

Mullard

H.F. PENTODE

SP13

The SP13 is an indirectly heated straight H.F. Pentode for use in D.C./A.C. receivers, and for car radio, as an R.F. amplifier, detector or L.F. amplifier.

HEATER CHARACTERISTICS

Heater Voltage	$V_f = 13.0$ volts
Heater Current	$I_f = 0.2$ amp
Heating Time—60 seconds	

DIMENSIONS

Overall Length ...	$= 109$ mm.
Overall Diameter...	$= 42$ mm.
Bulb Finish—Metallised	

OPERATING CHARACTERISTICS AS R.F. AMPLIFIER

Normal Anode Voltage	V_{aw}	$= 200$ volts
Normal Auxiliary Grid Voltage	V_{g2w}	$= 100$ volts
Anode Current	I_{aw}	$= 3.3$ mA
Control Grid Voltage	$-V_{g1}$	$= 2$ volts
Anode Impedance	R_{iw}	$= 1.3$ megohms
Amplification Factor	G_w	$= 3,000$
Mutual Conductance ($I_a = 3.3$ mA)	S_w	$= 2.2$ mA/V
Cathode Bias Resistance	R_k	$= 400$ ohms

OPERATING CHARACTERISTICS AS SPEECH DETECTOR

Anode Voltage (line)	V_a	$= 200$ volts
Series Resistance (Grid 2)	R_{g2}	$= 1.0$ megohm
Anode Resistance	R_a	$= 0.3$ megohm

OPERATING CHARACTERISTICS AS L.F. AMPLIFIER

Anode Voltage	V_a	$= 200$ volts
Auxiliary Grid Voltage	V_{g2}	$= 100$ volts
Anode Load	R_a	$= 0.1$ megohm
Bias Resistance	R_k	$= 2,500$ ohms

CAPACITIES

Anode to Control Grid	C_{ag1}	$= < 0.003$ $\mu\mu\text{F}$
Cathode to Control Grid	C_{kg1}	$= 7.1$ $\mu\mu\text{F}$
Anode to Cathode + Auxiliary Grid	C_{ak+g2}	$= 7.7$ $\mu\mu\text{F}$

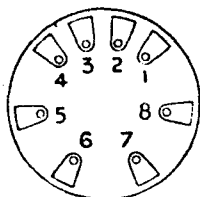
LIMITS

Maximum Anode Voltage	$V_{a\max}$	$= 200$ volts
Maximum Anode Dissipation	$W_{a\max}$	$= 1.0$ watt
Maximum Cathode Current	$I_{k\max}$	$= 6.0$ mA
Maximum Auxiliary Grid Voltage	$V_{g2\max}$	$= 100$ volts
Maximum Resistance in Grid Circuit	$R_{g1a\max}$	$= 1.5$ megohms
Maximum Voltage Heater to Cathode	$V_{fk\max}$	$= 125$ volts
Maximum Resistance Heater to Cathode	$R_{fk\max}$	$= 20,000$ ohms
Range of Grid Voltage for $1 \mu\text{A}$ Grid Current	V_{g1}	$= -0.5$ to -1.0 volt

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CONNECTIONS



Viewed from under side of base

Contact No. 1 Metallising

” 2 Heater

” 3 Heater

” 4 Cathode

” 5 Suppressor Grid (G₃)

” 6 —

” 7 Auxiliary Grid (G₂)

” 8 Anode

Top Cap—Control Grid.

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