

## Tube Amplifier Output Transformers LL1679

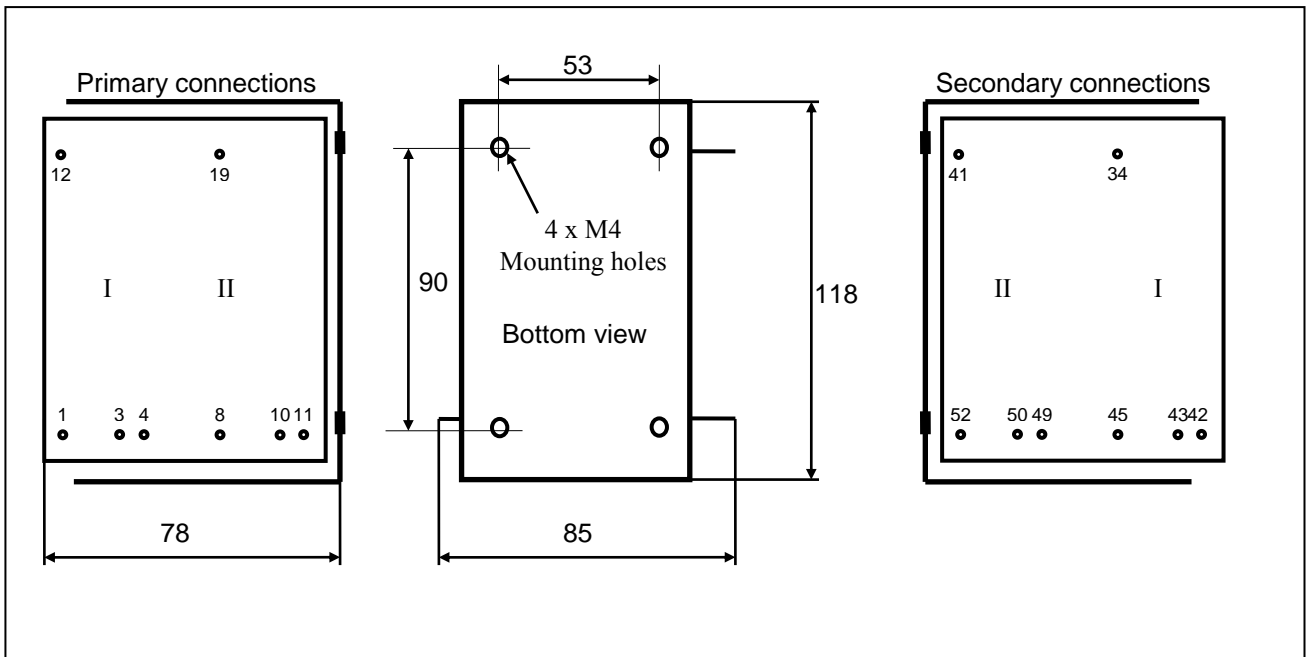
LL1679 is an output transformer for tube amplifiers, available with different core air-gaps for different types of output stages. The transformers are highly sectioned with harmonically sized sections, which results in a minimum leakage inductance. This combined with a low capacitance coil winding technique results in a wide frequency range.

The primary winding can be tapped for 36% UL connection.

The transformers have a special audio C-core of our own production.

The transformers are unpotted, open frame type suitable for mounting inside an amplifier housing.

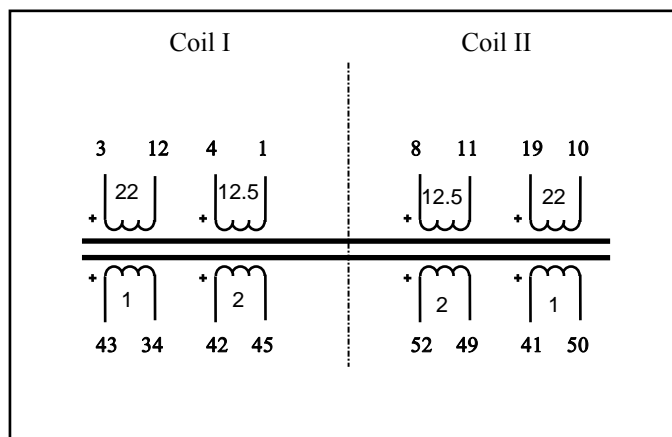
### Physical dimensions, pin and mounting hole layout LL1679 (all dimensions in mm)



R150220 PL

<b>Pin spacing module:</b>	5.08 mm (0.2")
<b>Row spacing:</b>	76mm approx.
<b>Weight:</b>	2.5 kg
<b>Turns ratio:</b>	22 + 12.5 + 22 + 12.5 : 2 + 1 + 2 + 1

### Winding schematics:



	<b>LL1679</b>	
<b>Turns ratio:</b>	<b>22 + 12.5 + 22 + 12.5 : 2 + 1 + 2 + 1</b>	
<b>Static resistance of primary (all in series)</b>	160 Ω (2 x 54Ω + 2 x 26Ω )	
<b>Static resistance of inner/outer secondary winding</b>	0.5Ω / 0.3Ω	
<b>Primary leakage inductance (all in series)</b>	8 mH	
<b>Max. primary <u>signal</u> voltage r.m.s. at 30 Hz (all in series)</b>	Push-Pull 670V	Single End 295V

**Isolation between primary and secondary windings / between windings and core:** 3 kV / 1.5 kV

### Electrical characteristics

**Primary Load Impedance, Max power and power loss.**

	<b>Sec. connection for 4/8/16 Ω</b> (See next page)		
	-/B/C	B/C/D	C/D/E
	<b>Primary Load Impedance</b> (transformer copper resistance included)		
<b>LL1679</b>	9.7 kΩ	4.5 kΩ	2.6 kΩ
	<b>Power and Loss</b>		
<b>Max. Power, P-P at 30 Hz</b>	45W	105W	188W
<b>Max. Power, S.E. at 30 Hz</b>	9W	20W	36W
<b>Power loss across transformer</b>	0.2 dB	0.4 dB	0.6 dB

**Primary DC Current Core Air-gap and Primary inductance**

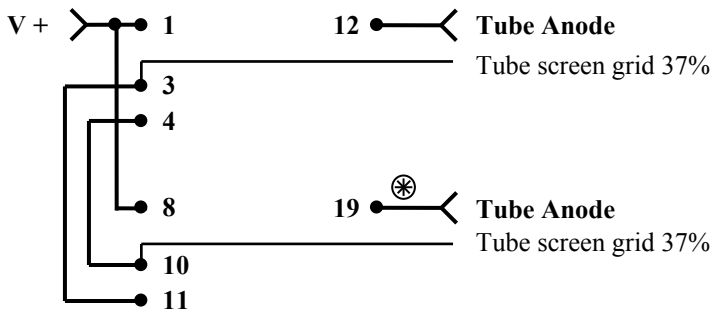
	LL1679/PP	LL1679/70mA
Core Airgap (delta/2)	25 μ	190 μ
Single end standing current for 0.9 Tesla (recommended operating point)		70mA
Primary inductance	150 H	40H

**Frequency response, LL1679/PP**

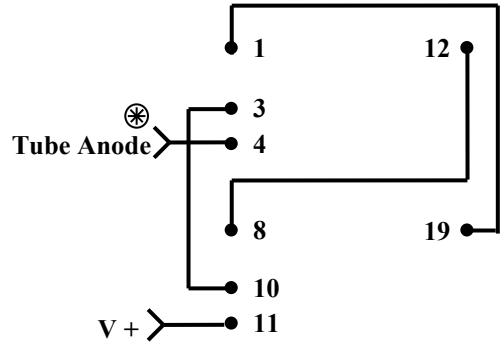
(source impedance 2k, load impedance 10 ohms  
primary winding is series, secondary winding alt. C)

10 Hz – 70 kHz +0/-3 dB

### Primary connections, Push-Pull

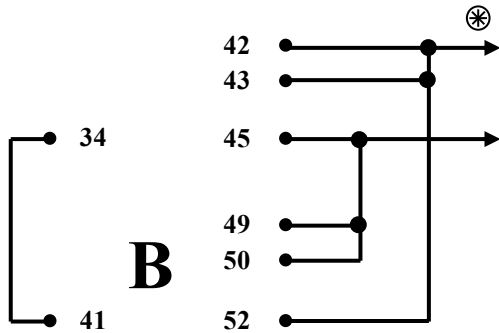


### Primary connections, Single End

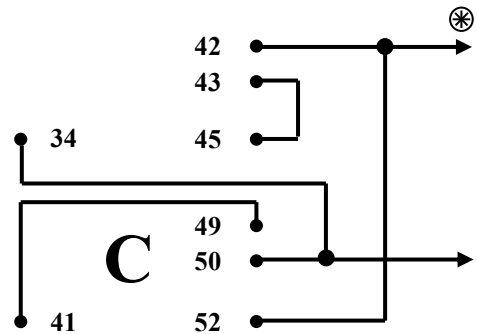


### Secondary connections

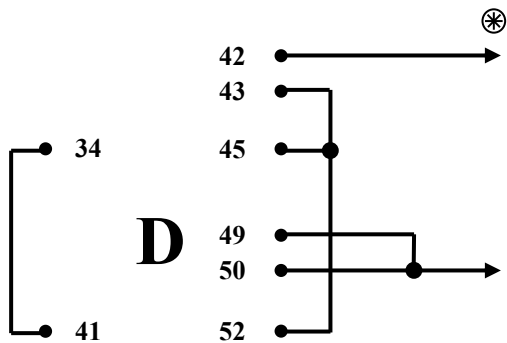
⊗ Indicates phase



Max secondary Voltage RMS @ 30 Hz	
P-P: 19V	SE : 8.5V
Sec. copper resistance 0.2 Ω	Windings in series 2



Max secondary Voltage RMS @ 30 Hz	
P-P: 29V	SE : 13V
Sec. copper resistance 0.4 Ω	Windings in series 3



Max secondary Voltage RMS @ 30 Hz	
P-P: 39V	SE : 17V
Sec. copper resistance 0.7 Ω	Windings in series 4



Max secondary Voltage RMS @ 30 Hz	
P-P: 58V	SE : 25V
Sec. copper resistance 1.6 Ω	Windings in series 6