

SPECIAL QUALITY R.F. PENTODE

6205

Special quality r.f. pentode for use in equipment where high ambient temperatures, mechanical vibration and shocks are unavoidable and where statistically controlled major electrical characteristics are required.

This data should be read in conjunction with GENERAL NOTES—SPECIAL QUALITY VALVES which precede this section of the handbook, and the index numbers are used to indicate where reference should be made to a specific note.

HEATER

V_h^1	6.3	V
I_h	150	mA

MOUNTING POSITION

Any

Note—Direct soldered connections to the leads of this valve must be at least 5mm from the seal and any bending of the valve leads must be at least 1.5mm from the seal.

CAPACITANCES² (measured with external shield)

C_{a-g1}	<15	mpF
C_{in}	4.2	pF
C_{out}	3.4	pF

CHARACTERISTICS³

V_a	100	V
$*V_{g3}$	0	V
V_{g2}	100	V
V_{g1}	-1.5	V
I_a	7.5	mA
I_{g2}	2.4	mA
g_m	5.0	mA/V
r_a	>175	k Ω
R_k	0	Ω
$V_{g1} (I_a < 50\mu A)$	-9.0	V

*The suppressor grid should not be used for control or gating purposes.

LIMITING VALUES⁴ (absolute ratings)

V_h max.	6.6	V
V_h min.	6.0	V
$V_{a(b)}$ max.	330	V
V_a max.	165	V
p_a max.	800	mW
V_{g3} max.	22	V $\leftarrow$
$V_{g2(b)}$ max.	310	V
V_{g2} max.	155	V
p_{g2} max.	350	mW
$+V_{g1}$ max.	0	V $\leftarrow$
$-V_{g1}$ max.	55	V
I_k max.	16.5	mA
R_{g1-k} max.	1.1	M Ω
V_{h-k} max.	200	V
Maximum acceleration (continuous operation)	2.5	g
Maximum shock (short duration)	500	g
T_{bulb} max.	220	$^{\circ}$ C

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TEST CONDITIONS (unless otherwise specified)

V_h (V)	V_{a-e} (V)	V_{g3-k} (V)	V_{g2-e} (V)	V_{g1-e} (V)	R_k (Ω)	C_k (μF)	V_{h-k} (V)
6.3	100	0	100	0	150	1000	0

TESTS

A.Q.L.⁵Individuals⁶Lot average⁷Lot standard
deviation⁸

(%)

Bogey⁹

Min.

Max.

Min.

Max.

Max.

GROUP A

Heater current

{ 0.65
—

150

140

160

—

—

144

156

— mA

4.2 mA

Heater-to-cathode leakage current

 $V_{h-k} = \pm 100V$

0.65

—

—

5.0

—

—

— μA

Reverse grid current

 $R_{g1} = 1.0M\Omega$

0.65

—

0

0.3

—

—

— μA

Anode current

{ 0.65
—

7.5

5.5

9.5

—

—

6.7

8.3

— mA

0.8 mA

Anode current

 $V_{g1} = -9.0V, R_k = 0\Omega$

0.65

—

—

50

—

—

— μA

Screen-grid current

0.65

—

1.5

3.3

—

—

— mA

Mutual conductance

{ 0.65
—

5.0

4.2

5.8

—

—

4.7

5.3

— mA/V

0.31 mA/V

Sub-group quality level¹⁰

1.0

—

—

—

—

—

—

Inoperatives¹⁶

0.4

—

—

—

—

—

—

GROUP B

Insulation

a-rest, measured at $-300V$
 g_1 -rest, measured at $-100V$

} 2.5 {

— 100
— 100—
——
——
——
— $M\Omega$
 $M\Omega$

Change in mutual conductance

 $V_h = 5.7V$

2.5

—

—

10

—

—

—

%

Reverse grid current $V_h = 7.5V$, $V_{g1} = -9.0V$,
 $R_{g1} = 1.0M\Omega$, $R_k = 0\Omega$. Measured after 5
 minutes preheat under standard test con-
 ditions, except $V_h = 7.5V$, $R_{g1} = 1.0M\Omega$

2.5

—

0

0.5

—

—

—

 μA

†A.F. noise at anode, $V_{g2-e} = 19V$, $R_{g1} = 100k\Omega$

 $R_{g2} = 1.0k\Omega$, $R_a = 200k\Omega$

2.5

—

—

70

—

—

—

mV

Anode impedance

6.5

—

175

—

—

—

—

 $k\Omega$ Capacitances² (shielded) No applied voltages

6.5

—

—

—

—

—

—

 C_{in}

—

—

3.5

4.9

—

—

—

pF

 C_{out}

—

—

2.9

3.9

—

—

—

pF

 C_{a-g1}

—

—

—

15

—

—

—

mpF

Low pressure voltage breakdown

Pressure = $55 \pm 5mmHg$

Voltage = $300V_{r.m.s.}$ No other applied
 voltages

6.5

—

—

—

—

—

—

Microphonic noise at the anode at 50c/s, 15g
 min. peak acceleration, $R_a = 10k\Omega$

—

—

—

60

—

—

—

mV
(r.m.s.)

†The valve is tapped with a specified hammer and the output observed on a meter of specified dynamic response.

TESTS

GROUP C

Lead fragility test^{13B} 4 arcs

2.5

— — — — — — —

Fatigue¹⁴

$V_h = 6.3V$. No other voltages applied. 2.5g
min. peak acceleration, fixed frequency
 $f = 25c/s$ min. 60c/s max. for 32 hours in each
of 3 mutually perpendicular planes

Post fatigue tests

Heater-to-cathode leakage current

 $V_{h-k} = \pm 100V$

Change in mutual conductance

Microphonic noise as in group B

} 6.5 {

— — 20
— — 20
— — 200— —
— —
— —— μA
— %
— mV
(r.m.s.)**Shock¹⁵** $V_{h-k} = 100V$ (cathode negative), $R_{g1} = 100k\Omega$, 500g**Post shock tests**

Heater-to-cathode leakage current

 $V_{h-k} = \pm 100V$

Change in mutual conductance

Microphonic noise as in group B

} 20 {

— — 20
— — 20
— — 200— —
— —
— —— μA
— %
— mV
(r.m.s.)Glass strain test^{11B}. No applied voltages

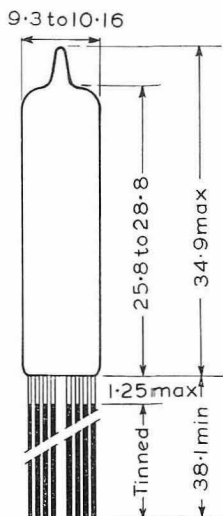
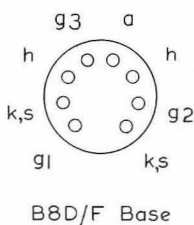
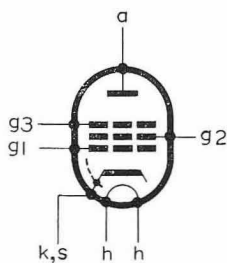
6.5

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SPECIAL QUALITY R.F. PENTODE



5544

All dimensions in mm

The bulb and base dimensions of this valve are in accordance with BS448, section B8D/F.