



PAT 4150-00 Application: 300B 30W  
 300Bs are often used in Single Ended configuration, however this transformer offers the possibility of Push Pull application with this famous power triode. The primary impedance is 3500 Ohms. The secondary impedance is 4 Ohms, 6 Ohms or 8 Ohms, ensuring that even low speaker impedances can be driven without difficulty. The transformer can handle 30 Watts in standard Push Pull design without entering the positive grid-cathode region. The frequency range extends up to 162 kHz. For strong bass reproduction the power bandwidth starts at 14 Hz. Special attention has been paid to the differential phase distortion, being below 2 degrees up to 100 kHz. This is an audio purist transformer for the special 300B triode where more output power is available than in the standard single ended configuration.

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**PAT-4150-00  
 Ratings**

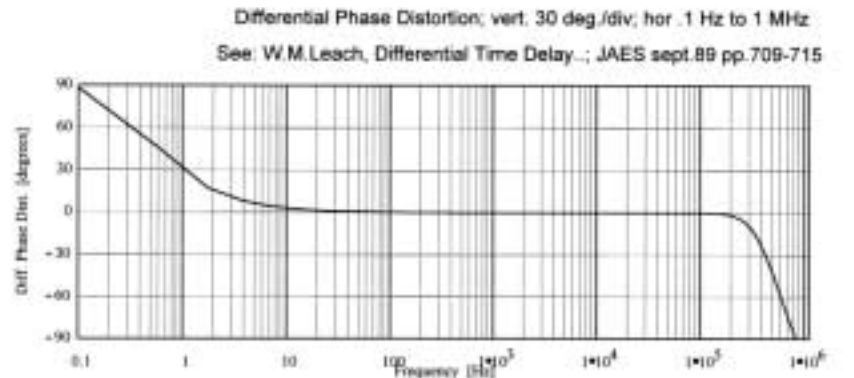
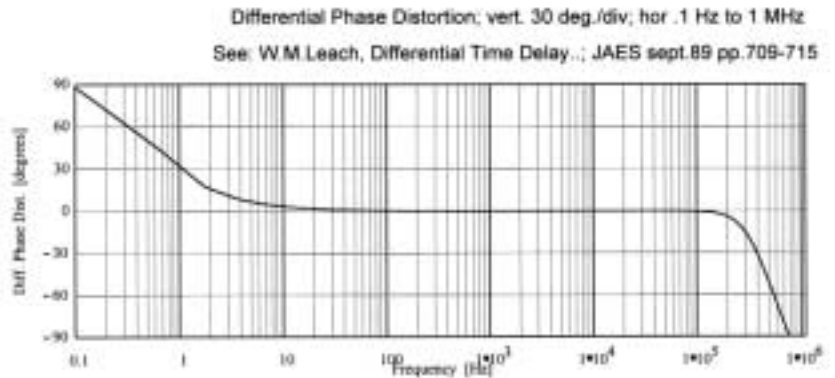
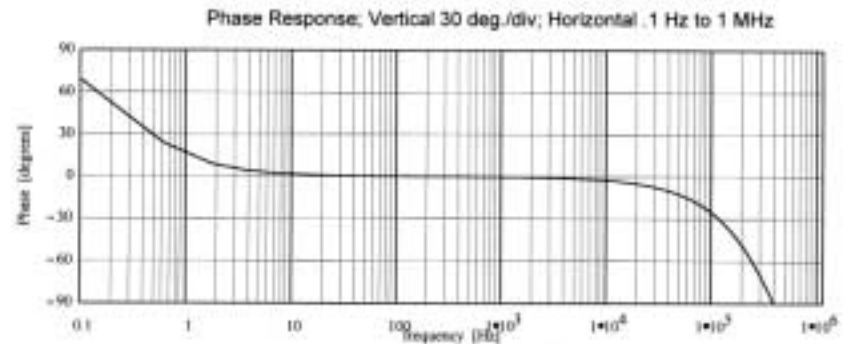
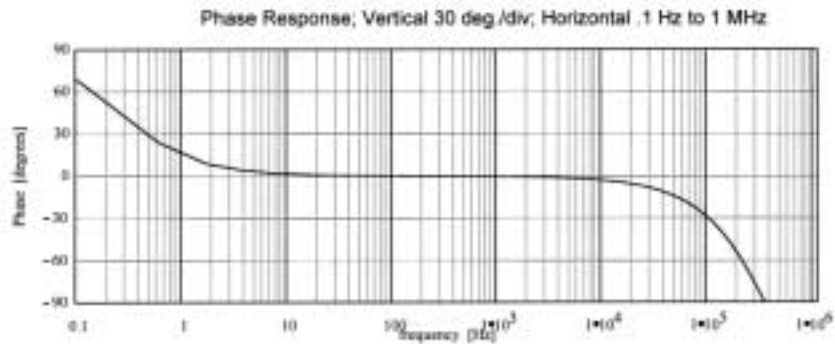
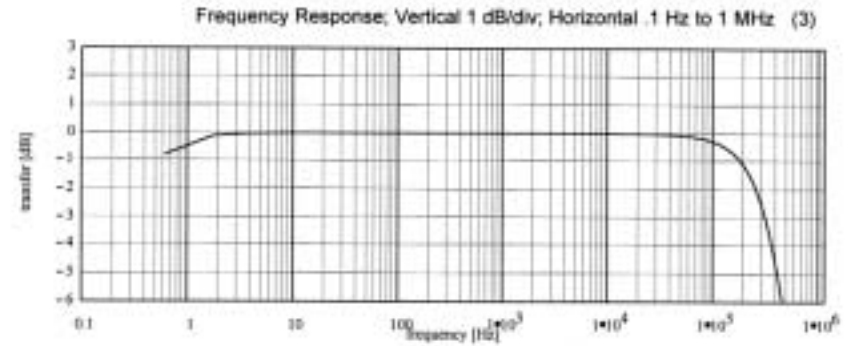
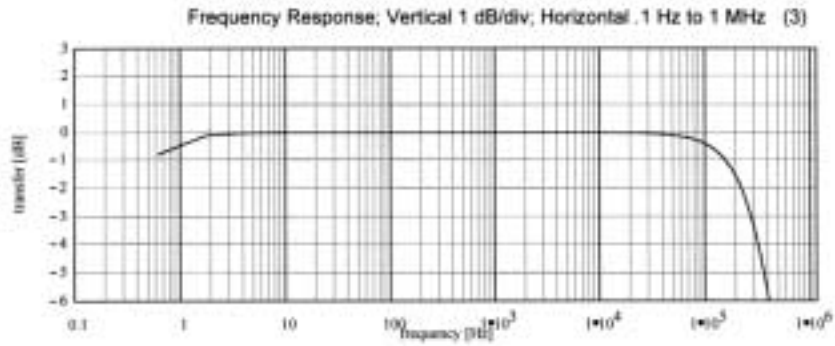
Type & Application	4 OHM	6 OHM	8 OHM	
Primary Impedance	Raa = 3.453	Raa = 3.395	Raa = 3.394	[kΩ]
Secondary Impedance	Rls = 4	Rls = 6	Rls = 8	[Ω]
Turns Ratio Np/Ns	Ratio = 29.382	Ratio = 23.786	Ratio = 20.598	[ ]
Ultra Linear Tapping at	tap = 0	tap = 0	tap = 0	[%]
-1 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	flf = 1.235 fhf = 65.123	flf = 1.227 fhf = 78.414	flf = 1.226 fhf = 76.102	
-1 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	fl1 = 0.527 fh1 = 139.755	fl1 = 0.523 fhf = 164.698	fl1 = 0.523 fhf = 159.634	
-3 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	fl3 = 0.268 fh3 = 242.389	fl3 = 0.266 fhf = 278.101	fl3 = 0.266 fhf = 269.159	
Nominal Power <sup>(1)</sup>	Pn = 30	Pn = 30	Pn = 30	[W]
-3 dB Power Bandwidth starting at	fu = 14	fu = 14	fu = 14	[Hz]
Total Primary Inductance <sup>(2)</sup>	Lp = 649.6	Lp = 649.6	Lp = 649.6	[H]
Primary Leakage Inductance	lsp = 2.927	lsp = 2.223	lsp = 2.267	[mH]
Effective Primary Capacitance	cip = 0.313	cip = 0.34	cip = 0.357	[nF]
Total Primary DC Resistance	Rip = 173.3	Rip = 173.3	Rip = 173.3	[Ω]
Total Secondary DC Resistance	Ris = 0.165	Ris = 0.213	Ris = 0.263	[Ω]
Tubes Plate Resistance per section	ri = 0.7	ri = 0.7	ri = 0.7	[kΩ]
Insertion Loss	lloss = 0.38	lloss = 0.361	lloss = 0.35	[dB]
Q-factor 2nd order HF roll-off <sup>(5)</sup>	Q = 0.562	Q = 0.583	Q = 0.584	[ ]
HF roll-off Specific Frequency <sup>(5)</sup>	Fo = 319.505	Fo = 349.009	Fo = 336.968	[kHz]
Quality Factor <sup>(5)</sup>	QF = 2.219·10 <sup>5</sup>	QF = 2.922·10 <sup>5</sup>	QF = 2.865·10 <sup>5</sup>	[ ]
Quality Decade Factor = log(QF) <sup>(5)</sup>	QDF = 5.346	QDF = 5.466	QDF = 5.457	[ ]
Tuning Factor <sup>(5)</sup>	TF = 4.073	TF = 3.574	TF = 3.53	[ ]
Tuning Decade Factor = log(TF) <sup>(5)</sup>	TDF = 0.61	TDF = 0.553	TDF = 0.548	[ ]
Frequency Decade Factor <sup>(4,5)</sup>	FDF = 5.956	FDF = 6.019	FDF = 6.005	[ ]

(1): calculated under the conditions of balancing the DC-currents and the AC-anode voltages of the powertubes driving the transformer  
 (2): maximum value, measured over secondary, transferred to primary  
 (3): calculation at 1 mWatt in Rls; ri and Rls are pure Ohmic  
 (4): defined as FDF = log(fh3/fl3) = number of frequency decades transferred  
 (5): ir. Menno van der Veen; Theory and Practise of Wide Bandwidth Toroidal Output Transformers; preprint 3887, 97th AES Convention San Fransico  
 (C): Copyright 1994 Vanderveen; Version 1.7; design date May 13, 1996

# PAT-4150-00 Response Curves

4 OHM

6 OHM



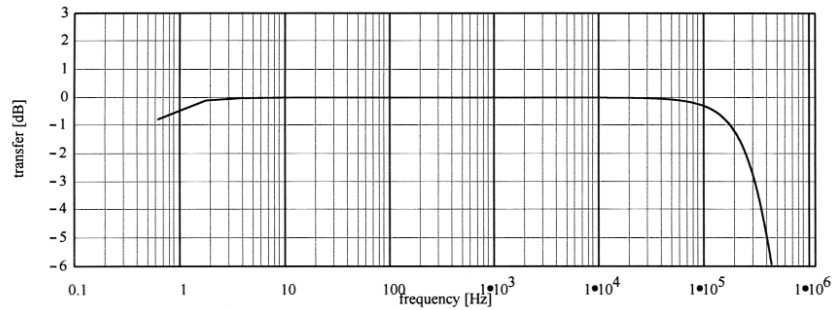
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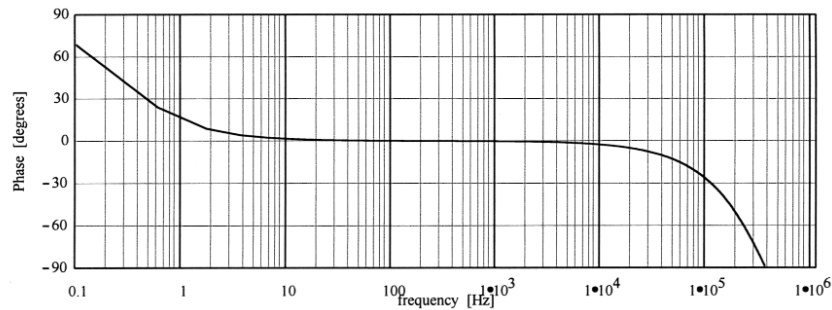
# PAT-4150-00 Schematic

8 OHM

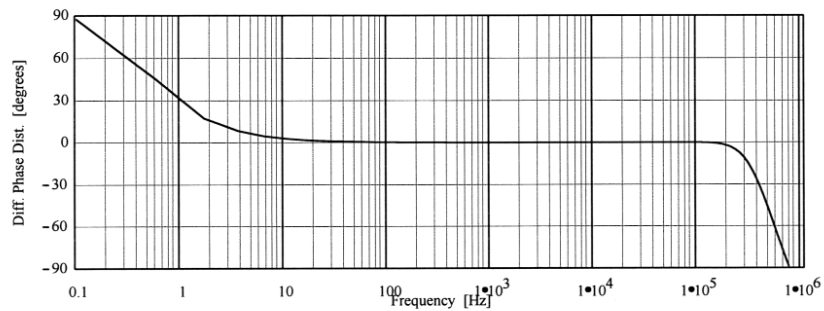
Frequency Response; Vertical 1 dB/div; Horizontal .1 Hz to 1 MHz (3)



Phase Response; Vertical 30 deg./div; Horizontal .1 Hz to 1 MHz

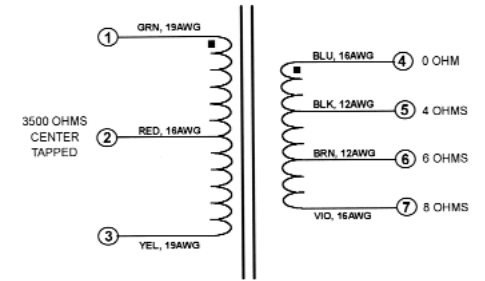


Differential Phase Distortion; vert. 30 deg./div; hor. .1 Hz to 1 MHz  
See: W.M. Leach, Differential Time Delay.; JAES sept. 89 pp.709-715



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# Schematic



# Mechanical

REF	Dimension, in mm
A	152.4 nominal
B	88.9 nominal
C	5/16-18 T-NUT
D	20 +/- 5 (2 places)
E	70 +/- 5 (2 places)

Weight: 5.3kg  
Lead Length: 200mm (+/- 10mm)

