




# 1650T

## "CLASSIC" PUSH-PULL TUBE TYPE ULTRA-LINEAR OUTPUT TRANSFORMERS

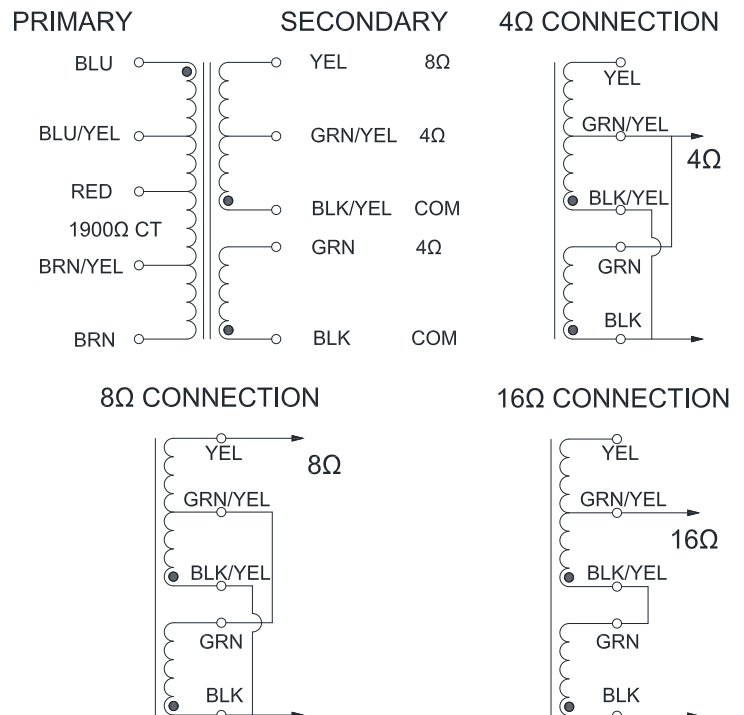
- Designed for push-pull tube output circuits.
- Enclosed (shielded), 4 slot, above chassis Type "X" mounting.
- Frequency response 30 Hz. to 30 KHz. at full rated power (+/- 1 db max. - ref. 1 KHz) minimum.
- Insulated flexible leads 8" min.
- Manufactured with plastic coil forms for coil support and insulation.
- Typical applications - Push-Pull: triode, Ultra-Linear pentode, pentode and tetrode connected audio output.
- Due to the unique interleaving of the windings BOTH secondary windings must be engaged to meet specifications (see hook-up diagrams below).
- Suggested tube types: 6L6GC, 5881, EL34, 6550B, KT88

ELECTRICAL SPECIFICATIONS	
Characteristic	Typical
Input Impedance	1900 Ohms
Output Impedance	4, 8 & 16 Ohms
Output Power	120 Watts
<b>DCR</b>	
Primary Blue-Brown	47.10 Ohms
Primary Brn/Yel-Blu/Yel	21.70 Ohms
Secondary Black-Green	0.230 Ohm
Secondary Black/Yel-Yel	0.360 Ohm
<b>Inductance   Impedance</b> @ 60Hz, 10.0V OC	
Primary Brown-Red	124H   60.5KOhm
<b>Leakage Inductance</b> @ 60Hz, 10.0V SC	
Primary Brown-Red	4.30mH
Dielectric Strength 2000Vrms	
Temperature Range -40 To 105°C	

### LABEL:

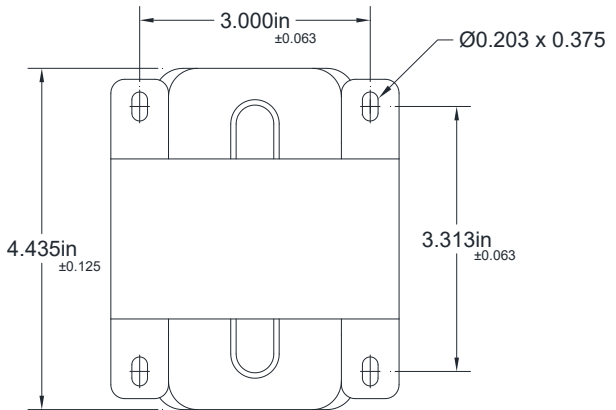
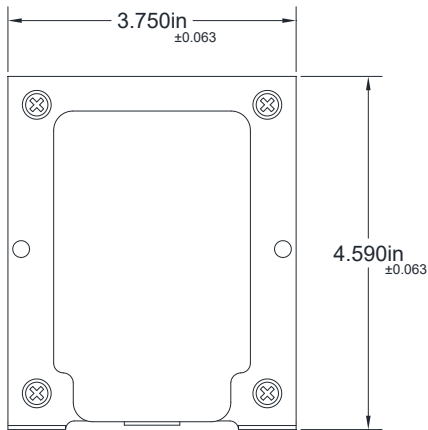
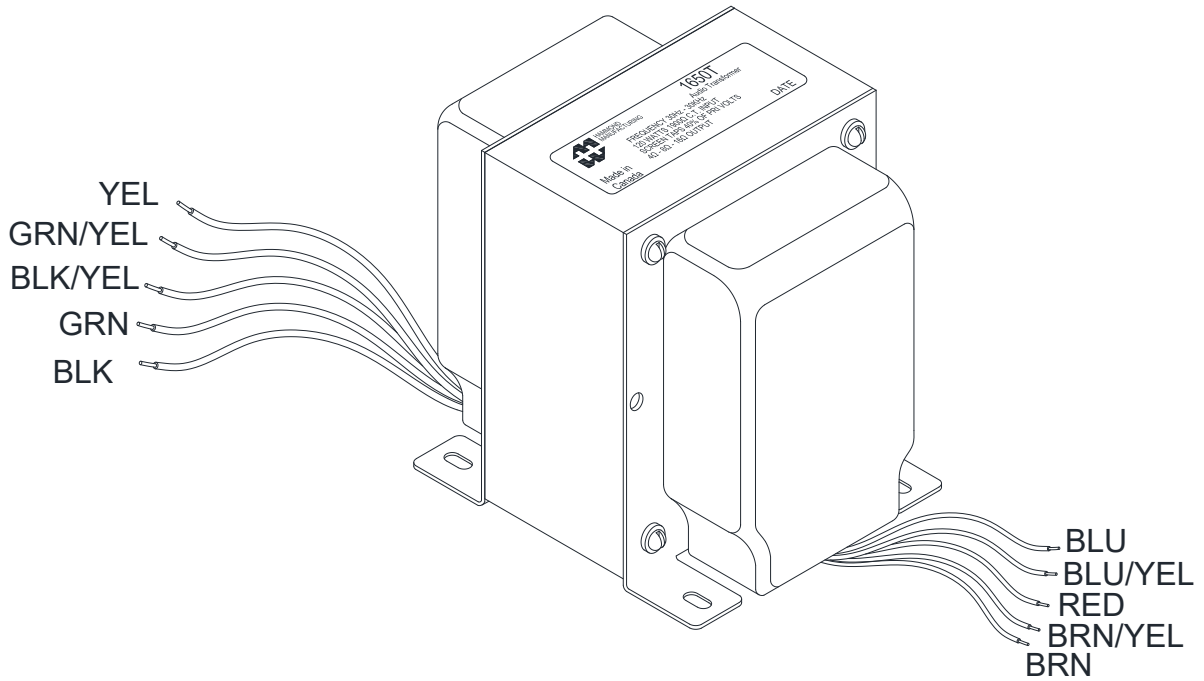
 HAMMOND MANUFACTURING™	<h2>1650T</h2> AUDIO TRANSFORMER
	FREQUENCY 30 Hz - 30 KHz 120 WATTS 1900Ω C.T. INPUT SCREEN TAPS 40% OF PRI VOLTS 4Ω - 8Ω - 16Ω OUTPUT
Made In Canada	DATE

### SCHEMATIC



Note: The above examples of possible combinations are to help you narrow down the choices of transformers for your favorite tube types. How you operate the tubes (push-pull, push-pull parallel, ultra-linear, class, B+, bias, operating points, etc.) will change optimum plate to plate load impedance. Only a few of the most popular tubes are shown. As more tubes become available we will add them to the list. A tube manual or tube manufacturer's technical data sheets should be consulted first, before making a decision on a proper output transformer.

**DIMENSIONAL DETAILS:**

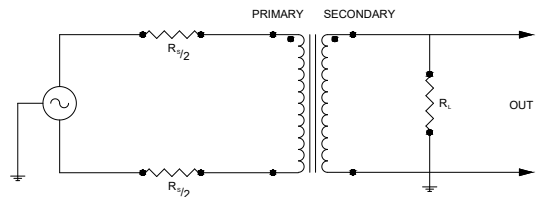


**TEST CONDITIONS**

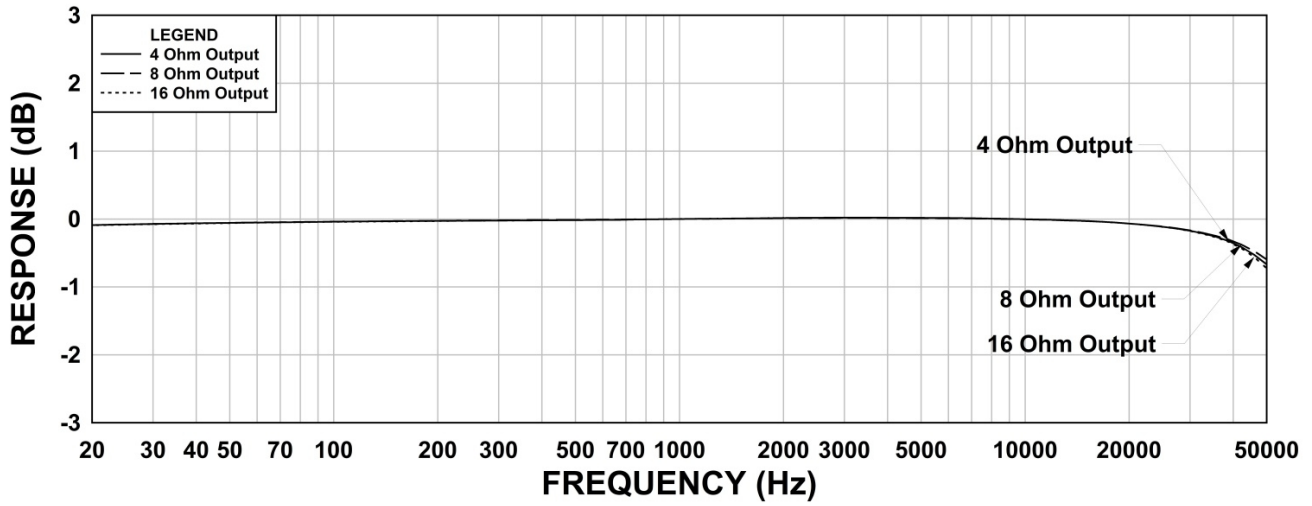
Measurement Instruments:  
 dScope Series III Audio Analyzer  
 Wayne Kerr 3255B with a 3265B Inductance Analyzer  
 HP 4192a LF Impedance Analyzer  
 Keithley 2010 DVM

- \* All graphs input level 27dBu @1.0KHz reference.
- \*\*The results are typical and are subject to normal manufacturing and electrical tolerances.

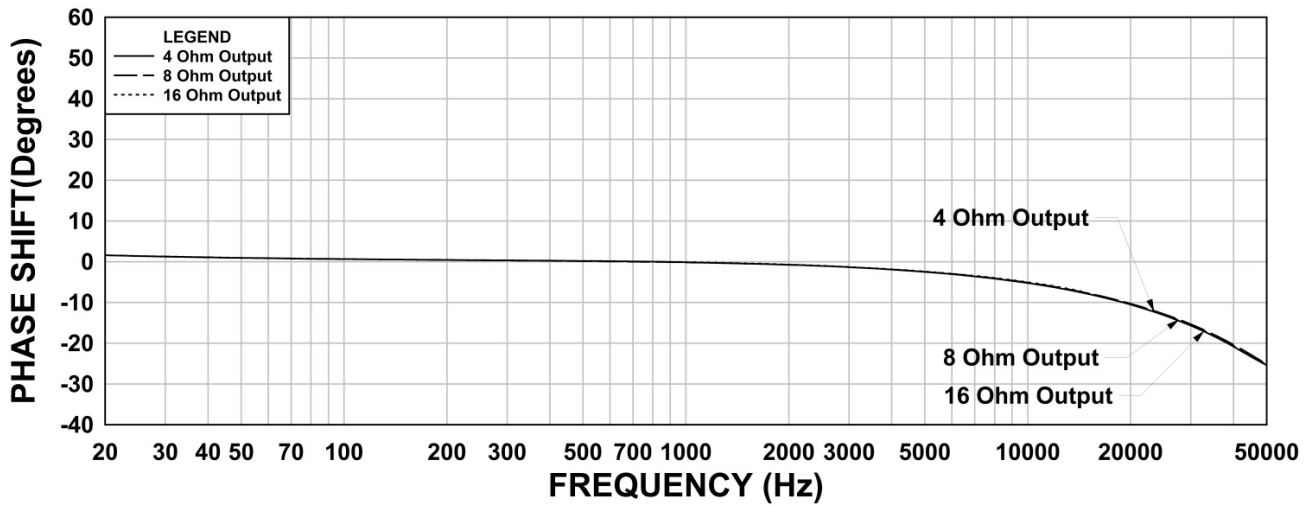
**TYPICAL TEST CIRCUIT**



### 1650T Frequency Response RS = 1900 Ohms



### 1650T Phase Shift RS = 1900 Ohms



### 1650T THD+N RS = 1900 Ohms

