Hammond Mfg. Co. Ltd., Electronics Division

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## 

## 1140-LU-D

CHASSIS MOUNT LINE OUTPUT TRANSFORMER

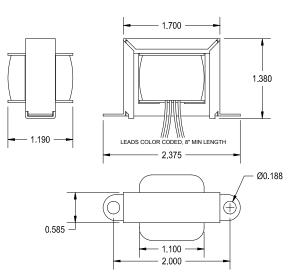
This transformer is designed with bi-filar windings and a 49% Ni core, which gives low distortion levels and good output levels.

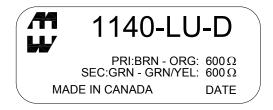
It can drive  $600\Omega$  loads up to +24dbu @ 20Hz.

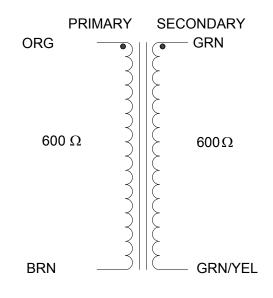
Due to the properties of the Ni core, the drive signal should have no DC component and the source impedance should be as low as possible.

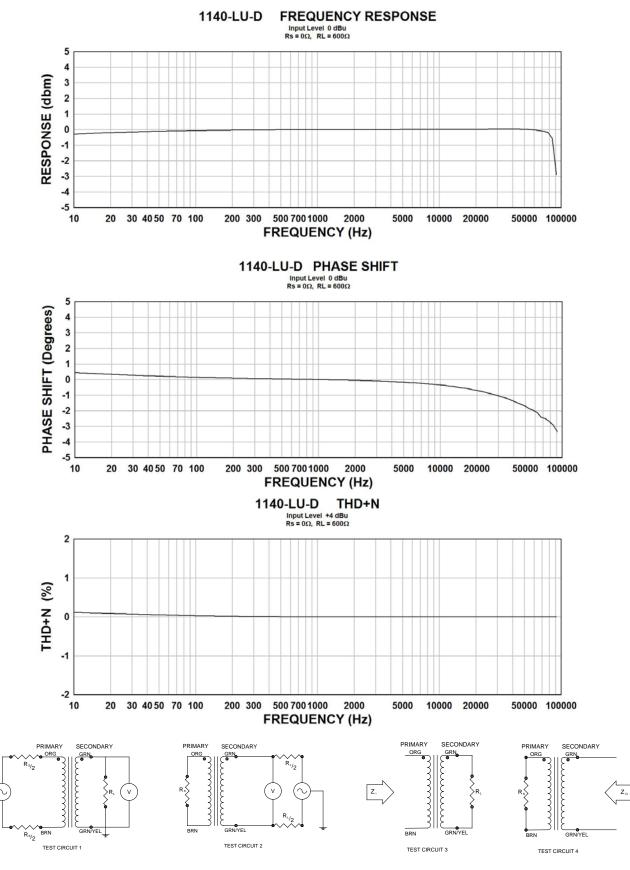
## **ELECTRICAL SPECIFICATIONS**

CharacteristicConditionsTypicalInput Impedance600 ΩOutput Impedance1kHz 0dbuPrimary Input Impedance1kHz 0dbuBecondary Output Impedance1kHz 0dbuMaximum input Level20Hz RL = 600ΩPrimary200°C40 ΩSecondary220°CPrimary220°C40 ΩSecondary220°CPrimary220°C40 ΩSecondary220°CPrequency Response20 kHz, 0 dbu, Test Circuit 3Turns ratio1:1Common Mode Rejection Level60 Hz, 0 dbu, Test Circuit 2THD1kHz 4 dbu Test Circuit 10.001%Phase Shift20 kHz Circuit 1CapacitancePrimary to Shield and CaseCapacitancePrimary to Shield and CaseDielectric Strength250 Vrms			
Output Impedance600 ΩPrimary Input Impedance0 1kHz 0dbu Test Circuit 3680ΩSecondary Output Impedance0 1kHz 0dbu Test Circuit 480ΩMaximum input Level Primary0 20Hz RL = 600Ω+24 dbuDCR020°C40 ΩSecondary0 20°C40 ΩSecondary0 20°C40 ΩSecondary0 20°C40 ΩFrequency Response0 20 kHz, 0 dbu, Test Circuit 3-0.18dbTurns ratio1:1105dbCommon Mode Rejection Level60 Hz, 0 dbu, Test Circuit 2105dbTHD0 1kHz 4 dbu Test Circuit 20.001%THD0 20 Hz Rest Circuit 10.08%Phase Shift0 20 Hz Test Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	Characteristic	<u>Conditions</u>	<u>Typical</u>
Primary Input Impedance0 1kHz 0dbu Test Circuit 3680ΩSecondary Output Impedance0 1kHz 0dbu Test Circuit 480ΩMaximum input Level0 20Hz RL = 600Ω+24 dbuDCR00Primary0 20°C40 ΩSecondary0 20°C40 ΩFrequency Response0 20 Hz, 0 dbu, Test Circuit 3-0.18dbTurns ratio1:10.03dbCommon Mode Rejection Level60 Hz, 0 dbu, Test Circuit 2105dbTHD0 4kHz 4 dbu Test Circuit 10.001%THD0 20 Hz 20 Hz0.23°Capacitance0 20 kHz Primary 10 Shield and Case-0.7°CapacitancePrimary to Shield And Case20nf	Input Impedance		600 Ω
ImpedanceTest Circuit 3680ΩSecondary Output Impedance@ 1kHz Odbu Test Circuit 480ΩMaximum input Level@ 20Hz RL = 600Ω+24 dbuDCRPrimary@ 20°C40 ΩSecondary@ 20 Hz, 0 dbu, Test Circuit 3-0.18dbFrequency Response@ 20 kHz, 0 dbu, Test Circuit 3+0.03dbTurns ratio1:1Common Mode Rejection Level60 Hz, 0 dbu, Test Circuit 2105dbTHD@ 60 Hz, 0 dbu, Test Circuit 175dbTHD@ 20Hz 4 dbu Test Circuit 10.001%@ 20 Hz Test Circuit 10.23°THD@ 20 Hz Test Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	Output Impedance		600 Ω
ImpedanceTest Circuit 480ΩMaximum input Level@ 20Hz RL = 600Ω+24 dbuDCRPrimary@20°C40 ΩSecondary@20°C40 ΩFrequency Response@ 20 Hz, 0 dbu, Test Circuit 3-0.18db Common Mode Rejection Level@ 60 Hz, 0 dbu, Test Circuit 2+0.03dbTHD@ 60 Hz, 0 dbu, Test Circuit 2105dbTHD@ 1kHz 4 dbu Test Circuit 10.001%Phase Shift@ 20 kHz Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	Impedance	@ 1kHz 0dbu Test Circuit 3	680Ω
Maximum input Level $RL = 600\Omega$ 124 dbdDCR $Q20^{\circ}C$ $40 \Omega$ Secondary $Q20^{\circ}C$ $40 \Omega$ Frequency Response $Q20  Hz, 0  dbu,$ Test Circuit 3 $-0.18 db$ $Q20  KHz, 0  dbu,$ Test Circuit 3 $-0.18 db$ Turns ratio $020  KHz, 0  dbu,$ Test Circuit 2 $+0.03 db$ Turns ratio $1:1$ Common Mode 			80Ω
Primary@20°C40 ΩSecondary@20°C40 ΩFrequency Response@ 20 Hz, 0 dbu, Test Circuit 3-0.18db@ 20 kHz, 0 dbu, Test Circuit 3+0.03dbTurns ratio1:1Common Mode Rejection Level@ 60 Hz, 0 dbu, Test Circuit 2105dbTHD@ 1kHz 4 dbu Test Circuit 10.001%@ 20 Hz Rest Circuit 10.001%0.08%THD@ 20 Hz Test Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	Maximum input Level		+24 dbu
Secondary@20°C40 ΩFrequency Response@ 20 Hz, 0 dbu, Test Circuit 3-0.18db@ 20 kHz, 0 dbu, Test Circuit 3+0.03dbTurns ratio1:1Common Mode Rejection Level@ 60 Hz, 0 dbu, Test Circuit 2105dbTHD@ 60 Hz, 0 dbu, Test Circuit 275dbTHD@ 1kHz 4 dbu Test Circuit 10.001%Phase Shift@ 20 Hz Test Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	DCR		
Frequency Response@ 20 Hz, 0 dbu, Test Circuit 3-0.18db@ 20 kHz, 0 dbu, Test Circuit 3+0.03dbTurns ratio1:1Common Mode Rejection Level@ 60 Hz, 0 dbu, Test Circuit 2105db3kHz, 0 dbu, Test Circuit 275dbTHD@ 1kHz 4 dbu Test Circuit 10.001%@ 20Hz 4 dbu Test Circuit 10.08%Phase Shift@ 20 Hz Test Circuit 10.23°CapacitancePrimary to Shield and Case20nfSecondary to Shield and Case50pf	Primary	@20°C	40 Ω
Trest Circuit 3   0.1000     @ 20 kHz, 0 dbu, Test Circuit 3   +0.03db     Turns ratio   1:1     Common Mode Rejection Level   @ 60 Hz, 0 dbu, Test Circuit 2   105db     3kHz, 0 dbu, Test Circuit 2   75db     THD   @ 1kHz 4 dbu Test Circuit 1   0.001%     @ 20Hz 4 dbu Test Circuit 1   0.08%     Phase Shift   @ 20 Hz Test Circuit 1   0.23°     @ 20 kHz   -0.7°     Test Circuit 1   -0.7°     Capacitance   Primary to Shield and Case   20nf     Secondary to Shield and Case   50pf	Secondary	@20°C	40 Ω
Turns ratio 10.0000   Common Mode Rejection Level @ 60 Hz, 0 dbu, Test Circuit 2 105db   3kHz, 0 dbu, Test Circuit 2 75db   THD @ 1kHz 4 dbu 0.001% 0.001%   @ 20Hz 4 dbu Test Circuit 1 0.08%   Phase Shift @ 20 Hz Test Circuit 1 0.23°   @ 20 kHz Test Circuit 1 -0.7°   Primary to Shield and Case 20nf   Secondary to Shield and Case 50pf	Frequency Response		-0.18db
Common Mode Rejection Level@ 60 Hz, 0 dbu, Test Circuit 2105db3kHz, 0 dbu, Test Circuit 275dbTHD@ 1kHz 4 dbu Test Circuit 10.001%@ 20Hz 4 dbu Test Circuit 10.08%Phase Shift@ 20 Hz Test Circuit 10.23°@ 20 kHz Test Circuit 1-0.7°Phase ShiftPrimary to Shield and Case20nfSecondary to Shield and Case50pf			+0.03db
Rejection Level   Test Circuit 2   105db     3kHz, 0 dbu, Test Circuit 2   75db     THD   0 1kHz 4 dbu Test Circuit 1   0.001%     0 20Hz 4 dbu Test Circuit 1   0.08%     Phase Shift   0 20 Hz Test Circuit 1   0.23°     0 20 kHz Test Circuit 1   -0.7°     Primary to Shield and Case   20nf     Secondary to Shield and Case   50pf	Turns ratio		1:1
Test Circuit 2 1 / 300   THD @ 1kHz 4 dbu Test Circuit 1 0.001%   @ 20Hz 4 dbu Test Circuit 1 0.08%   Phase Shift @ 20 Hz Test Circuit 1 0.23°   @ 20 kHz Test Circuit 1 -0.7°   Capacitance Primary to Shield and Case 20nf   Secondary to Shield and Case 50pf		@ 60 Hz, 0 dbu, Test Circuit 2	105db
THD Test Circuit 1 0.0017%   @ 20Hz 4 dbu 0.08%   Phase Shift @ 20 Hz 0.23°   @ 20 kHz -0.7°   Test Circuit 1 -0.7°   Capacitance Primary to Shield and Case   Secondary to Shield and Case 50pf		Test Circuit 2	75db
Test Circuit 1 0.00 ///   Phase Shift @ 20 Hz Test Circuit 1 0.23°   @ 20 kHz Test Circuit 1 -0.7°   Capacitance Primary to Shield and Case 20nf   Secondary to Shield and Case 50pf	THD		0.001%
Trase Shift Test Circuit 1 0.23   @ 20 kHz -0.7°   Test Circuit 1 -0.7°   Capacitance Primary to Shield and Case   Secondary to Shield and Case 50pf			0.08%
Test Circuit 1 -0.7   Capacitance Primary to Shield and Case 20nf   Secondary to Shield and Case 50pf	Phase Shift		0.23°
Case 2011 Secondary to Shield 50pf		Test Circuit 1	-0.7°
and Case 5001	Capacitance		20nf
Dielectric Strength 250 Vrms			50pf
	Dielectric Strength		250 Vrms









Measurement instruments Hp4192a impedance analyzer Hp3456a DVM Keithley 2002 DVM D scope series iii audio analyzer

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