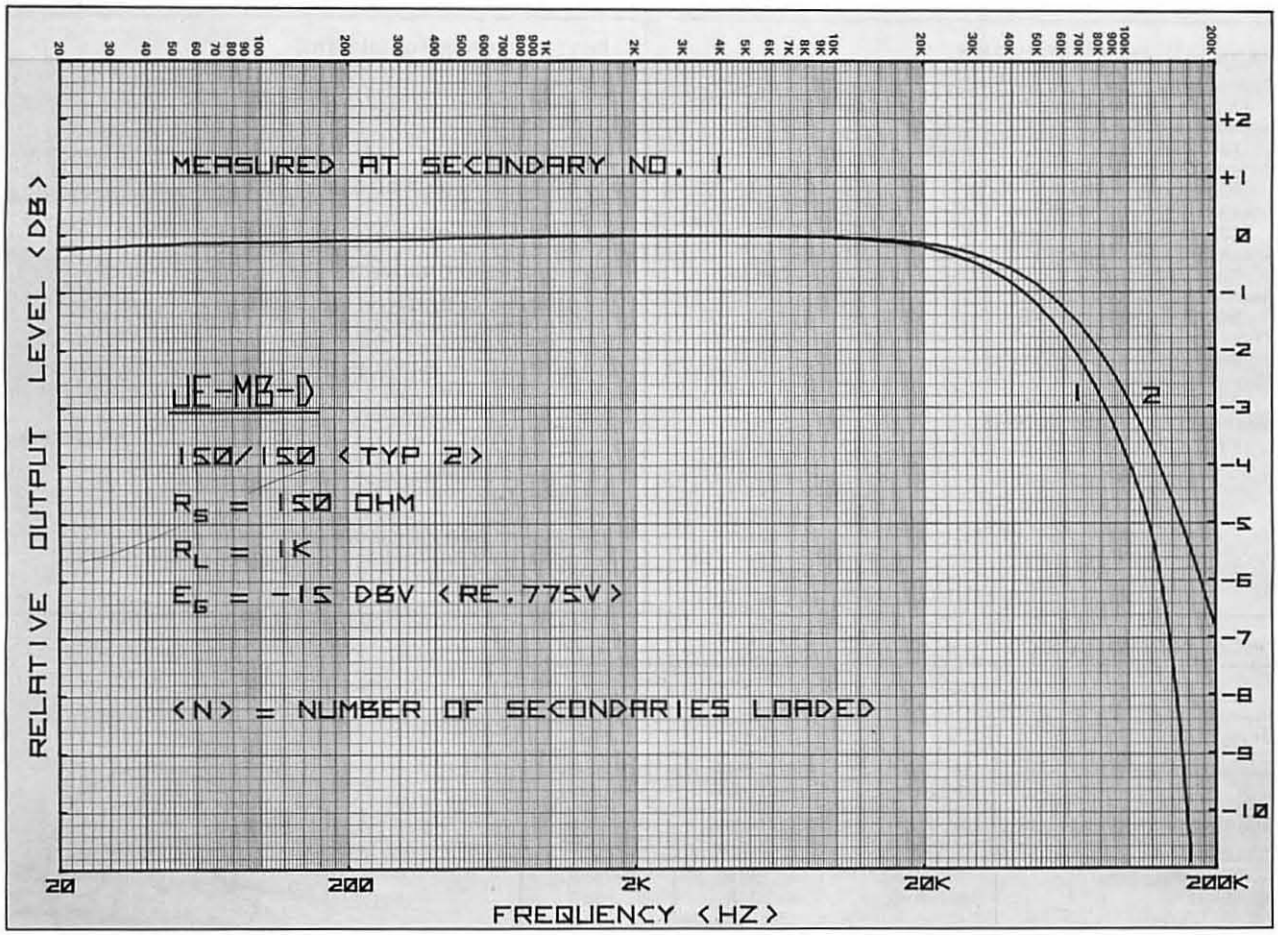
INPUT IMPEDANCE



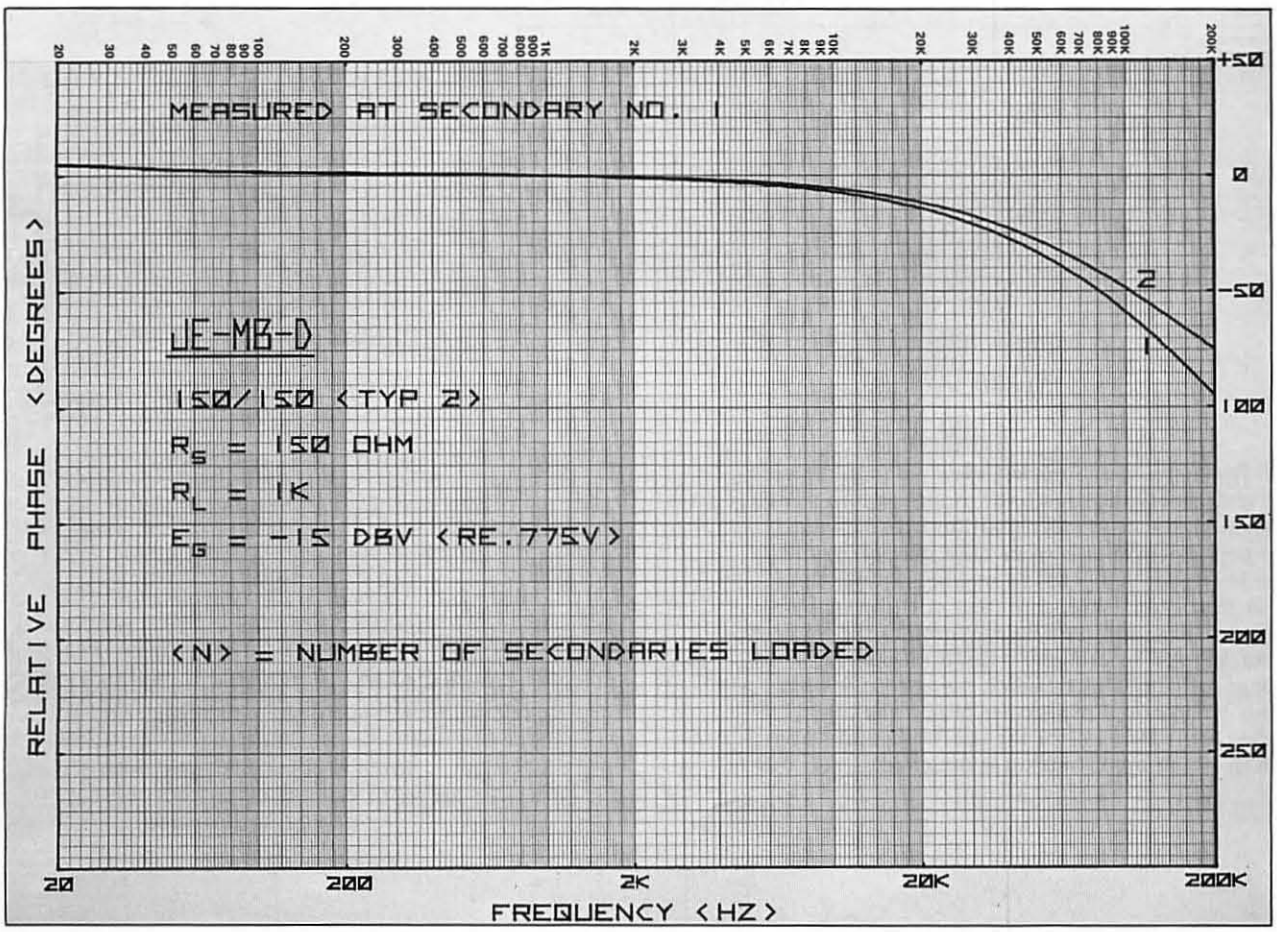
SECONDARY SOURCE IMPEDANCE



FREQUENCY RESPONSE



PHASE RESPONSE



GENERAL CHARACTERISTICS

Turns Ratio
1:1:1 (2 secondaries)
Impedance Ratio
150/150/150
Primary Source Impedance
150 ohms
Secondary Load Impedances
1K ohms (mic pre-amps)
Secondary Load Resistors
None required
Secondary RC Networks
None required
Three Faraday Shields
Separate leads
Magnetic Shield
30dB, separate case lead
Maximum Input Level at 20Hz
+2dBv (Re: 0.775v)

PHYSICAL CHARACTERISTICS

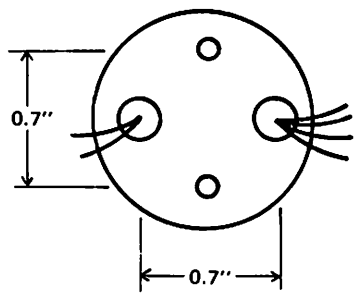
Package
Mu-metal can
Termination
Wire leads
Dimensions
1-1/8" diameter, 1-1/16" high
Mounting
2 holes, 0.7" center-to-center, self-tapping screws supplied

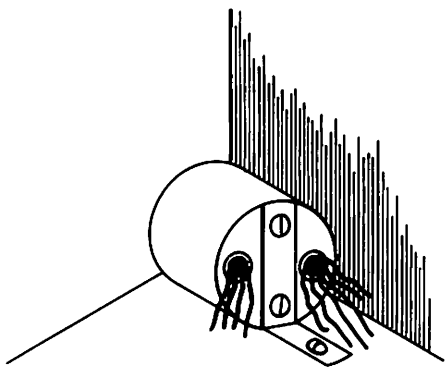
TYPICAL PERFORMANCE

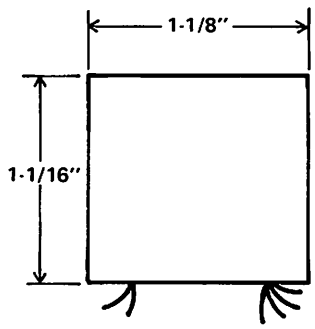
Total Harmonic Distortion (Below Saturation)
0.18% maximum @ 20Hz
0.10% maximum @ 30Hz
0.05% maximum @ 50Hz
0.005% @ 1kHz
Input Level @ 1% Saturation (dBv Re: 0.775v)
0dBv @ 20Hz
+4dBv @ 30Hz
+10dBv @ 50Hz
Common-Mode Voltage (maximum)
>200v peak
Common-Mode Rejection Ratio
>85dB @ 1kHz
>65dB @ 10kHz

TYPICAL PERFORMANCE

		Secondary Loads	
		One	Two
Voltage Gain		−0.9dB	−1.4dB
Input Impedance	@ 1kHz	1040 ohms	575 ohms
	@ 10kHz	1080 ohms	590 ohms
Secondary Source Impedance	@ 1kHz	260 ohms	225 ohms
	@ 10kHz	300 ohms	270 ohms
Frequency Response (Re: 1kHz)	@ 20Hz	−0.25dB	−0.25dB
	@ 20kHz	−0.20dB (No resonance peak)	−0.16dB
Bandwidth	@ −3dB	88kHz	100kHz
Phase Response	@ 20kHz	−15°	−12°
Rise Time	(10%-90%)	4.0μS	3.6μS
Overshoot		<1%	<1%







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.

Mounting Holes
Clearance for #4 screw
Lead Holes
Use 0.35" hole to clear grommet

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(Visitors by Appointment Only)