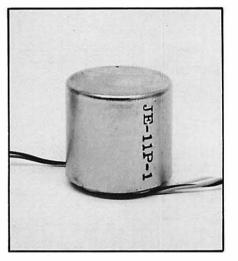


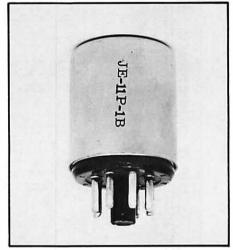
JE-11P-1 LINE INPUT TRANSFORMER

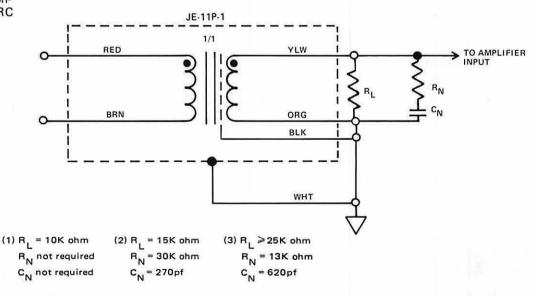
The JE-11P-1 is a 1:1 turns ratio line input transformer for high input impedance circuits (10K ohms and higher). It handles levels to +18dBv. Re: 0.775v @ 20Hz. Below saturation, the 20Hz THD is less than 0.045%. The high grade Nickel alloy core yields very low distortion even with source impedances up to several thousand ohms.

The bandwidth is 69kHz with <2% overshoot. The series losses are equivalent to 3700 ohms, so the level loss will be the same as a voltage divider made with a 3700 ohm series resistor and a shunt resistor equal to the load connected to the secondary. If the load is 10K ohms, no RC network is required across the secondary. For 15K ohm load, an RC network of 30K ohms and 270pF is required to damp the resonance. If the load is 100K or higher, an RC network of 13K ohms and 620pF is required. For other loads such as input circuits with shunt capacitance, our computer can derive optimum RC network values to minimize transient distortion and maximize bandwidth and generate revised response and impedance results.

The standard package has wire leads. Octal plug versions are available for all popular pin connections with or without the RC network built-in.

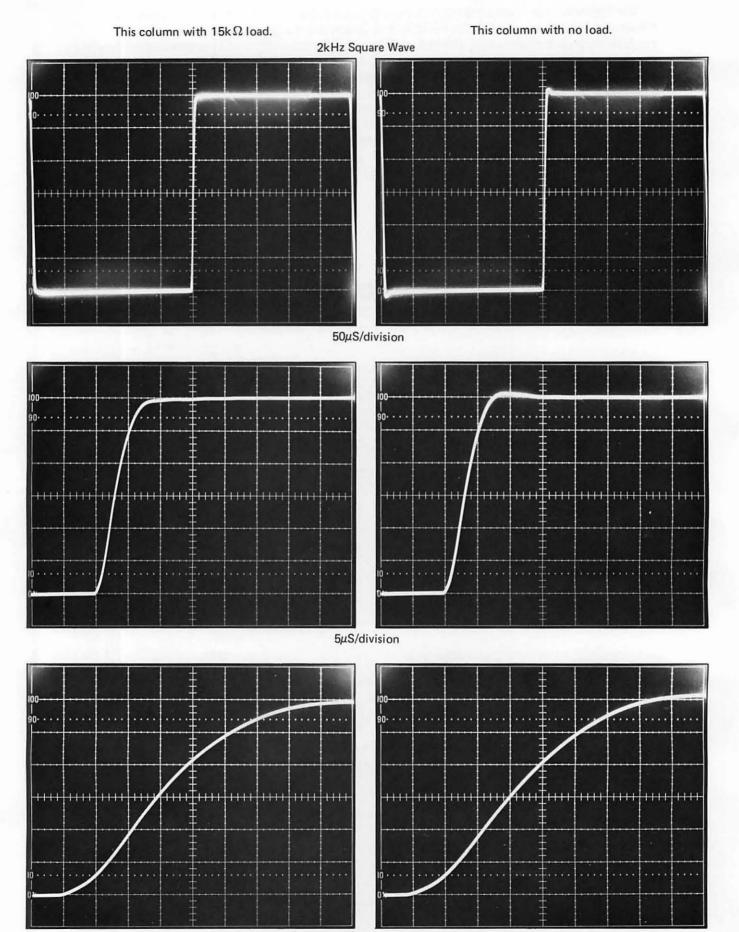






REGARDING THE OSCILLOSCOPE PHOTOS

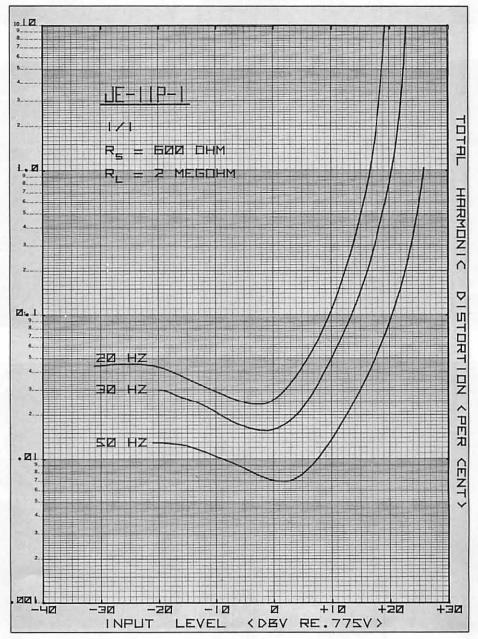
Actual oscilloscope photos were made from a Tektronix Model 453A (certified calibration).



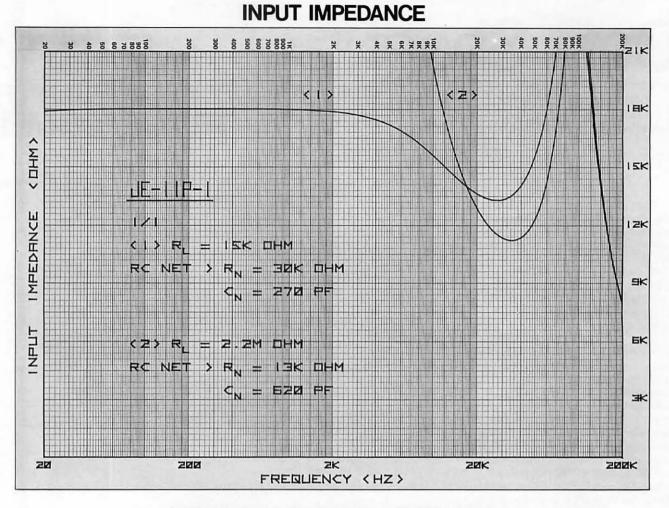
¹µS/division

The response and impedance curves were generated by a Hewlett/Packard System 45 Desktop Computer and a 9872A Plotter. The curves are the calculated results from an equivalent circuit model using the H/P AC Circuit Analysis program. This method has made it possible to display the impedance curves up to 200kHz showing the secondary resonance and RC network damping effect. Measured data from many prototypes were used to derive the model to represent the average performance.

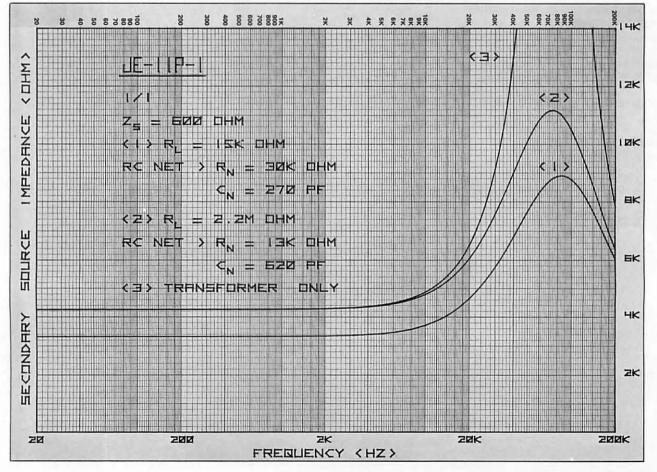
The distortion curves were generated by a Hewlett/Packard 9815A/9862A programmable calculator/plotter with a polynominal curve fit program. The distortion measurements employed a Sound Technology 1710A Analyzer. Verified accuracies are on the order of one pen line width.

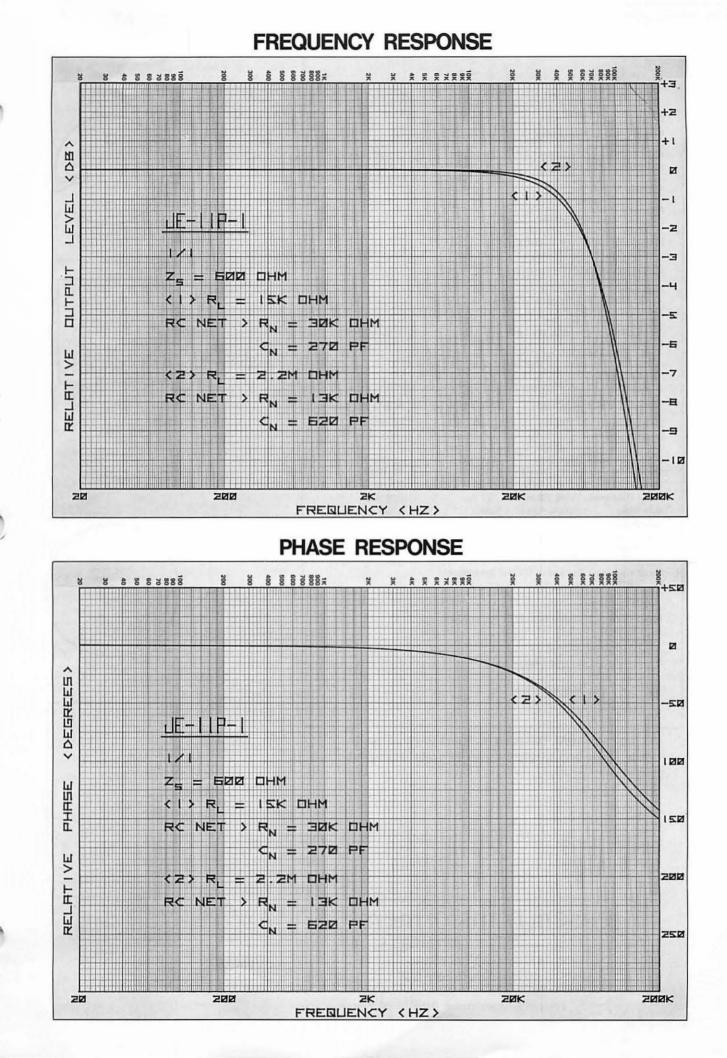


DISTORTION



SECONDARY SOURCE IMPEDANCE





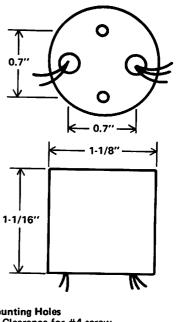
JE-11P-1 GENERAL CHARACTERISTICS Turns Ratio 1:1 Impedance Ratio (15K/15K) Primary Source Impedance 600 ohms or less Secondary Load Resistor Secondary Load Resistor Secondary Load Resistor Secondary Load Resistor Faraday Shield Separate Lead Magnetic Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8″ diameter, 1-1/16″ high (standard) 1-5/16″ diameter, 2″ high (octal plug) Mounting (standard) 2 holes, 0.7″ center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE Voltage Gain Input Impedance @ 1kHz 15.6K ohms Prequency Response @ 20Hz -0.25dB Input Impedance 4300 ohms @ 1kHz 4900 ohms @ 10kHz Total Harmonic Distortion (Below Saturation) 0.045% @ 20Hz 0.033% @ 30Hz Input Level @ 1% Saturation (dBv Re: 0.775v)					
1:1 Impedance Ratio (15K/15K) Primary Source Impedance 600 ohms or less Secondary Load Resistor 15K ohms >25K ohms Secondary RC Network 30K ohms, 270 pF 13K ohms, 620 pF (most plug-in types have RC net built-in) Faraday Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Magnetic Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/16" high (standard) 1-5/16" diameter, 1-1/16" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With >25K load Voltage Gain -2dB -0.05dB Input Impedance @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz -0.03dB -0.03dB (Re: 1kHz) @ 20kHz -23 deg -24 deg Phase Response @ 20kHz 2%		AL CHARAC	TERISTICS		
(15K/15K) Primary Source Impedance 600 ohms or less Secondary Load Resistor 15K ohms >25K ohms Secondary RC Network 30K ohms, 270 pF 13K ohms, 620 pF (most plug-in types have RC net built-in) Faraday Shield Separate Lead Magnetic Shield 30dB, separate case lead (standard) 600B, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With >25K load Voltage Gain -2dB -0.05dB Input Impedance 1 kHz 1 8K ohms 166K ohms @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz -0.25dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz	1:1				
Primary Source Impedance 600 ohms or less Secondary Load Resistor 15K ohms >25K ohms Secondary RC Network 30K ohms, 270pF 13K ohms, 620pF (most plug-in types have RC net built-in) Faraday Shield Separate Lead 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) +118dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws suplied TYPICAL PERFORMANCE With 15K load With >25K load Voltage Gain -2dB -0.05dB Input Impedance @ 1kHz 18K ohms 166K ohm @ 10kHz 15.6K ohms 20K ohms 20K ohms Frequency Response @ 20kHz -0.25dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response © 20kHz 23 deg -24 deg <td></td> <th></th> <td></td> <td></td>					
Secondary Load Resistor 15K ohms > 25K ohms Secondary RC Network 30K ohms, 270 pF 13K ohms, 620 pF (most plug-in types have RC net built-in) Faraday Shield Separate Lead Magnetic Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Mu-metal can (standard) Octal plug types also available Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With >25K load Voltage Gain -2dB -0.05dB Input Impedance @ 1kHz 18K ohms 166K ohm @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz -0.03dB -0.03dB (Re: 1kHz) @ 20kHz -23 deg -24 deg Rise Time (10%-90%) 5µS 4.8µS 20% Overshoot <1% <2% Secondary Source Impedance 4300 ohms @ 10kHz </th <th>Primary Source Im</th> <th></th> <th></th> <th></th>	Primary Source Im				
Faraday Shield Separate Lead Magnetic Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With ≥25K load Voltage Gain -2dB -0.05dB Input Impedance @ 1kHz 18K ohms 166K ohm @ 10kHz 15.6K ohms 20K ohms -0.03dB Frequency Response @ 20Hz -0.03dB -0.03dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz -23 deg -24 deg Riss Time (10%-90%) 5µS 4.8µS Overshoot <1%	Secondary Load Resistor		30K ohms, 270pF 13K ohms, 620pF		
Magnetic Shield 30dB, separate case lead (standard) 60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v)PHYSICAL CHARACTERISTICSPackage Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws suppliedTYPICAL PERFORMANCEWith 15K loadWith \geq 25K loadVoltage Gain (Re: 1kHz)-2dB (20Hz)-0.05dB (20K hms)Frequency Response @ 20Hz Phase Response (10%-90%)0.03dB (20K hz)-0.03dB (20K hz)Bandwidth (10%-90%) $g_{\mu}S$ (4.8 μ S)4.8 μ S (20Vershoot)4.8 μ S (20K hz)Overshoot<1% (10%-90%)5 μ S (4.8 μ S)4.8 μ S (20K hz)Ourshoot<1% (10%-90%)5 μ S (4.8 μ S)4.8 μ S (20K hz)Ourshoot<1% (10%-90%)5 μ S (4.8 μ S)4.8 μ S (20K hz)Ourshoot<1% (10%-90%)4.8 μ S (20K hz)Total Harmonic Distortion (Below Saturation) (0.013% @ 20Hz (0.013% @ 50Hz)Input Level @ 1% Saturation (dBv Re: 0.775v)			(most plug in type		
60dB, (octal plug-in types) Maximum Input Level at 20Hz +18dBv (Re: 0.775v) PHYSICAL CHARACTERISTICS Package Mu-metal can (standard) or octal plug Termination Wire Leads (standard) Octal plug types also available Dimensions 1-1/8" (diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With >25K load Voltage Gain -2dB -0.05dB Input Impedance @ 1kHz 18K ohms 166K ohm @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz -0.03dB -0.03dB (Re: 1kHz) @ 20kHz -23 deg -24 deg Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz -23 deg -24 deg Rise Time (10%-90%) 5µS 4.8µS Overshoot <1%	Magnetic Shield	case lead (star	ndard)		
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Mu-metal can (standard) or octal plugTerminationWire Leads (standard)Octal plug types also availableDimensions1-1/8" diameter, 2" high (octal plug)Mounting (standard)2 holes, 0.7" center-to-center/self-tapping screws suppliedTYPICAL PERFORMANCEWith 15K loadVoltage Gain-2dB-0.05dBInput Impedance@ 1kHz@ 10kHz15.6K ohms@ 10kHz15.6K ohms20kHz-0.03dB-0.12dBBandwidth@ -3dB@ -3dB69kHzPhase Response© 20kHz-23 deg-24 degRise Time(10%-90%)5μ S4.8μ SOvershoot<1%	PHYSICAL CHAR	ACTERISTIC	s		
Wire Leads (standard) Octal plug types also availableDimensions1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug)Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws suppliedTYPICAL PERFORMANCEWith 15K loadWith \geq 25K loadVoltage Gain © 10kHz-2dB 15.6K ohmsPrequency Response @ 20Hz 0 20kHz-0.03dB -0.03dBFrequency Response @ 20Hz 0 -0.25dB-0.03dB -0.12dBBandwidth Re: 1kHz) Phase Response@ 20kHz 20kHzPhase Response 4300 ohms @ 10kHz5 μ S -23 deg -24 degRise Time 4300 ohms @ 10kHz-23 deg -24 degTotal Harmonic Distortion (Below Saturation) 0.045% @ 20Hz 0.013% @ 50HzInput Level @ 1% Saturation (dBv Re: 0.775v)	Mu-metal can (s	standard) or o	octal plug		
Dimensions 1-1/8" diameter, 1-1/16" high (standard) 1-5/16" diameter, 2" high (octal plug) Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws supplied TYPICAL PERFORMANCE With 15K load With ≥ 25K load Voltage Gain –2dB –0.05dB Input Impedance @ 1kHz 18K ohms 166K ohm @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz –0.03dB –0.03dB (Re: 1kHz) @ 20kHz –0.25dB –0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz –23 deg –24 deg Rise Time (10%-90%) 5 μ S 4.8 μ S Overshoot <1% <2% Secondary Source Impedance 4300 ohms @ 1kHz 4900 ohms @ 10kHz Total Harmonic Distortion (Below Saturation) 0.045% @ 20Hz 0.013% @ 50Hz Input Level @ 1% Saturation (dBv Re: 0.775v)	Wire Leads (star		A		
Mounting (standard) 2 holes, 0.7" center-to-center/self-tapping screws suppliedTYPICAL PERFORMANCEWith 15K loadWith ≥ 25K loadVoltage Gain-2dB-0.05dBInput Impedance@ 1kHz18K ohms166K ohm@ 10kHz15.6K ohms20K ohmsFrequency Response @ 20Hz-0.03dB-0.03dB(Re: 1kHz)@ 20kHz-0.25dB-0.12dBBandwidth@ -3dB69kHz69kHzPhase Response@ 20kHz-23 deg-24 degRise Time(10%-90%)5 μ S4.8 μ SOvershoot<1%<2%Secondary Source Impedance 4300 ohms @ 10kHzSaturation)0.045% @ 20Hz0.013% @ 50HzU.013% @ 50HzInput Level @ 1% Saturation (dBv Re: 0.775v)	Dimensions 1-1/8" diameter	r, 1-1/16" hig	h (standard)		
Voltage Gain $-2dB$ $-0.05dB$ Input Impedance @ 1kHz 18K ohms 166K ohms @ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz $-0.03dB$ $-0.03dB$ (Re: 1kHz) @ 20kHz $-0.25dB$ $-0.12dB$ Bandwidth @ $-3dB$ 69kHz 69kHz Phase Response @ 20kHz $-23 deg$ $-24 deg$ Rise Time (10%-90%) 5μ S 4.8μ S Overshoot <1% <2% Secondary Source Impedance 4300 ohms @ 1kHz $4900 \text{ ohms @ 10kHz}$ Total Harmonic Distortion (Below Saturation) 0.045% @ $20Hz$ 0.013% @ $50Hz$ Input Level @ 1% Saturation (dBv Re: 0.775v) Imput Level @ 1% Saturation (dBv Re: 0.775v)	Mounting (standard	d)		supplied	
Input Impedance @ 1kHz 18K ohms 166K ohm Prequency Response @ 20Hz -0.03dB -0.03dB (Re: 1kHz) @ 20kHz -0.25dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz -23 deg -24 deg Rise Time (10%-90%) 5μS 4.8μS Overshoot <1%	TYPICAL PERFO	RMANCE	With 15K load	With ≥25K load	
@ 10kHz 15.6K ohms 20K ohms Frequency Response @ 20Hz -0.03dB -0.03dB (-0.03dB) (Re: 1kHz) @ 20kHz -0.25dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz -23 deg -24 deg Rise Time (10%-90%) 5μS 4.8μS Overshoot < 1%	•				
(Re: 1kHz) @ 20kHz -0.25dB -0.12dB Bandwidth @ -3dB 69kHz 69kHz Phase Response @ 20kHz -23 deg -24 deg Rise Time (10%-90%) 5µS 4.8µS Overshoot <1%	Input Impedance				
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Rise Time (10%-90%) 5μ S 4.8μ S Overshoot <1%	Phase Response	@ 20kHz		-24 deg	
Overshoot<1%<2%Secondary Source Impedance 4300 ohms @ 1kHz 4900 ohms @ 10kHzTotal Harmonic Distortion (Below Saturation) 0.045% @ 20Hz 0.013% @ 30Hz 0.013% @ 50HzInput Level @ 1% Saturation (dBv Re: 0.775v)	•	(10%-90%)	•	•	
4300 ohms @ 1kHz 4900 ohms @ 10kHz Total Harmonic Distortion (Below Saturation) 0.045% @ 20Hz 0.03% @ 30Hz 0.013% @ 50Hz Input Level @ 1% Saturation (dBv Re: 0.775v)			•	•	
0.045% @ 20Hz 0.03% @ 30Hz 0.013% @ 50Hz Input Level @ 1% Saturation (dBv Re: 0.775v)	4300 ohms @ 1kHz 4900 ohms @ 10kHz				
Input Level @ 1% Saturation (dBv Re: 0.775v)	0.045% @ 20Hz 0.03% @ 30Hz	Z Z	ow Saturation)		
+1706V @ 20Hz +20dBv @ 30Hz +26dBv @ 50Hz		Saturation (dl z	Bv Re: 0.775v)		
Common-Mode Voltage (maximum) >200v peak	+17dBv @ 20H: +20dBv @ 30H:				
Common-Mode Rejection Ratio >75dB @ 1kHz >55dB @ 10kHz	+17dBv @ 20H; +20dBv @ 30H; +26dBv @ 50H; Common-Mode Vo	z	um)		

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



10735 BURBANK BOULEVARD N. HOLLYWOOD, CALIFORNIA 91601 PHONE (213) 876-0059

(Visitors by Appointment Only)



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

