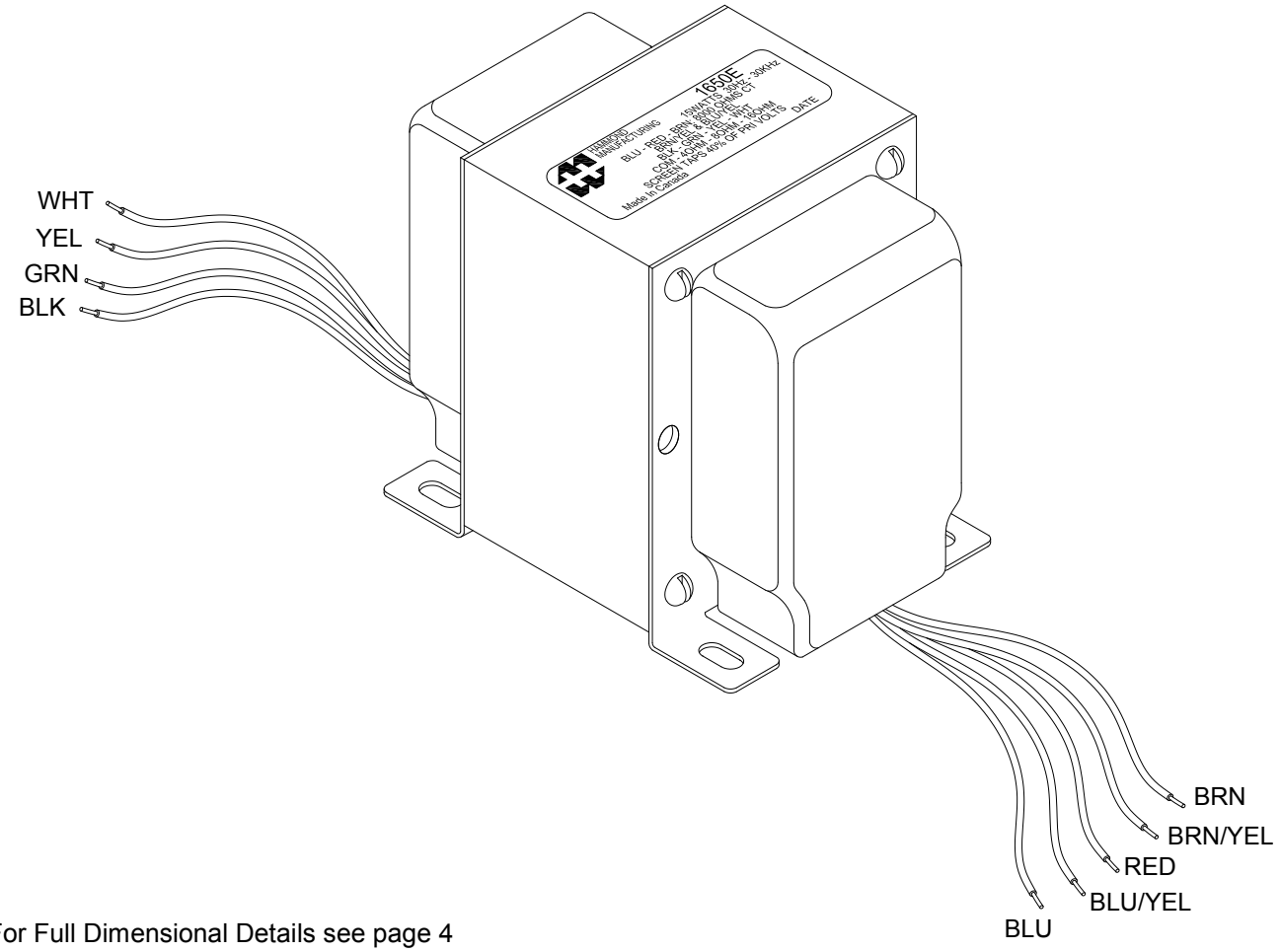
Hammond Mfg. Co. Ltd., Electronics Division

www.hammondmfg.com

1650E

HI-FI AUDIO OUTPUT MULTIPLE SECONDARY TRANSFORMER

- NEW & improved version of our 1608-1650 Series multiple secondary output transformers (Re-designed secondaries for easy hook-up of secondary loads).
- Designed for push-pull tube output circuits.
- Units are designed to provide ample "headroom" at bass frequencies (Note the weight of each transformer).
- All models have a secondary tapped for 4, 8 or 16 ohm outputs.
- Enclosed (shielded), 4 slot, above chassis Type "X" mounting.
- Manufactured with plastic coil forms for coil support and insulation.
- Frequency response 30Hz. to 30Khz. at full rated power (+/- 1db max. - ref. 1Khz) minimum.
- Insulated flexible leads 8" min.
- Included 40% screen taps for Ultra-Linear operation (if desired).
- Typical applications - Push-Pull: triode, Ultra-Linear pentode, pentode and tetrode connected audio output.

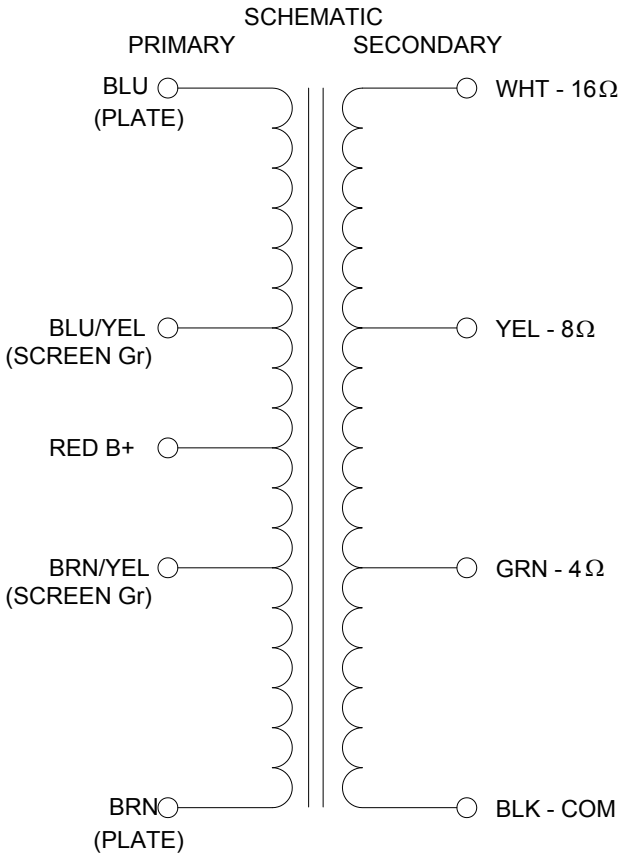


*For Full Dimensional Details see page 4

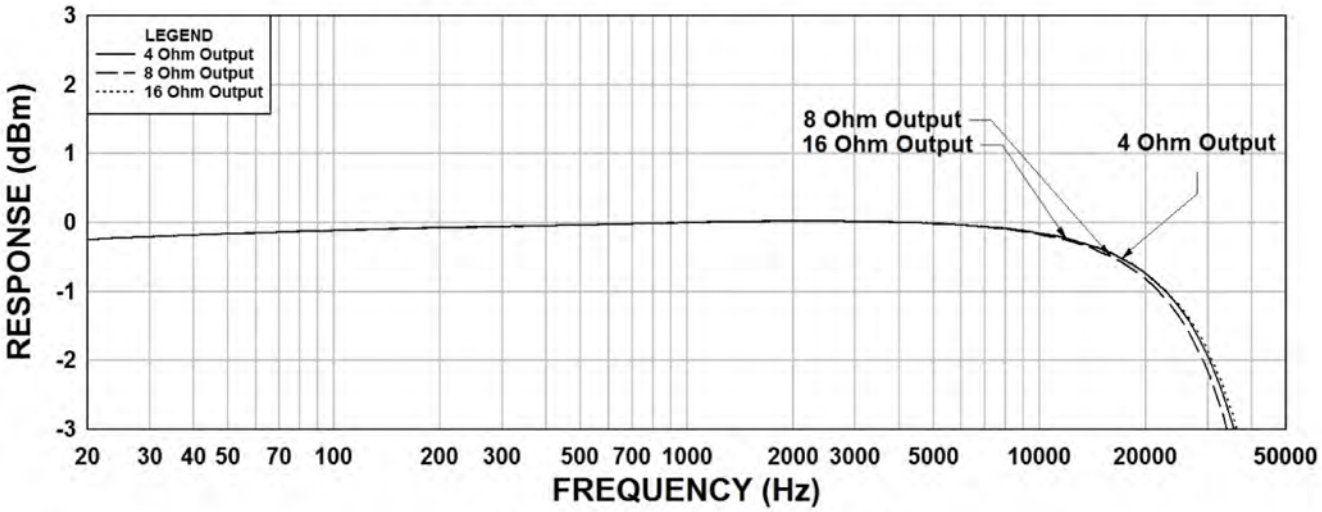
1650E ELECTRICAL SPECIFICATIONS**

Schematic and Hook Up Data

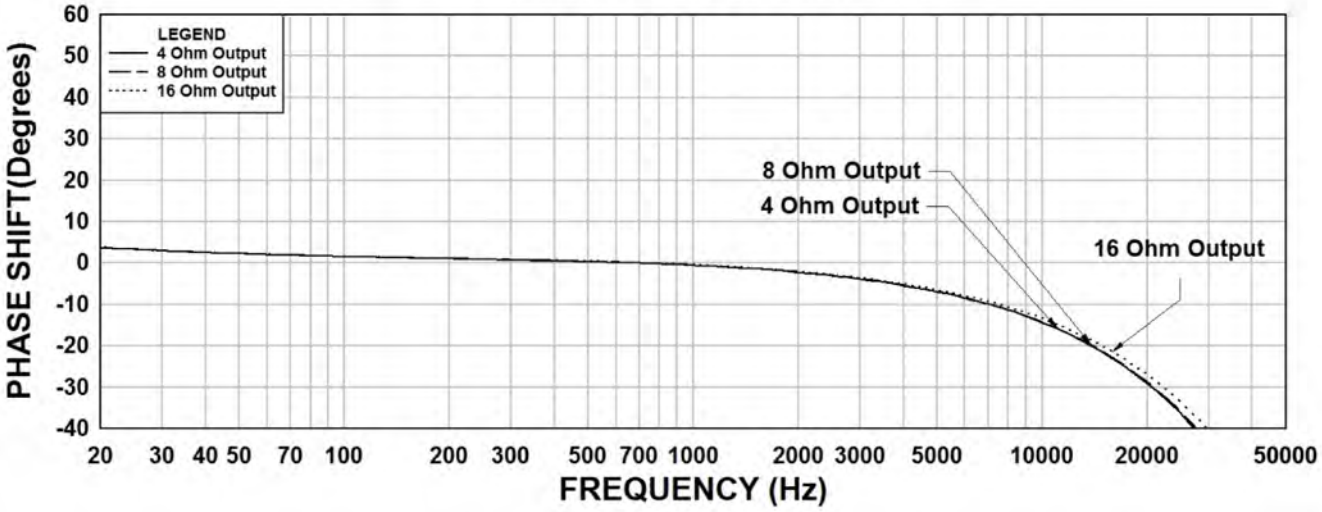
Characteristic	Typical
Input Impedance	8000Ω
Output Impedance	4Ω/8Ω/16Ω
Output Power	15Watts
Primary - DCR	
Blue – Brown	212.3Ω
Secondary DCR	
Black – Green	306mΩ
Black – Yellow	153mΩ
Black – White	218mΩ
Leakage Inductance	@ 1.0kHz, 1.0V SC
Primary – Blue – Brown	337.5mH
Inductance	@ 1.0kHz, 1.0V OC
Primary – Blue – Brown	53.3.2Hy
Impedance	@ 1.0kHz, 1.0V OC
Primary – Blue – Brown	413.9KΩ
Black – Green	111.8Ω
Black – Yellow	238.2Ω
Black – White	494.2Ω
Frequency Response	See graphs for specific response, Typ. ±1.0db from 30Hz to 30KHz
Dielectric Strength	2000Vrms
Temperature Range	-40 To 105°C



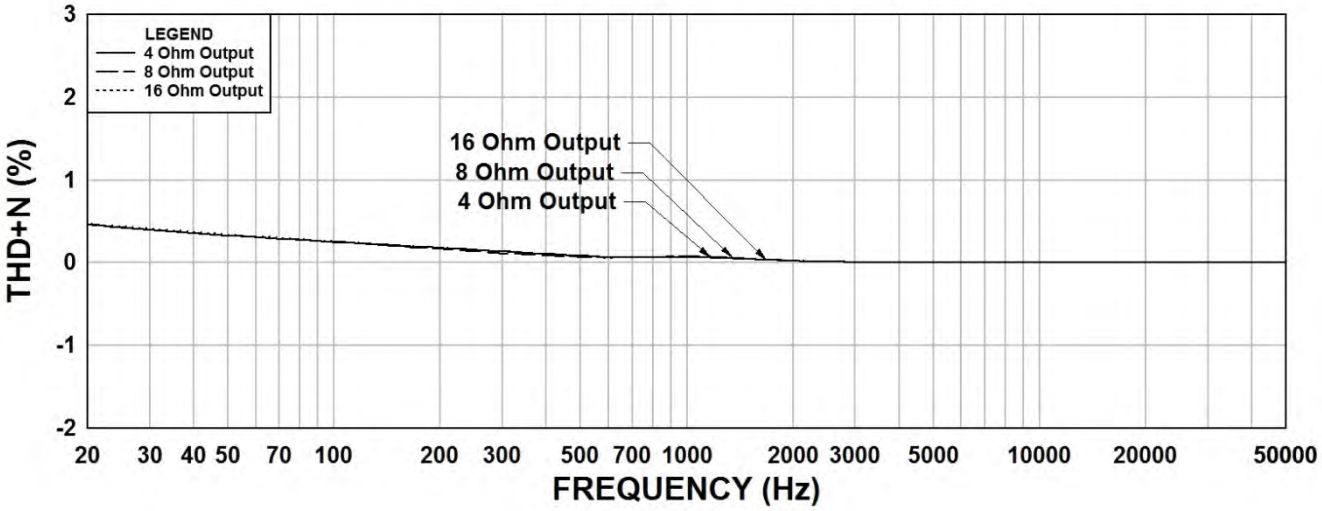
1650E Frequency Response Rs = 8K Ohms



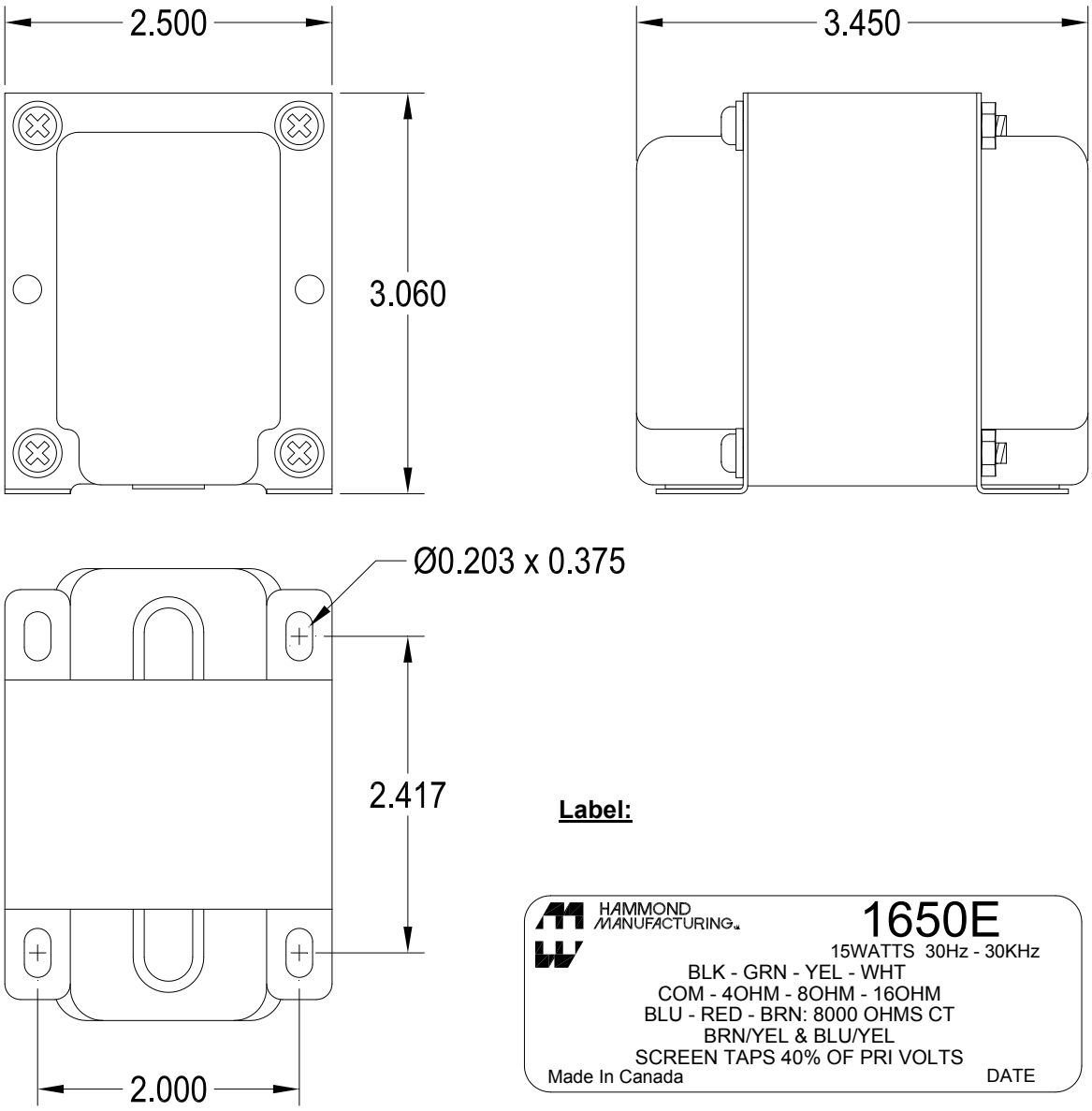
1650E Phase Shift Rs = 8K Ohms



1650E THD+N Rs = 8K Ohms



Dimensional Details:



Label:

HAMMOND MANUFACTURING

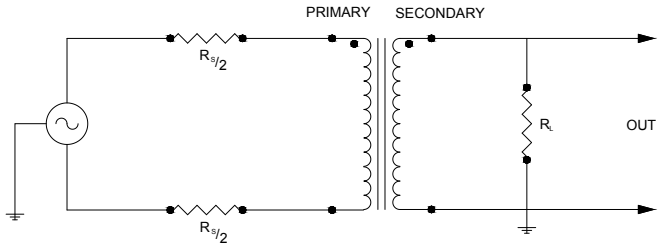
1650E

15WATTS 30Hz - 30KHz

BLK - GRN - YEL - WHT
COM - 4OHM - 8OHM - 16OHM
BLU - RED - BRN: 8000 OHMS CT
BRN/YEL & BLU/YEL
SCREEN TAPS 40% OF PRI VOLTS

Made In Canada DATE

TYPICAL TEST CIRCUIT



Measurement instruments
Hp4192a impedance analyzer
Hp3456a DVM
Keithley 2002 DVM
D scope series iii audio analyzer
Wayne Kerr 3255B with a 3265B

* All graphs input level 20dbu.
** The results are typical and are subject to normal manufacturing and electrical tolerances.