Data sheet

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Transoner® Data Sheet

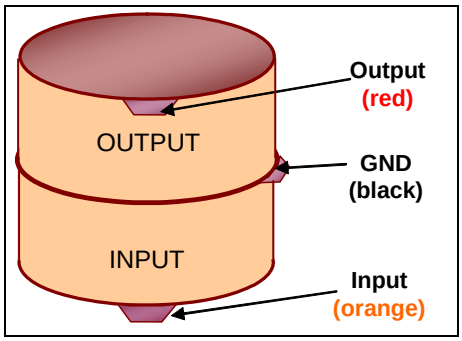
Date of Testing: ***24-May-2005***

Transoner I.D.: ***T1-noniso-#6***

Description: ***Transoner T1 2-layer***

Product Dimensions			
	Inches	mm	g
Diameter	0.750	19.05	
Input Thick.	0.060	1.52	
Output Thick.	0.090	2.29	
Mass			9.588

Typical Specifications at R=500Ω (Measurement Method: Output Power constant)	
Input Voltage (Vrms)	89.43
Input Current (mA)	213
Input Power (W)	15.3
Output Voltage (Vrms)	88.45
Output Current (mA)	170
Output Power (W)	15
Load (Ω)	500
Operation frequency (kHz)	121
Efficiency (%)	> 95



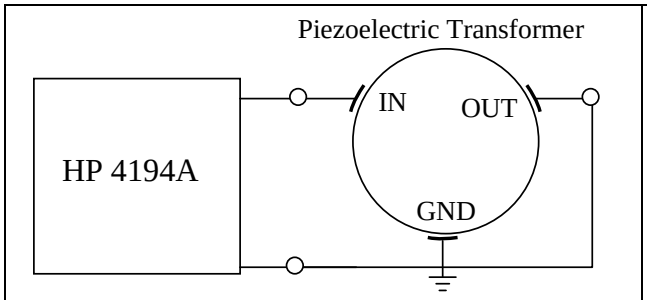
NOTE:

1) Avoid operating the Transoner at high power on hard surfaces because this will cause the Transoner to interact mechanically with the surface (chatter and bounce).
2) Use appropriate electrical safety precautions when operating/testing Transoner.

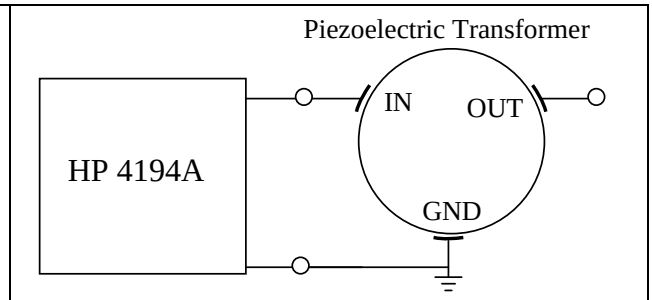
Data sheet

1. Test Circuits

A. Input impedance measurements under conditions of output short-circuited (Circuit 1) and output open (Circuit 2):

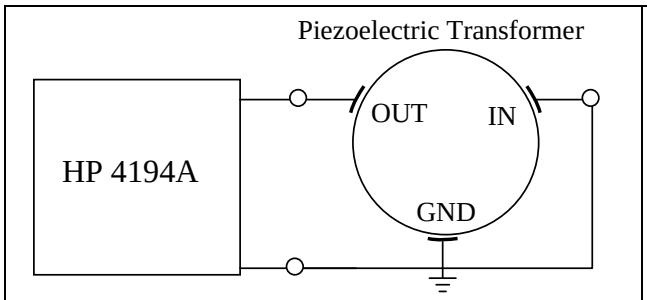


Circuit 1. Input impedance - output shorted

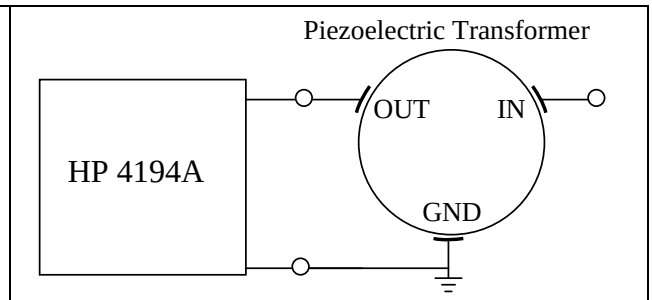


Circuit 2. Input impedance - output open

B. Output impedance measurements under conditions of output short-circuited (Circuit 3) and output open (Circuit 4):



Circuit 3. Output impedance - output shorted



Circuit 4. Output impedance - output open

2. Equivalent Circuit

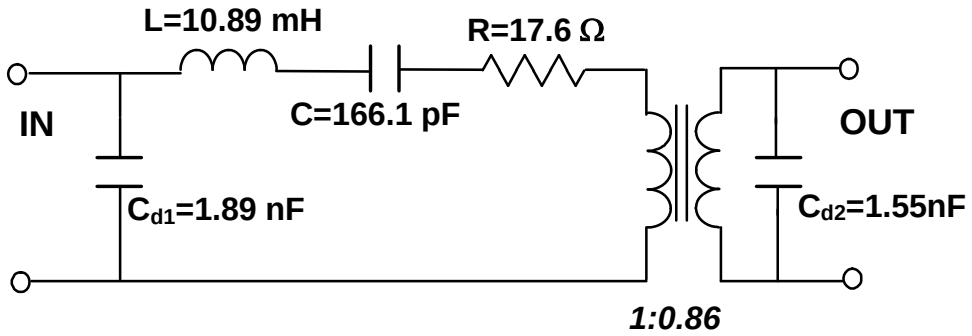


Figure 1. Equivalent circuit of the T1-non-isolated TRANSONER, T1-noniso-#6. The equivalences were made using HP Impedance Analyzer 4194A under 1 Vpp input voltage.

3. Input and output impedance spectrum around operating resonance frequency

3.1. Input impedance (Circuits 1 & 2)

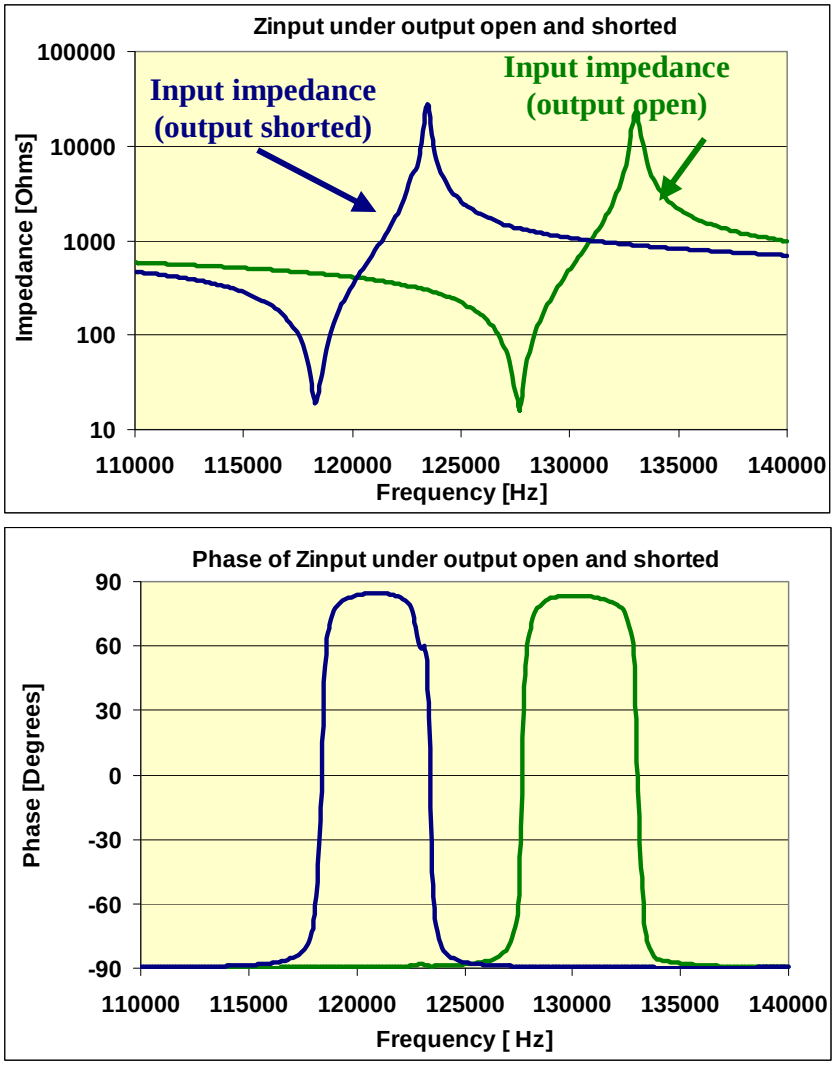


Figure 2. Input impedance-Phase vs. frequency. Measurements were taken with the HP4194A Impedance Analyzer at 1Vpp input AC voltage.

Input Impedance under output open				
fr=127681 Hz	**Rr=15.86 Ω**	**fa=133052 Hz**	**Ra=23.18 kΩ**	**Cin(1khz) = 2.11 nF**
Input Impedance under output shorted				
fr=118296 Hz	**Rr=18.78 Ω**	**fa=123421 Hz**	**Ra=27.94 kΩ**	**Cin(1khz) = 2.12 nF**

3.2. Output impedance (Circuits 3 & 4)

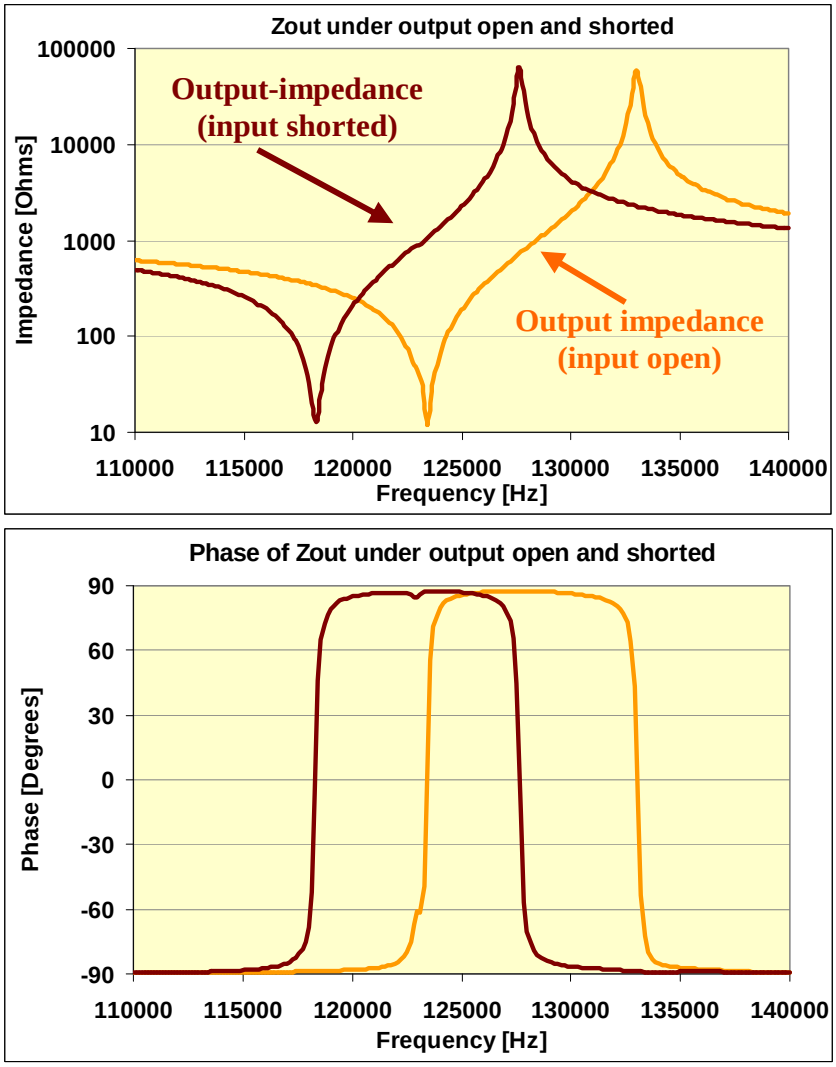


Figure 3. Output impedance-Phase vs. frequency. Measurements were taken with the HP4194A Impedance Analyzer at 1Vpp input AC voltage.

Output Impedance under input open				
fr=123421 Hz	**Rr=11.91 Ω**	**fa=133052 Hz**	**Ra=59.22 kΩ**	**Cin(1khz) = 1.57 nF**
Output Impedance under input shorted				
fr=118296 Hz	**Rr=14.41 Ω**	**fa=127681 Hz**	**Ra=62.97 kΩ**	**Cin(1khz) = 1.57 nF**

3.2. Input and output impedance under short-circuit conditions (Circuits 1 & 3)

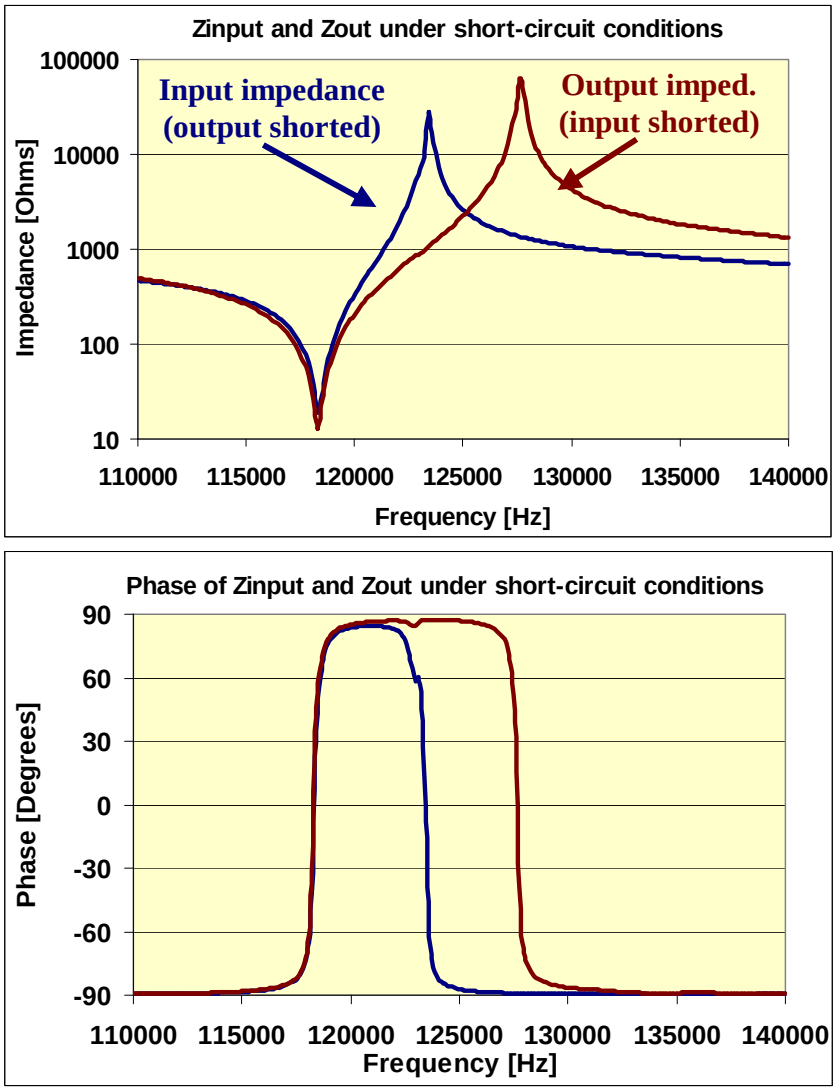
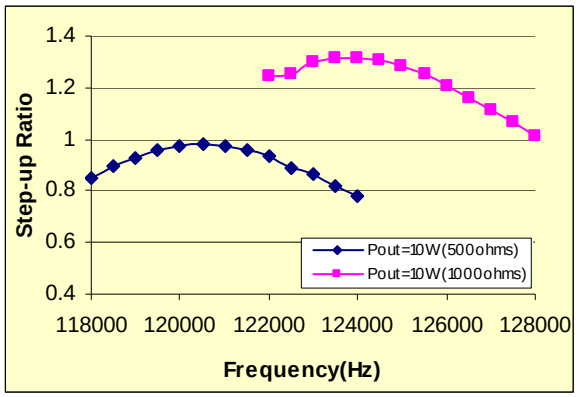


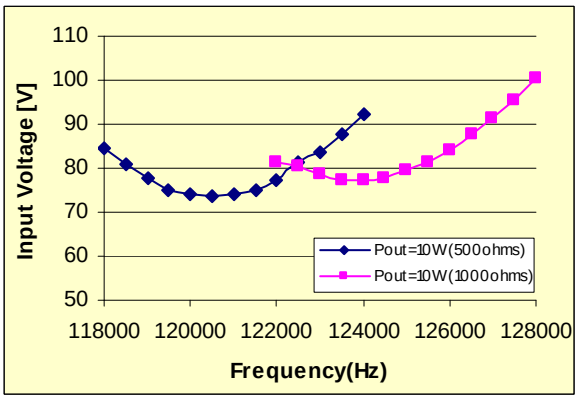
Figure 4. Input and output impedance-Phase under short circuit conditions vs. frequency. Measurements were taken with the HP4194A Impedance Analyzer at 1Vpp input

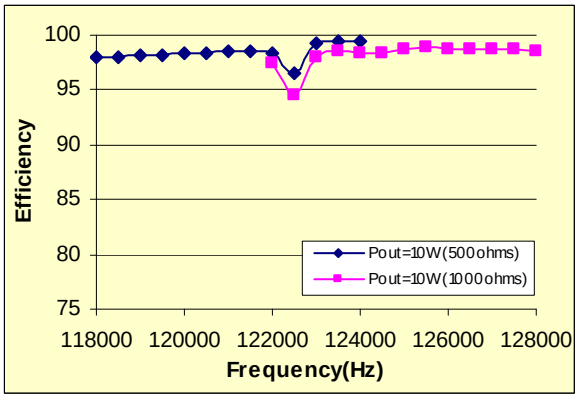
Input Impedance under output open				
fr=127681 Hz	**Rr=15.86 Ω**	**fa=133052 Hz**	**Ra=23.18 kΩ**	**Cin(1khz) = 2.11 nF**
Input Impedance under output shorted				
fr=118296 Hz	**Rr=18.78 Ω**	**fa=123421 Hz**	**Ra=27.94 kΩ**	**Cin(1khz) = 2.12 nF**
Output Impedance under input open				
fr=123421 Hz	**Rr=11.91 Ω**	**fa=133052 Hz**	**Ra=59.22 kΩ**	**Cin(1khz) = 1.57 nF**
Output Impedance under input shorted				
fr=118296 Hz	**Rr=14.41 Ω**	**fa=127681 Hz**	**Ra=62.97 kΩ**	**Cin(1khz) = 1.57 nF**

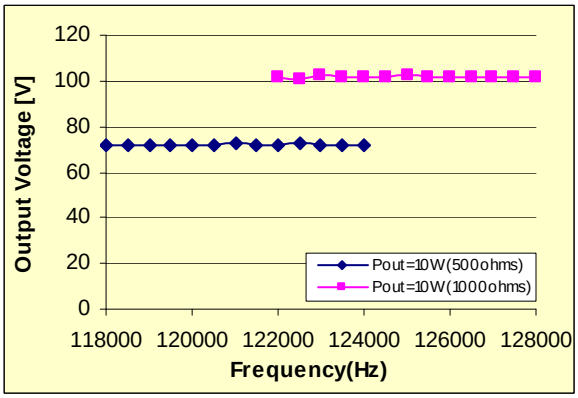
4. Power Tests (I)

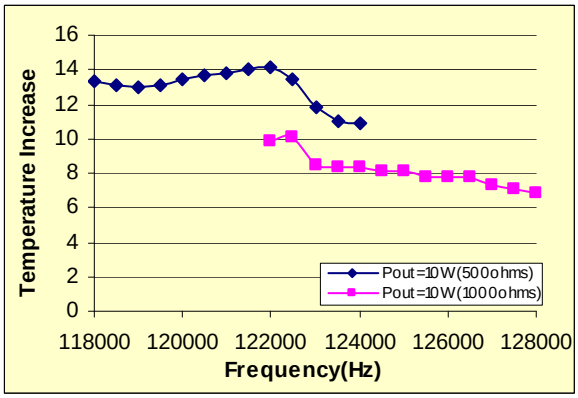
Sample T1-noniso-#6; Pout = 10W (constant); RL=500, 1000 ohms; 500Hz/2min

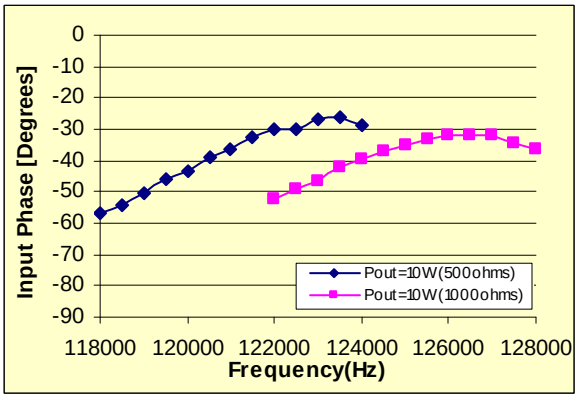


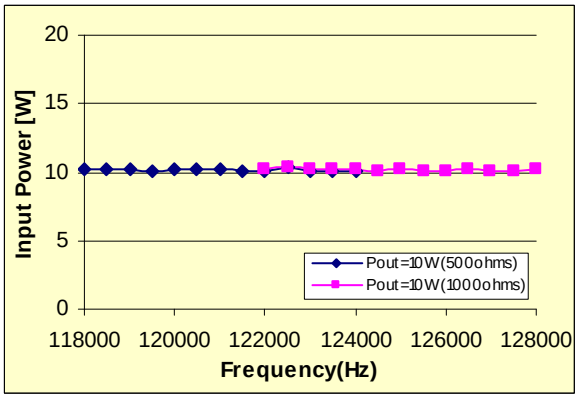


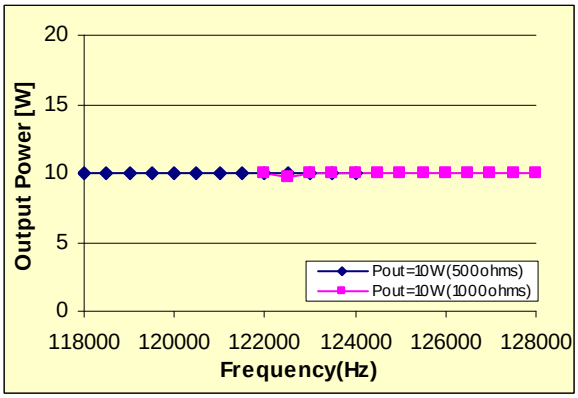




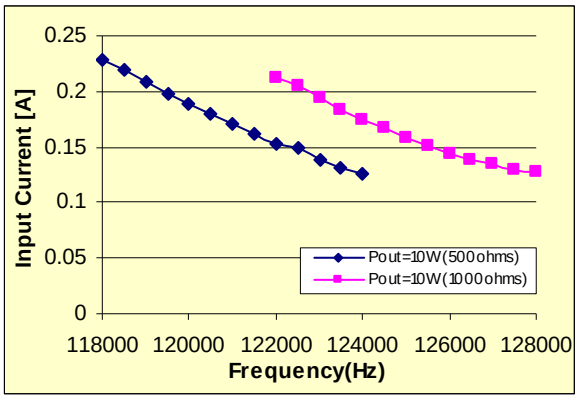


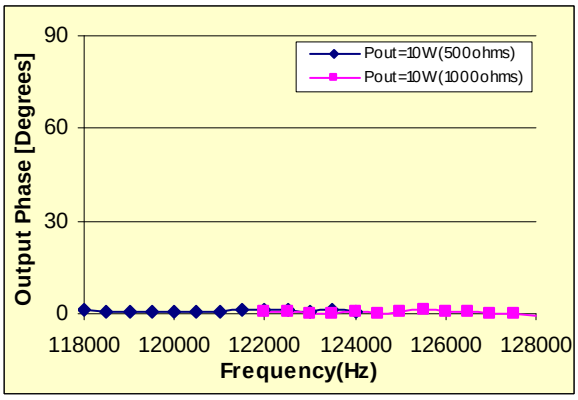


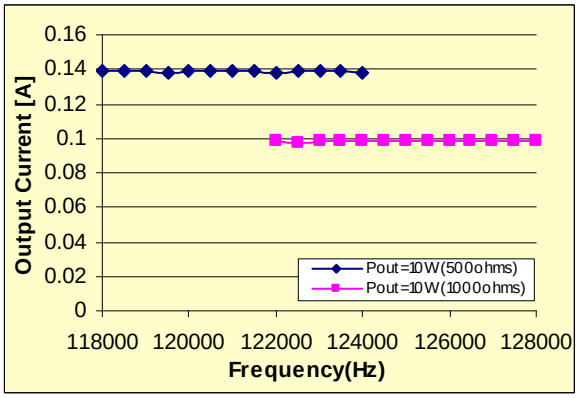


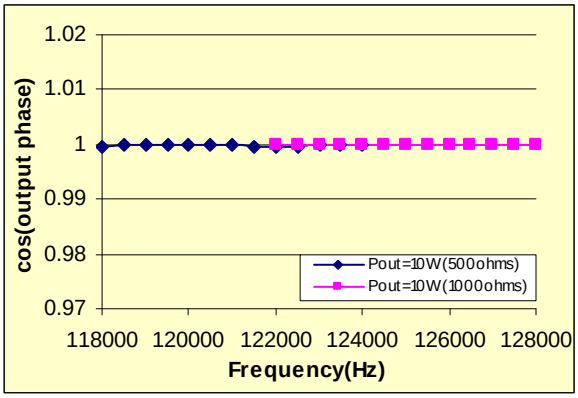


Data sheet


0.25
0.2
0.15
0.1
0.05
0
Input Current [A]
118000 120000 122000 124000 126000 128000
Frequency(Hz)
Pout=10W(500ohms)
Pout=10W(1000ohms)

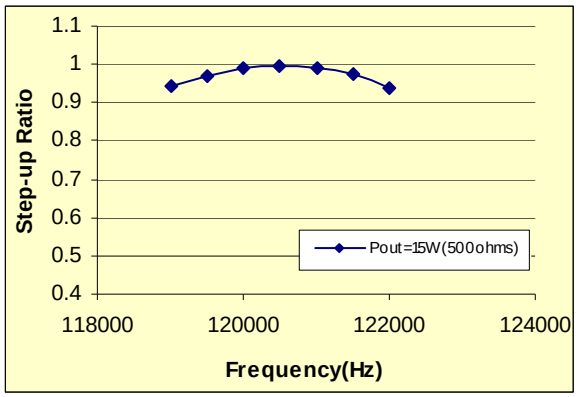

90
60
30
0
Output Phase [Degrees]
118000 120000 122000 124000 126000 128000
Frequency(Hz)
Pout=10W(500ohms)
Pout=10W(1000ohms)

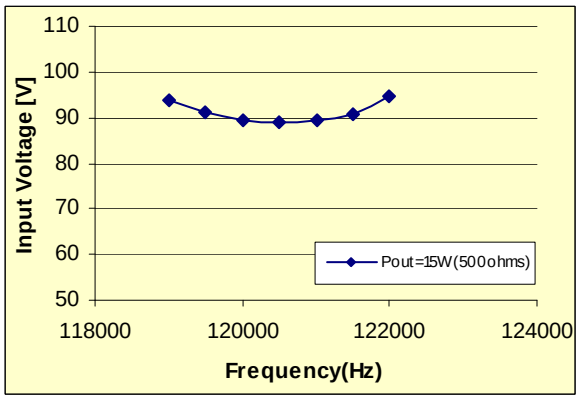

0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Output Current [A]
118000 120000 122000 124000 126000 128000
Frequency(Hz)
Pout=10W(500ohms)
Pout=10W(1000ohms)

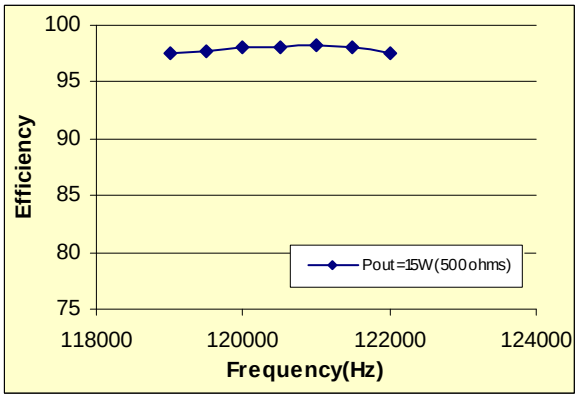

1.02
1.01
1
0.99
0.98
0.97
cos(output phase)
118000 120000 122000 124000 126000 128000
Frequency(Hz)
Pout=10W(500ohms)
Pout=10W(1000ohms)

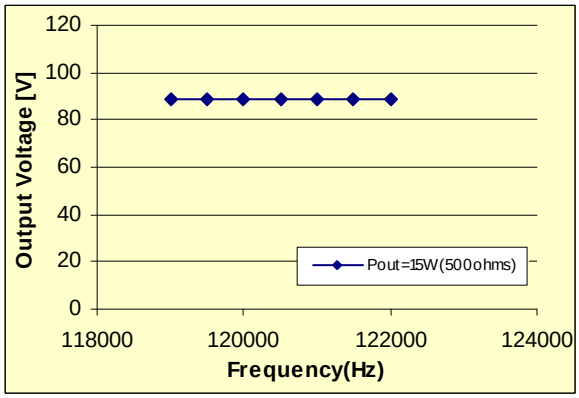
5. Power Tests (II)

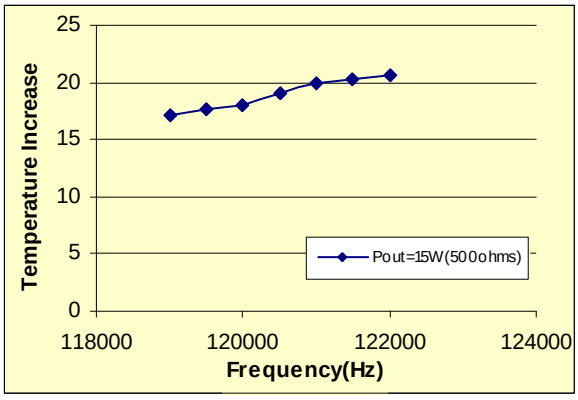
Sample T1-noniso-#6; Pout = 15W (constant); RL=500, 1000 ohms; 500Hz/2min

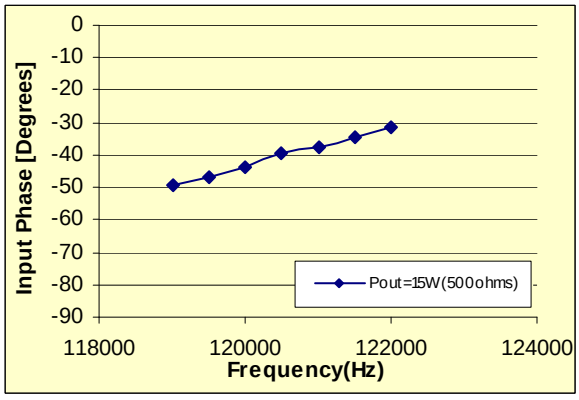


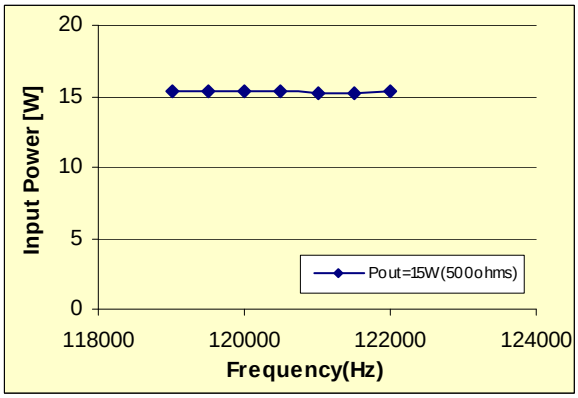


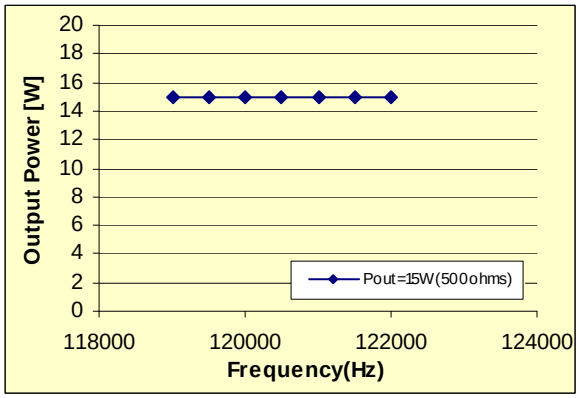












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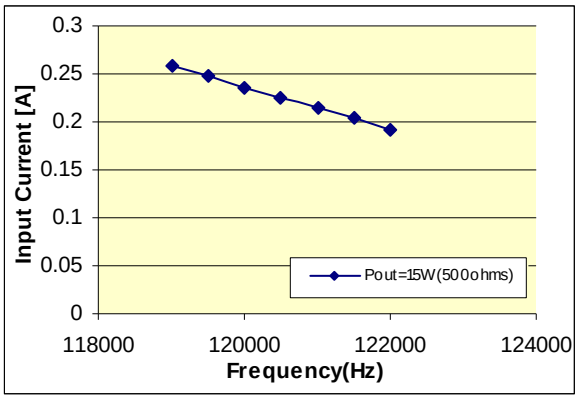
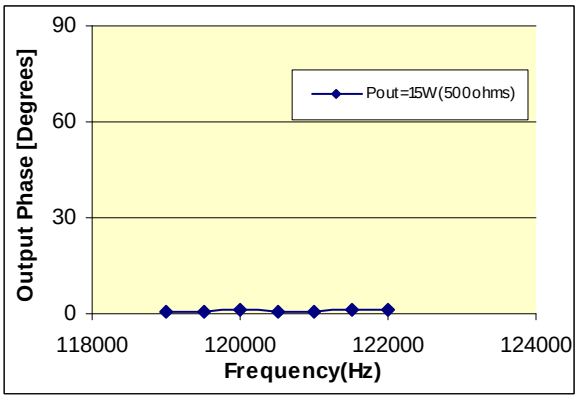
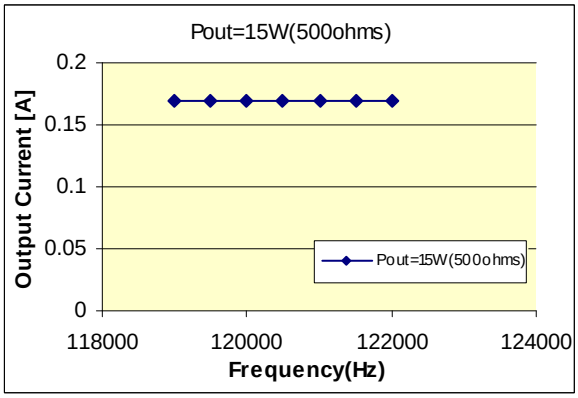
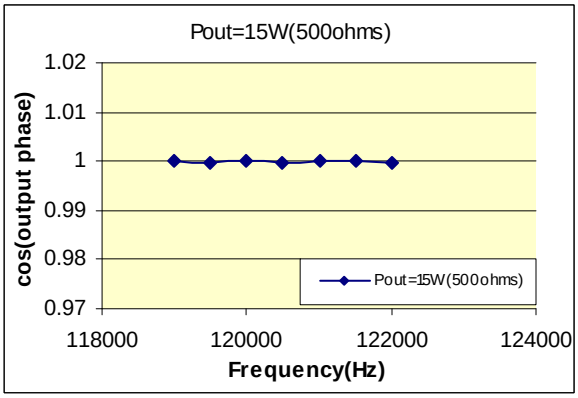

Input Current [A]
0.3
0.25
0.2
0.15
0.1
0.05
0
118000
120000
122000
124000
Frequency(Hz)
Pout=15W(500ohms)


Output Phase [Degrees]
90
60
30
0
118000
120000
122000
124000
Frequency(Hz)
Pout=15W(500ohms)


Pout=15W(500ohms)
Output Current [A]
0.2
0.15
0.1
0.05
0
118000
120000
122000
124000
Frequency(Hz)
Pout=15W(500ohms)


Pout=15W(500ohms)
cos(output phase)
1.02
1.01
1
0.99
0.98
0.97
118000
120000
122000
124000
Frequency(Hz)
Pout=15W(500ohms)