



#### PAT4145-00 Application: 6550 70 W

This transformer is especially designed for the popular 6550 tube in Push Pull configuration with 40 % Ultra Linear Taps and an output power of 70 Watts. The primary impedance is 3550 Ohms with a secondary output tap at 5 Ohms. The -3 dB (IW) bandwidth is extremely wide, from 0.5Hz up to 124 kHz and the -3 dB power bandwidth starts at 14Hz. Phase distortion is low, less than 5 degrees up to 100 kHz.

## Toroidal Output Transformer for Tube Amplifiers

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## PAT-4145-00 Ratings

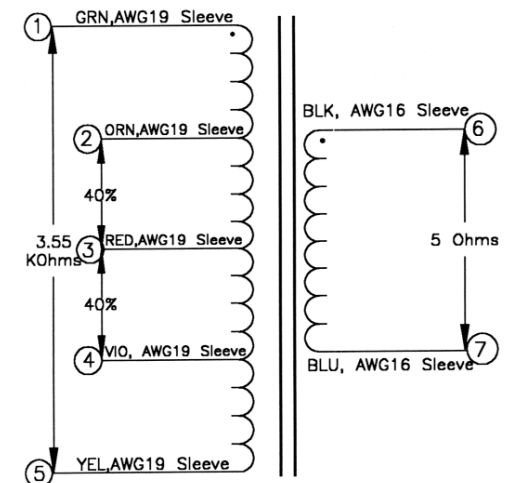
Type & Application	:	Plitron / VDV PAT-4145-00	
Primary Impedance	:	Raa = 3.553	[kΩ]
Secondary Impedance	:	Rls = 5	[Ω]
Turns Ratio Np/Ns	:	Ratio = 26.658	[ ]
Ultra Linear Tapping at	:	tap=40	[%]
-1 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	:	flf = 2.369	fhf = 39.09
-1 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	:	fl1 = 1.011	fh1 = 77.43
-3 dB Frequency Range [Hz to KHz] <sup>(3)</sup>	:	fl3 = 0.514	fh3 = 123.923
Nominal Power <sup>(1)</sup>	:	Pn = 70	[W]
-3 dB Power Bandwidth starting at	:	fu = 14	[Hz]
Total Primary Inductance <sup>(2)</sup>	:	Lp = 778	[H]
Primary Leakage Inductance	:	lsp = 3	[mH]
Effective Primary Capacitance	:	Cip = 0.6	[nF]
Total Primary DC Resistance	:	Rip = 100	[Ω]
Total Secondary DC Resistance	:	Ris = 0.13	[Ω]
Tubes Plate Resistance per section	:	ri = 4	[kΩ]
Insertion Loss	:	lloss = 0.229	[dB]
Q-factor 2nd order HF roll-off <sup>(5)</sup>	:	Q = 0.62	[ ]
HF roll-off Specific Frequency <sup>(5)</sup>	:	Fo = 143.74	[kHz]
Quality Factor <sup>(5)</sup>	:	QF = 2.593·10 <sup>5</sup>	[ ]
Quality Decade Factor = log(QF) <sup>(5)</sup>	:	QDF = 5.414	[ ]
Tuning Factor <sup>(5)</sup>	:	TF = 0.929	[ ]
Tuning Decade Factor = log(TF) <sup>(5)</sup>	:	TDF = -0.032	[ ]
Frequency Decade Factor <sup>(4,5)</sup>	:	fdf = 5.382	[ ]

- (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  $fdf = \log(fh3/fl3) = \text{number of frequency decades transferred}$   
 (5): ir. Menno van der Veen; Theory and Practise of Wide Bandwidth Toroidal Output Transformers; preprint 3887, 97th AES Convention San Francisco  
 (C): Copyright 1994 Vanderveen; Version 1.7; design date November 16, 1994

## Special Toroidal Output Transformer Designs

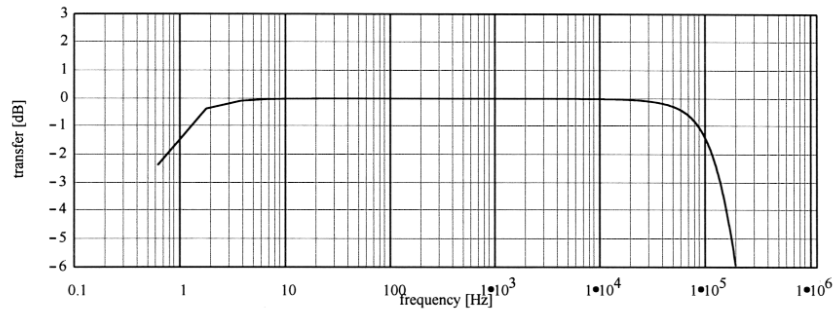


## Schematic

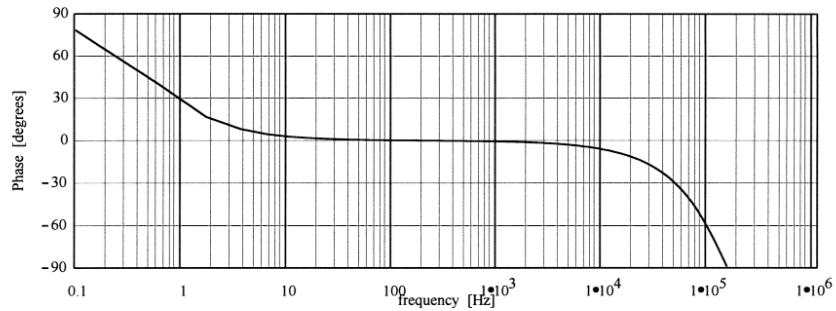


# PAT-4145-00 Response Curves

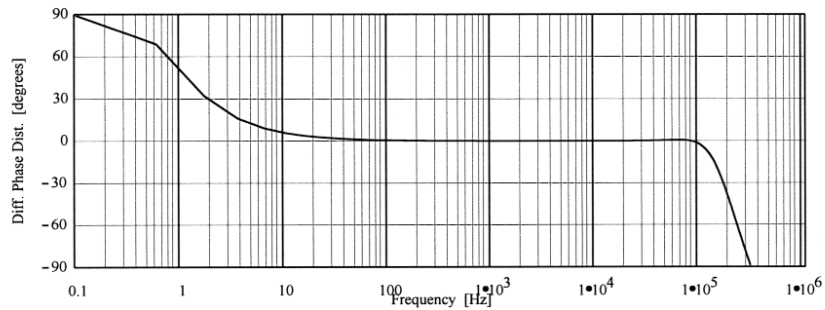
Frequency Response; Vertical 1 dB/div; Horizontal .1 Hz to 1 MHz (3)



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

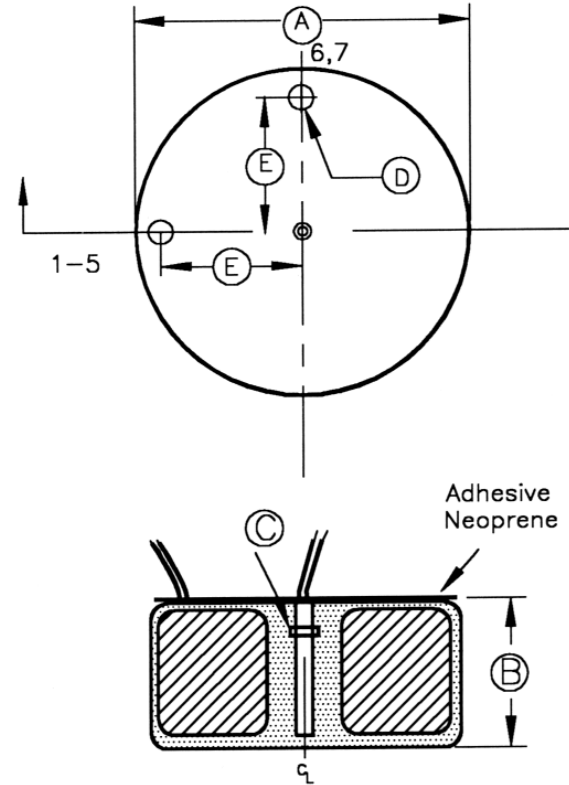


Differential Phase Distortion; vert. 30 deg./div; hor. .1 Hz to 1 MHz  
See: W.M.Leach, Differential Time Delay...; JAES sept.89 pp.709-715



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# Mechanical



REF	Dimension, in mm
A	152.0mm nominal
B	89.0mm nominal
C	5/16-18T-NUT
D	20.0mm +/- 5
E	70.0mm +/- 5

Weight: 5.6kg  
Lead Length: 200mm (+/- 10mm)

