

10PL12/UCL82 TRIODE BEAM TETRODE

GENERAL

The 10PL12/UCL82 is a miniature based Triode Beam Tetrode with separate cathodes. It is intended for use in the Audio Output stages of AC/DC mains powered receivers. The tetrode has a maximum anode dissipation of 7 watts and a single valve will give an output of 3.5 watts.

RATING

		Tetrode	Triode
Heater Current (amps)	I_h	0.1	
Heater Voltage (volts)	V_h	50	
Maximum Anode Voltage (volts)	$V_a(\text{max})$	250	250
Maximum Screen Voltage (volts)	$V_{g2}(\text{max})$	250	
Maximum Anode Dissipation (watts)	$P_a(\text{max})$	7.0	1.0
Maximum Screen Dissipation (watts)	$P_{g2}(\text{max})$	1.8*	
Maximum Mean Cathode Current (mA)	$I_{k(\text{av})\text{max}}$	50	15
Mutual Conductance (mA/V)	g_m	6.4 ϕ	2.5 $\dagger$
Amplification Factor	μ	9.5 ϕ	70 $\dagger$
Maximum Heater/Cathode Voltage (rms) (volts)	$V_{h-k}(\text{max})$	200 $\S$	200 $\S$
Maximum Grid 1/Cathode Resistance (Self Bias) (megohms)	$R_{g1-k}(\text{max})$	2	3 $\dagger$
Maximum Grid 1/Cathode Resistance (Fixed Bias) (megohms)	$R_{g1-k}(\text{max})$	1	1
Maximum Heater/Cathode Resistance (kilohms)	$R_{h-k}(\text{max})$	20	20

Notes continued on next page.

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NOTES

* For speech and music the permissible rating at maximum signal is 3.2 watts.

ϕ Measured at $V_a = V_{g2} = 200V$; $I_a = 35mA$; $I_{g2} = 7mA$; $V_{g1} = -16V$.

μ measured Grid 1 to Grid 2.

† Measured at $V_a = 100V$; $I_a = 3.5mA$; $V_g = 0V$.

§ Measured with respect to the higher potential heater pin.

† Maximum Grid 1/Cathode resistance (Grid Current Bias) 22 megohms.

INTER-ELECTRODE CAPACITANCES (pF)

Tetrode Grid 1/Earth	$c_{in}(q)$	9.3
Tetrode Anode/Earth	$c_{out}(q)$	8.0
Tetrode Grid 1/Tetrode Anode	$c_{g1-a}(q)$	<0.3
Triode Grid/Earth	$c_g(t)-E$	3.0
Triode Anode/Earth	$c_a(t)-E$	4.3
Triode Grid/Triode Anode	$c_g(t)-a(t)$	4.5
Triode Anode/Tetrode Anode	$c_a(t)-a(q)$	<0.25
Triode Grid/Tetrode Grid 1	$c_g(t)-g1(q)$	<0.025
Triode Anode/Tetrode Grid 1	$c_a(t)-g1(q)$	<0.02
Triode Grid/Tetrode Anode	$c_g(t)-a(q)$	<0.02

Measured in a fully shielded jig, without can.

DIMENSIONS

Maximum Overall Length	(mm)	78.5
Maximum Diameter	(mm)	22.2
Maximum Seated Height	(mm)	71.5
Approximate Nett Weight	(ozs)	$\frac{1}{2}$
Approximate Packed Weight	(ozs)	$\frac{3}{4}$

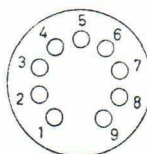
MOUNTING POSITION—Unrestricted

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TYPICAL OPERATION—Class A Audio Output

Anode Voltage (volts)	V_a	100	170	170
Screen Voltage (volts)	V_{g2}	100	170	170
Control Grid Voltage (volts)	V_{g1}	-6	-11.5	-16
Quiescent Anode Current (mA)	$I_a(0)$	26	41	35
Quiescent Screen Current (mA)	$I_{g2}(0)$	5	8	7
Power Output for 10% total distortion	P_{out}	1.05	3.3	3.5
Anode Load (kilohms)	R_a	3.9	3.9	5.6
Input Swing (r.m.s.) (volts)	V_{in}	3.8	6.0	6.6
Input Swing for 50mV output (r.m.s.) (volts)	V_{in}	0.65	0.59	0.6

BASE—Noval (B9A)



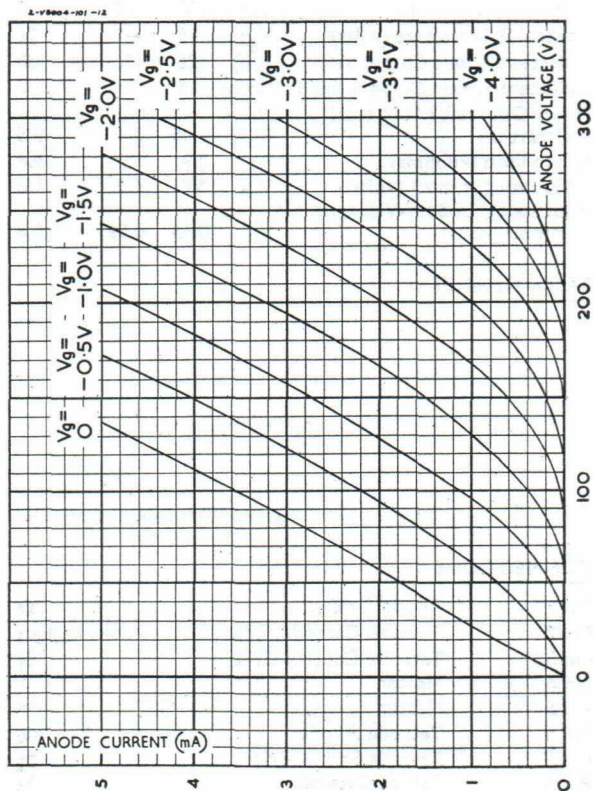
Viewed from free end of pins

CONNECTIONS

Pin 1	Triode Grid	g_t
Pin 2	Tetrode Cathode, Beam Plate, Shield	k_q, b_p, s
Pin 3	Tetrode Control Grid	g_1
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Tetrode Anode	a_q
Pin 7	Tetrode Screen Grid	g_2
Pin 8	Triode Cathode	k_t
Pin 9	Triode Anode	a_t

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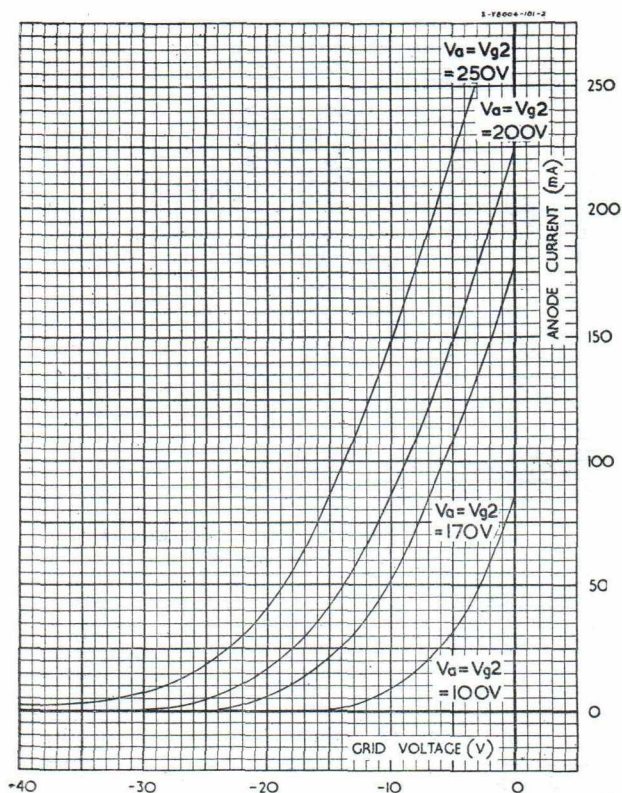
CHARACTERISTIC CURVES: I_a/V_a
Triode Section



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TENTATIVE

CHARACTERISTIC CURVES: I_a/V_{g1}
Tetrode Section

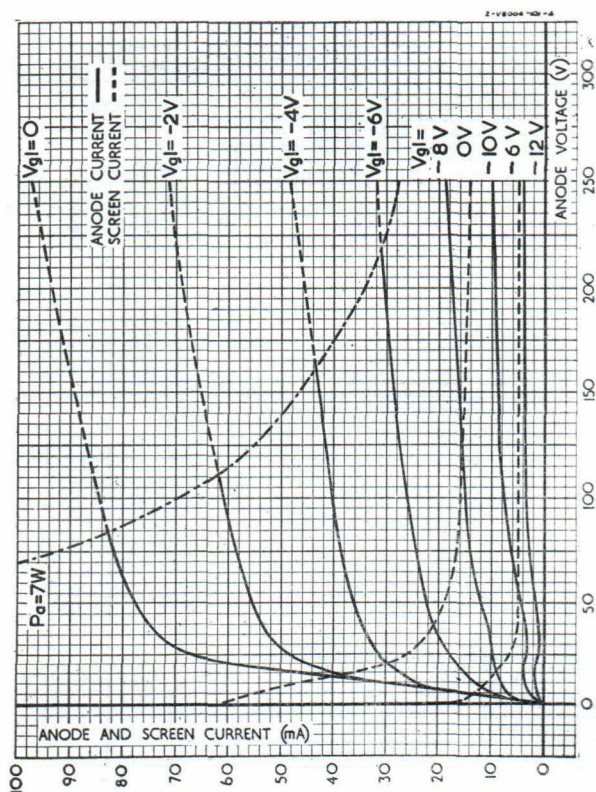


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TENTATIVE

CHARACTERISTIC CURVES: $I_a, I_{g2}/V_a$ ($V_{g2}=100V$)

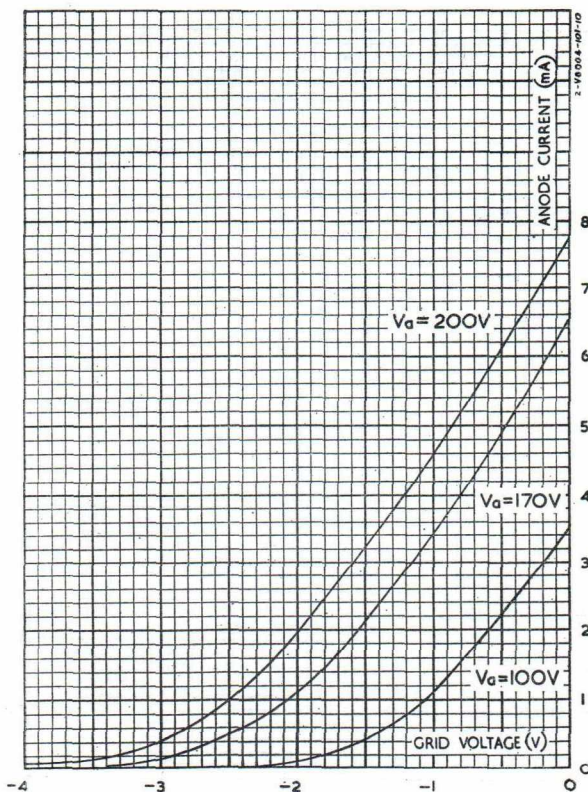
Tetrode Section



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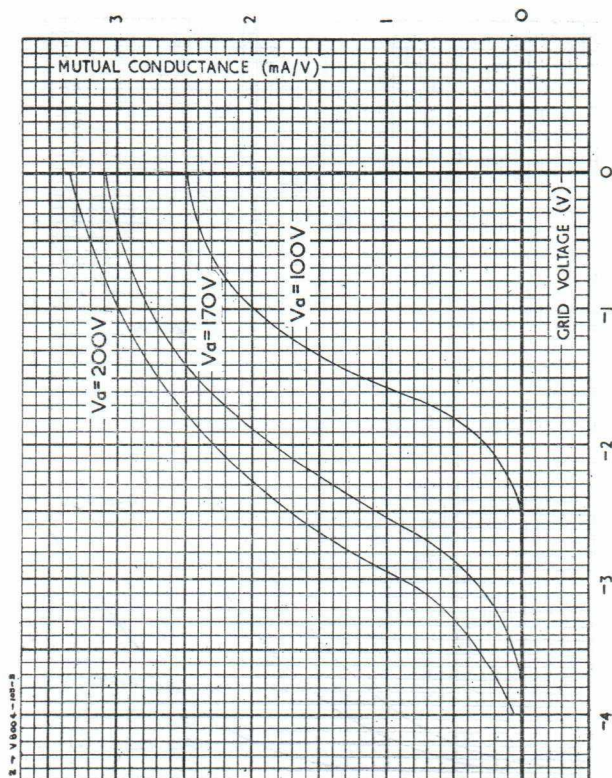
TENTATIVE

CHARACTERISTIC CURVES: I_a/V_{g1}
Triode Section



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TENTATIVE

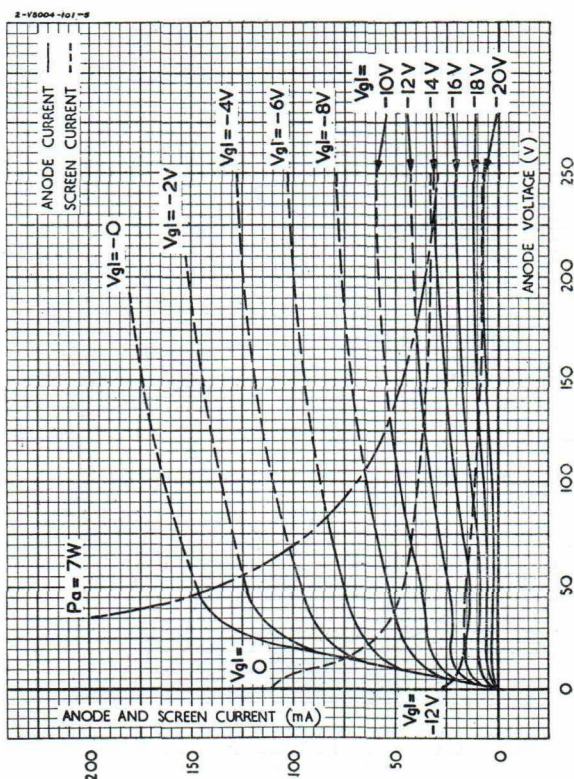
CHARACTERISTIC CURVES: g_m/V_{g1}
Triode Section

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TENTATIVE

CHARACTERISTIC CURVES: $I_a, I_{g2}/V_a$ ($V_{g2}=170V$)

Tetrode Section



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PROTATIME

CHARACTERISTIC CURVES: $I_a, I_{g2}/V_a$ ($V_{g2}=200V$)

Tetrode Section

