

FERRANTI

DIODE PENTODE

A directly heated miniature Pentode combined with a single diode, designed for use as a Detector and AF. Amplifier in battery operated Receivers. The filament is suitable only for DC. operation.

PHYSICAL DETAILS.

Base	...	...	B7G—All Glass.
Max. Overall Length	...	...	54.5 mm. ($2\frac{1}{8}$ in.).
Max. Seated Height	...	...	47.5 mm. ($1\frac{3}{4}$ in.).
Max. Diameter	...	...	19.0 mm. ($\frac{3}{4}$ in.).

BASE CONNECTIONS.

Pin 1—Filament (—).	Pin 4—Screen Grid (g ₂).
Suppressor Grid (g ₃).	Pin 5—Anode.
Pin 2—Int. Connection.	Pin 6—Control Grid (g ₁).
Pin 3—Diode (a _d).	Pin 7—Filament (+).

FILAMENT.

Filament Voltage	...	...	1.4 volts.
Filament Current	...	...	50 mA.

RATINGS.

Pentode Section.†

Max. Anode Supply Voltage	...	...	120 volts.
Max. Anode Voltage	...	...	90 volts.
Max. Screen Voltage	...	...	90 volts.
Max. Anode Dissipation	...	...	250 mW.
Max. Screen Dissipation	...	...	60 mW.
Max. Cathode Current	...	...	4.5 mA.
*R _{g1-f} max.	...	...	3 MΩ
‡V _{g1} max.	...	...	0 volt.

Diode Section.

Max. P.I.V.	...	...	100 volts.
Max. Mean Diode Current	...	...	0.2 mA.
Max. Peak Diode Current	...	...	1.2 mA.

CHARACTERISTICS.

Pentode Section.

Anode Voltage	...	67.5	90	volts.
Screen Voltage	...	67.5	90	volts.
Anode Current	...	1.6	2.7	mA.
Screen Current	...	0.4	0.63	mA.
Grid Voltage	...	0	0	volts.
Mutual Conductance	...	625	720	μA/volt.
Anode Impedance	...	0.6	0.5	MΩ
Inner μ (μ _{g1-g2})	...	13.5	13.5	

Diode Section.

The diode section is situated at the negative end of the filament.

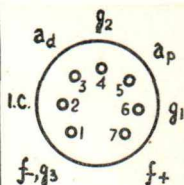
†This valve can be used without special precautions against microphony in circuits in which the input voltage is not less than 40 mV. for an output of 50 mV from the output stage.

*R_{g1-f} may be increased up to 22 MΩ if grid current biasing is employed.

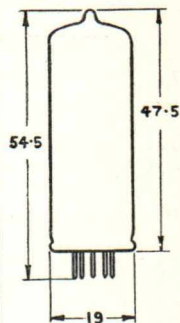
‡For grid current of 0.3 μA

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Base
Connections
Underside View
of Base



All dimensions
shown are in
millimetres
(max.).



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TYPICAL OPERATION as Resistance Coupled A.F. Amplifier.

Pentode Connection.

Supply Voltage	...	45	45	45	67.5	67.5	67.5	90	90	90	volts.
Anode Load Resistor	...	0.27	0.47	1.0	0.27	0.47	1.0	0.27	0.47	1.0	MΩ
Screen Grid Feed Resistor	...	1.0	1.8	3.9	1.0	1.8	3.9	1.0	1.8	3.9	MΩ
Anode Current	...	80	50	25	145	87	45	220	130	65	μA.
Screen Current	...	23.2	14.6	7.7	41	25	13	61	36	18.7	μA.
Grid Resistor of following valve	...	1.0	4.7	4.7	1.0	4.7	4.7	1.0	4.7	4.7	MΩ
Stage Gain	...	38.8	55	65	50	68	82	60	83.5	104	
Output Voltage (r.m.s.)	...	1.94	2.75	3.25	5.0	6.8	8.2	6.0	8.35	10.4	volts.
Total Distortion	...	1.9	1.7	2.4	1.3	2.0	2.5	1.4	3.1	3.3	%

Triode Connection (g_2 connected to a)

H.T. Supply Voltage	...	...	90	90	volts.
Anode Load Resistor	...	0.22	0.47	MΩ	
Anode Current	...	250	130	μA.	
Grid Resistor of following valve	...	0.68	1.5	MΩ	
Stage Gain	...	...	11	11.5	
Output Voltage (r.m.s.)	...	5	5	volts.	
Distortion	...	...	1.0	0.8	%

CAPACITANCES.*

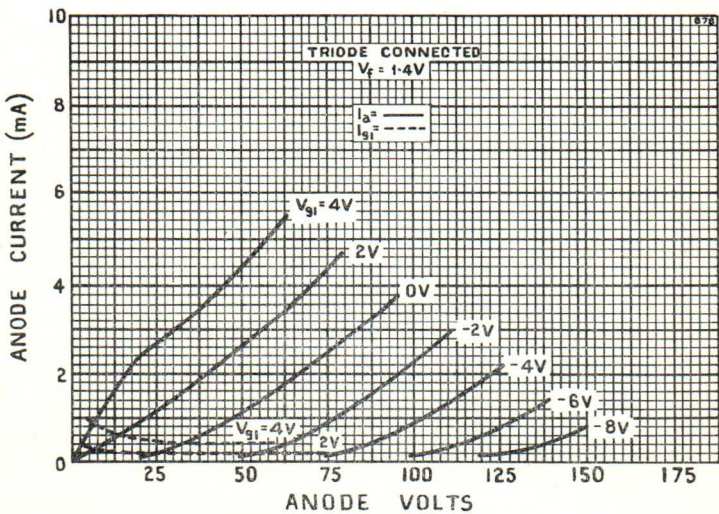
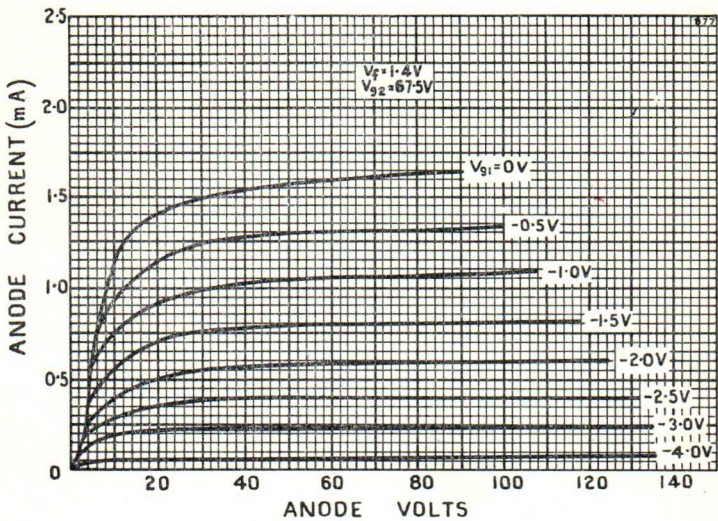
C_{in}	...	...	...	...	2.0 pF.
C_{out}	...	...	...	...	2.8 pF.
C_{a-g_1}	...	...	...	...	<0.4 pF.
C_{ad-all}	...	...	...	...	1.5 pF.

*Measured without external shield.



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