Data Sheet

jensen transformers
INCORPORATED

JE-MB-E
MICROPHONE BRIDGING TRANSFORMER

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

The JE-MB-E can be used to bridge a balanced microphone line, which is terminated with a balanced preamplifier input, to feed three additional balanced preamplifier inputs.

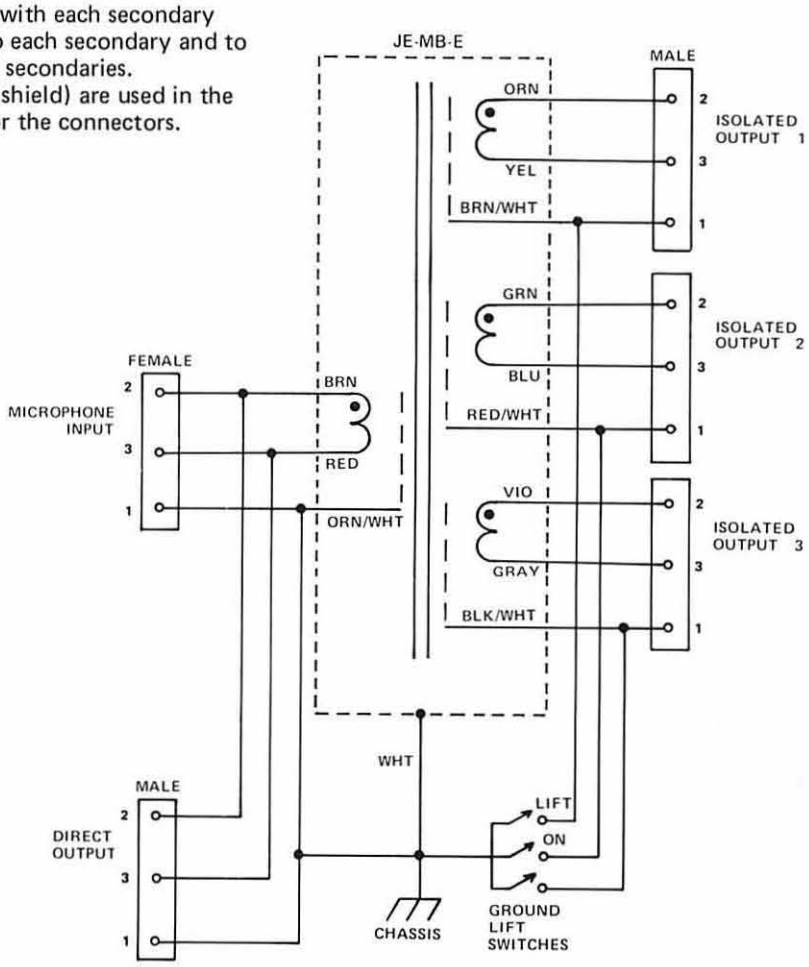
The transformer, with separate Faraday shields for each winding, isolates and rejects the common-mode noise caused by the noise voltage difference between the chassis of the multiple mixers. With this type of isolation, the microphone shield can be connected through to the chassis of one mixer but need not be connected through to the additional mixer chassis. Instead, the chassis (shields) of the additional 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 each secondary winding for matched transfer characteristics to each secondary and to minimize variations in response with unloaded secondaries.

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

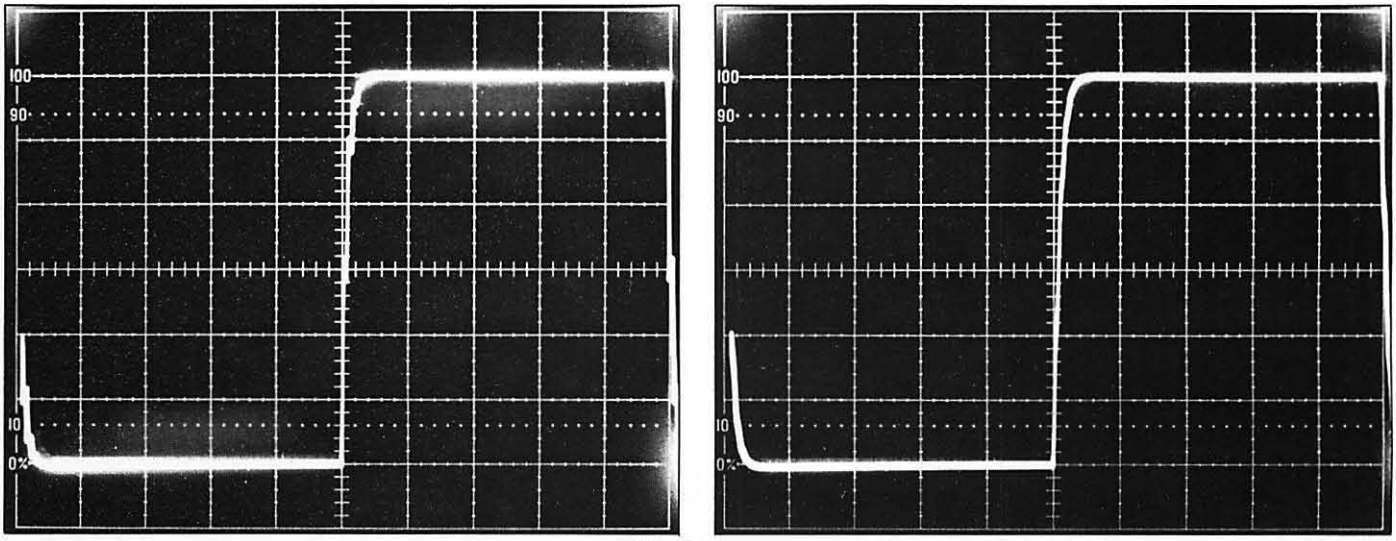


MIC SPLIT BOX SCHEMATIC

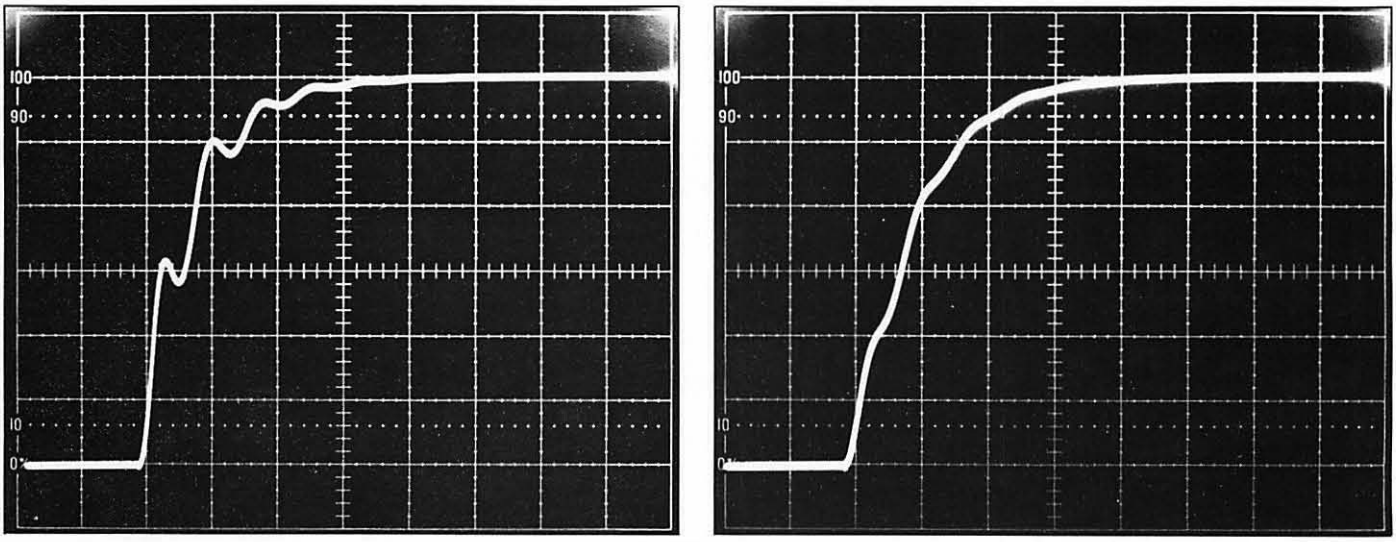
REGARDING THE OSCILLOSCOPE PHOTOS

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.

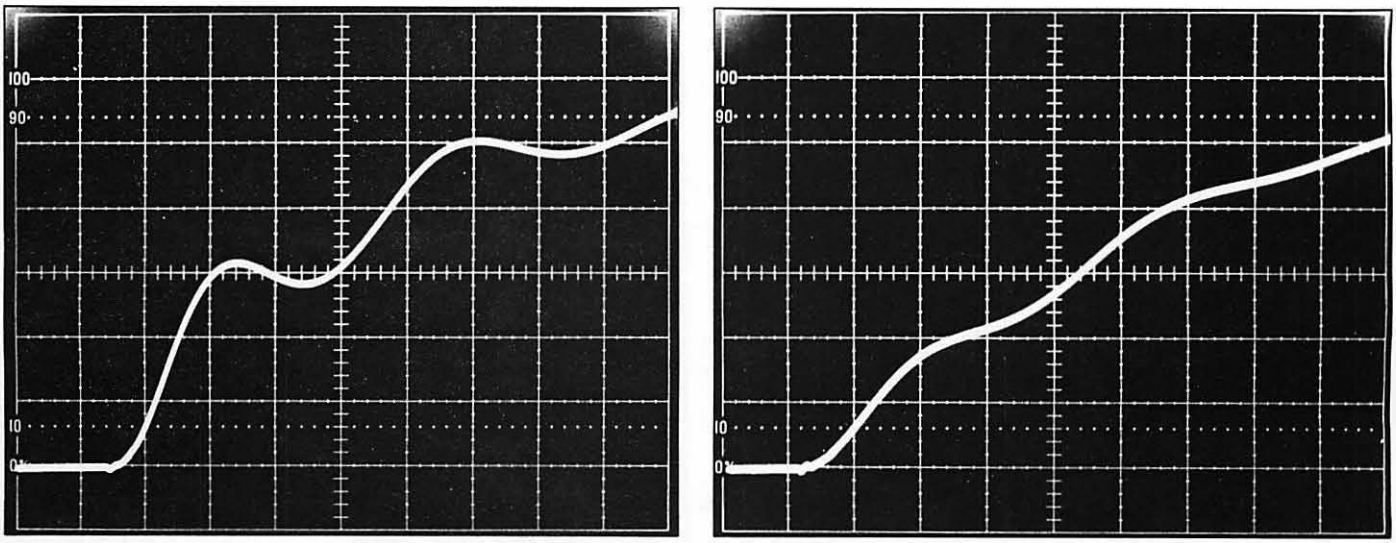
2kHz Square Wave



50μS/division



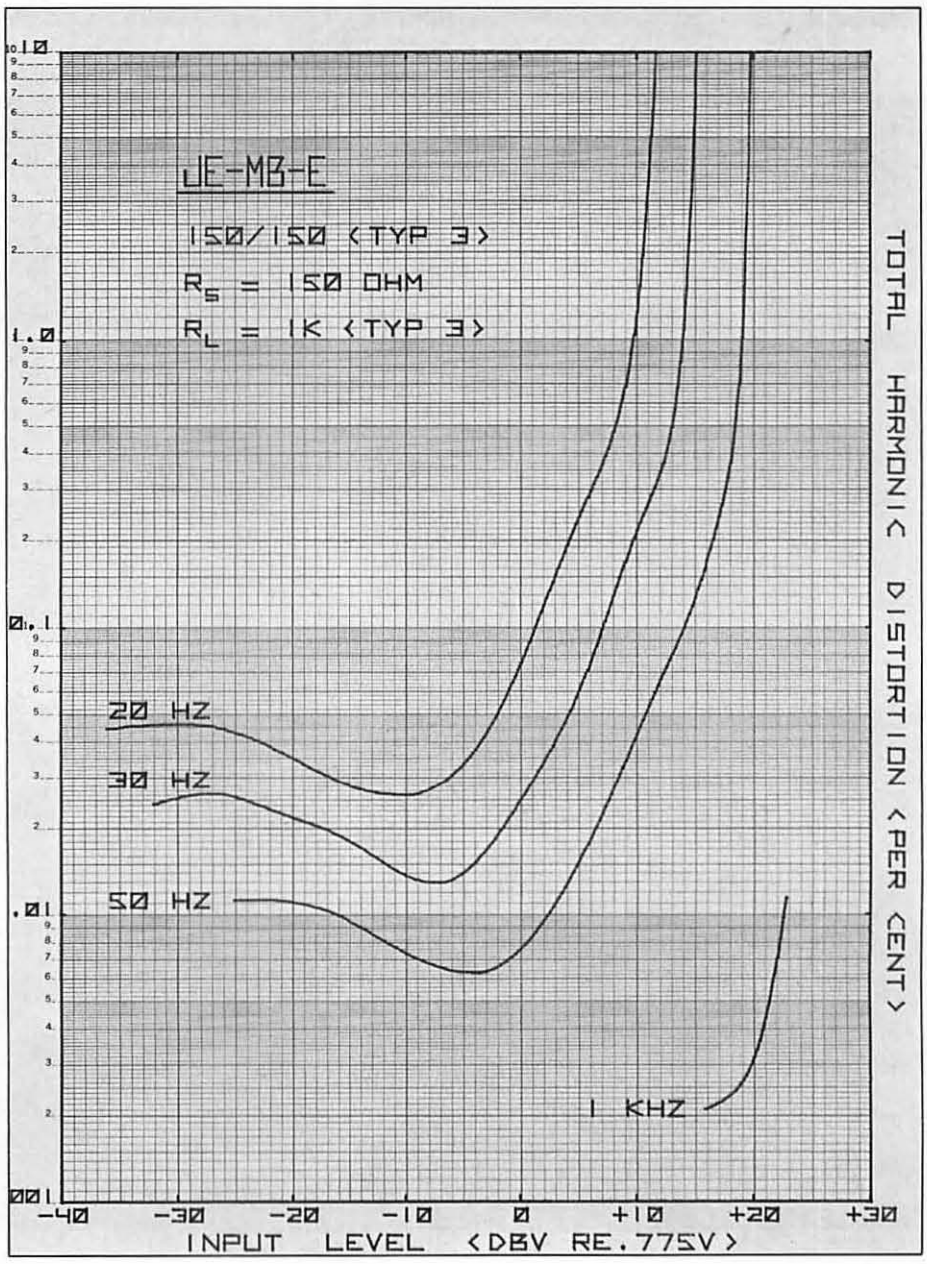
5μS/division



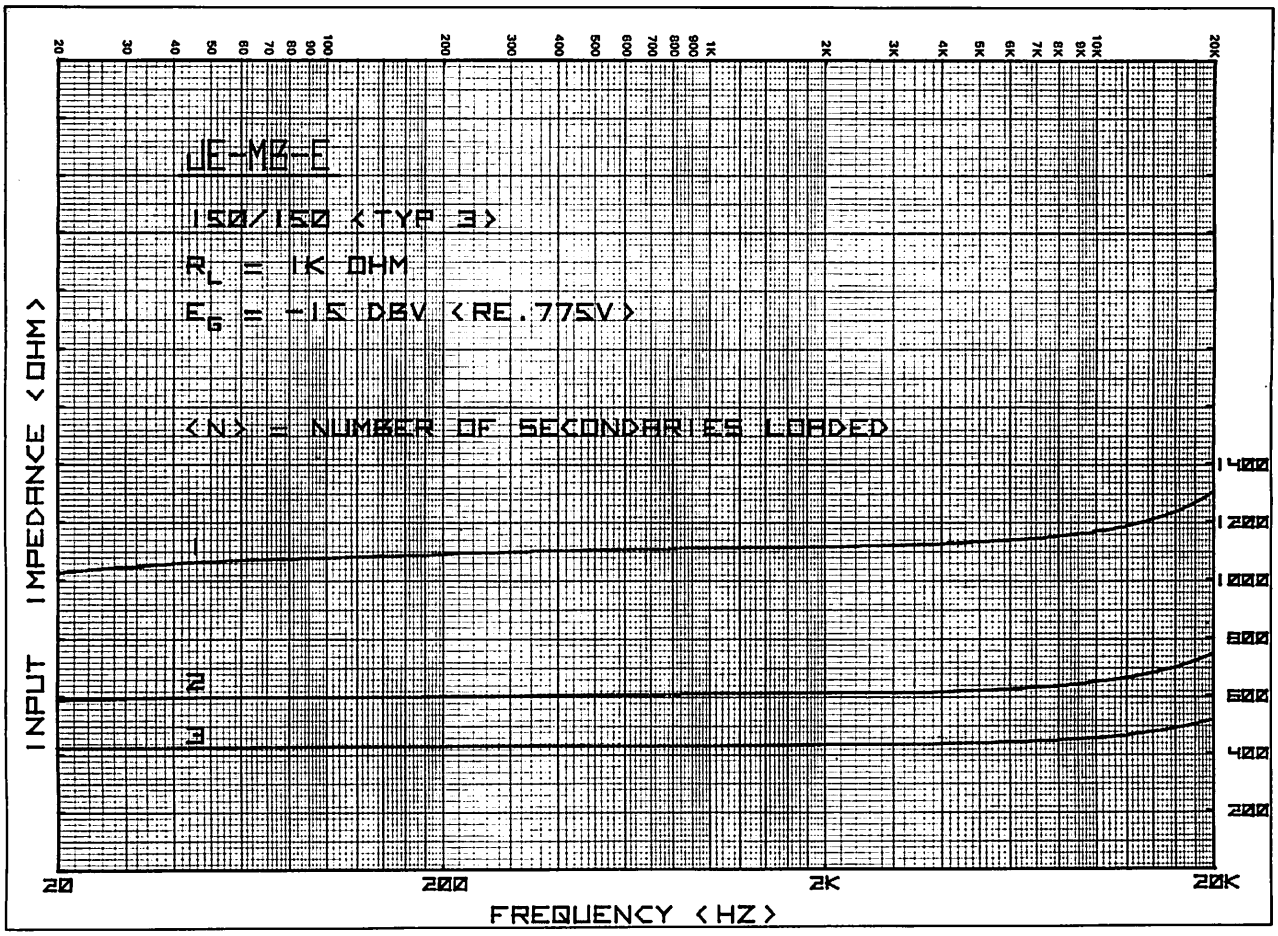
1μS/division

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

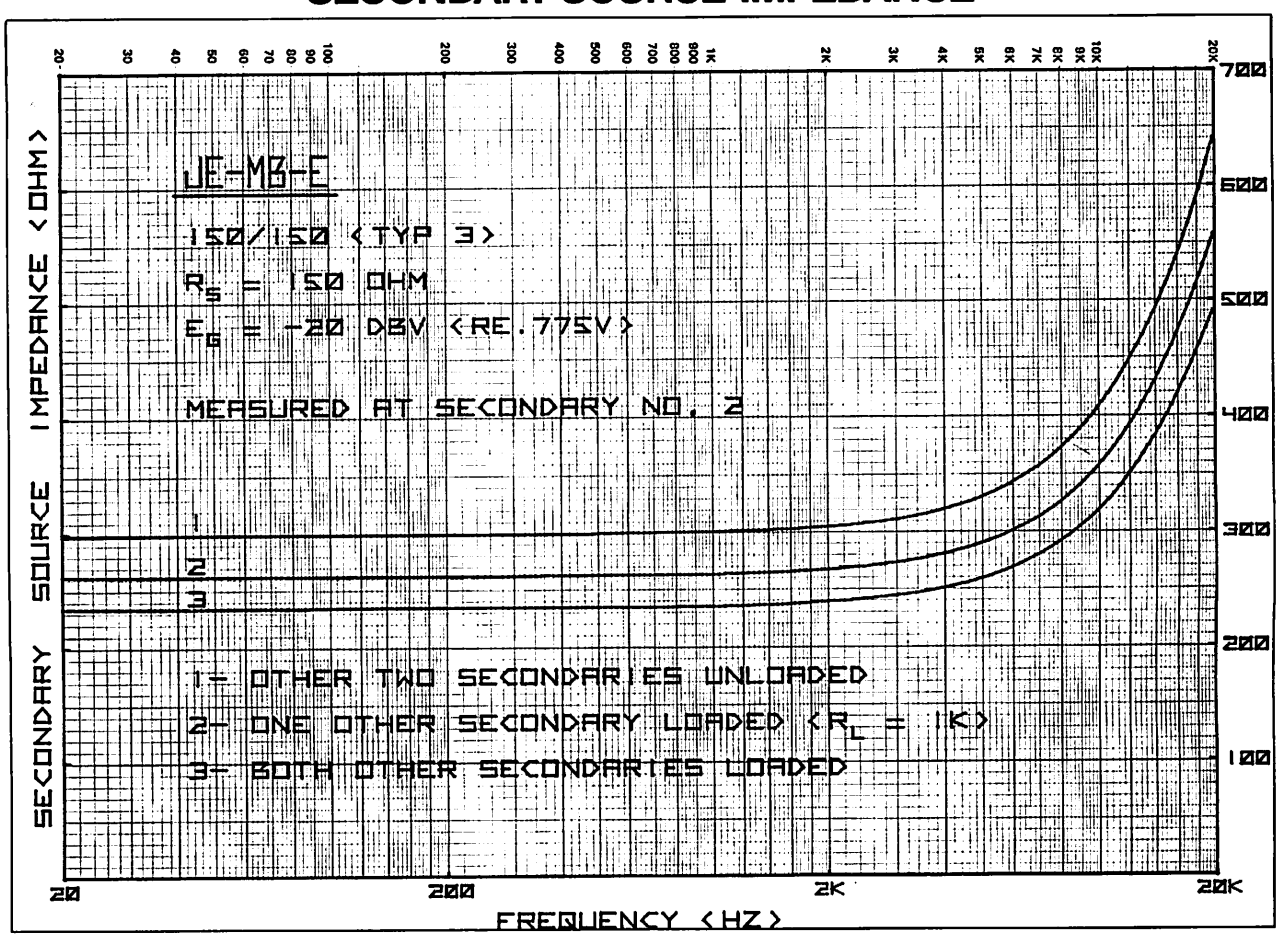
DISTORTION



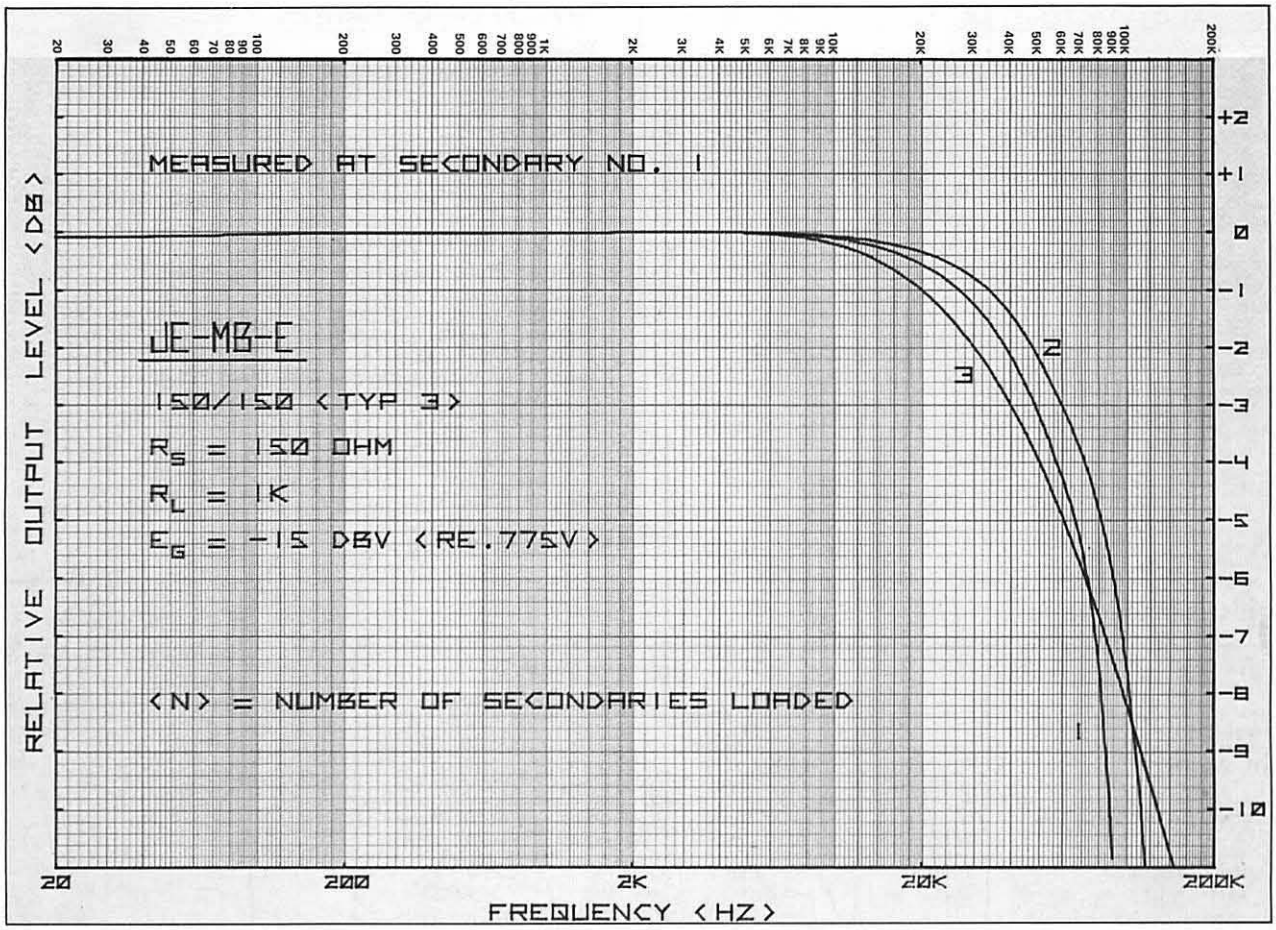
INPUT IMPEDANCE



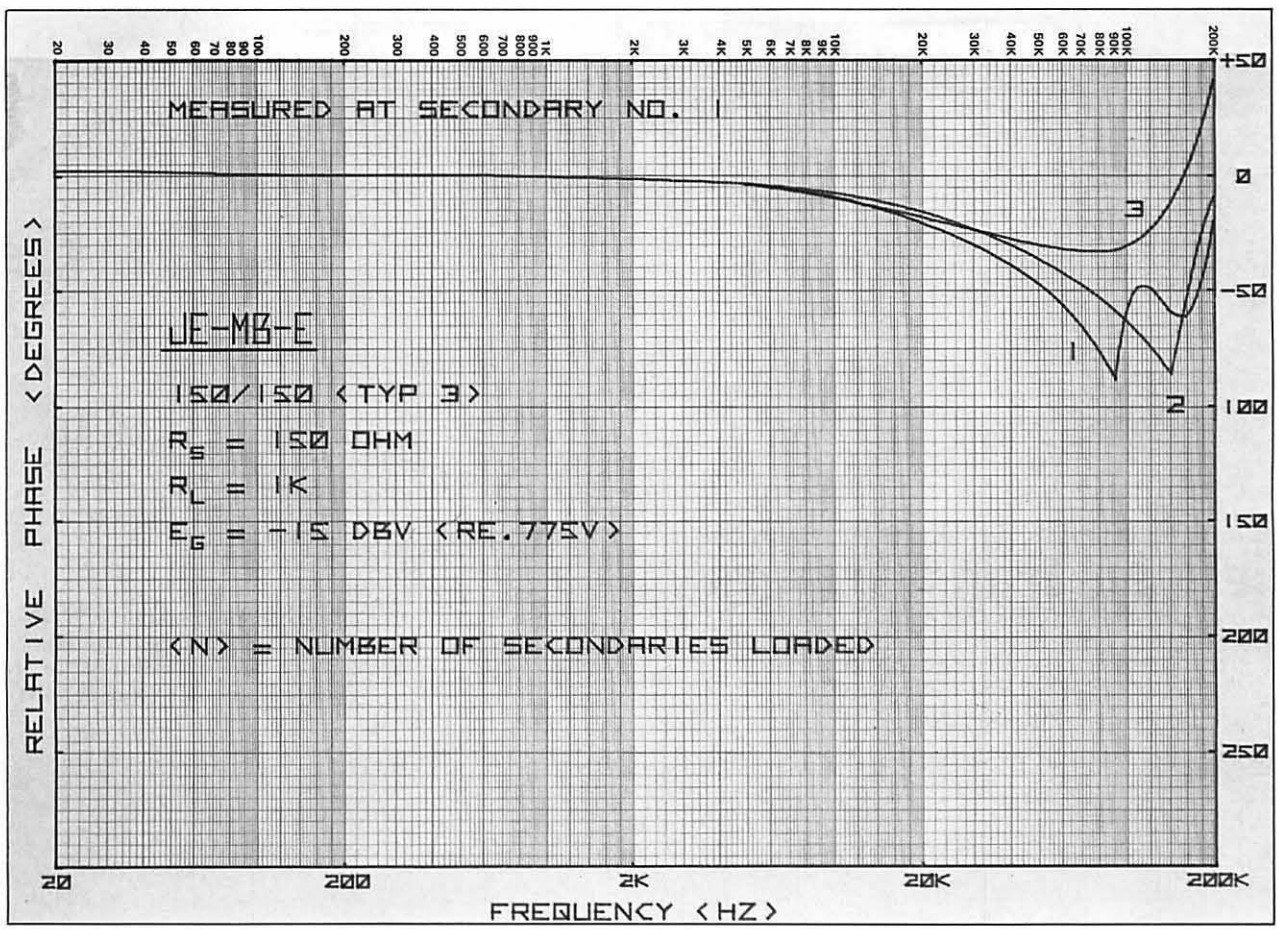
SECONDARY SOURCE IMPEDANCE



FREQUENCY RESPONSE



PHASE RESPONSE



GENERAL CHARACTERISTICS

Turns Ratio
1:1:1:1 (3 secondaries)
Impedance Ratio
150/150/150/150
Primary Source Impedance
150 ohms
Secondary Load Impedances
1K ohms (mic pre-amps)
Secondary Load Resistors
None required
Secondary RC Networks
None required
Four Faraday Shields
Separate leads
Magnetic Shield
30dB, separate case lead
Maximum Input Level at 20Hz
+11dBv (Re: 0.775v)

PHYSICAL CHARACTERISTICS

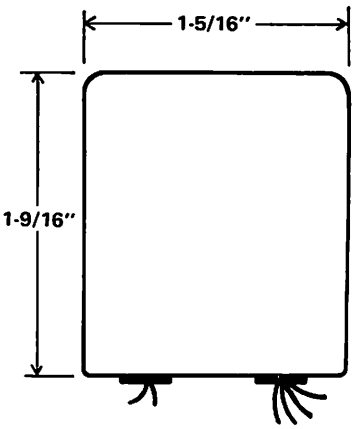
Package
Mu-metal can
Termination
Wire leads
Dimensions
1-5/16" diameter, 1-9/16" high
Mounting
2 holes, 0.7" center-to-center, self-tapping screws or clamp

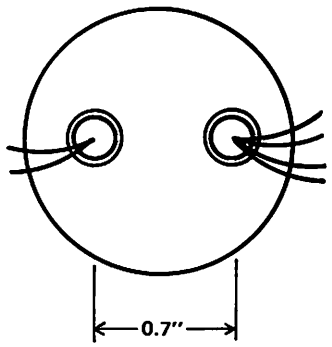
TYPICAL PERFORMANCE

Total Harmonic Distortion (Below Saturation)
0.05% maximum @ 20Hz
0.03% maximum @ 30Hz
0.015% maximum @ 50Hz
0.002% @ 1kHz
Input Level @ 1% Saturation (dBv Re: 0.775v)
+10dBv @ 20Hz
+14dBv @ 30Hz
+19dBv @ 50Hz
Common-Mode Voltage (maximum)
>200v peak
Common-Mode Rejection Ratio
>85dB @ 1kHz
>65dB @ 10kHz

TYPICAL PERFORMANCE

		Secondary Loads		
		One	Two	Three
Voltage Gain		−1.2dB	−1.8dB	−2.3dB
Input Impedance	@ 1kHz	1100 ohms	610 ohms	430 ohms
	@ 10kHz	1170 ohms	640 ohms	460 ohms
Secondary Source Impedance	@ 1kHz	300 ohms	265 ohms	235 ohms
	@ 10kHz	410 ohms	360 ohms	320 ohms
Frequency Response (Re: 1kHz)	@ 20Hz	−0.1dB	−0.1dB	−0.1dB
	@ 20kHz	−0.6dB	−0.4dB	−1.0dB
		(some resonance @ 300kHz)		
Bandwidth	@ −3dB	48kHz	60kHz	40kHz
Phase Response	@ 20kHz	−21°	−16°	−18°
Rise Time	(10%-90%)	6.7μS	5.3μS	8.0μS
Overshoot		<1%	<1%	<1%
Ringing	>300kHz	<9%	<11%	<7%





Lead Holes
Use 0.35" hole to clear grommet

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(Visitors by Appointment Only)

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