

SPECIAL QUALITY OUTPUT PENTODE

5902

Special quality subminiature audio output 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 the 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	450	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 an external shield)

C_{a-g1}	< 200	mpF
C_{in}	6.5	pF
C_{out}	7.5	pF

CHARACTERISTICS³

V_a	100	V
V_{g2}	100	V
I_a	30	mA
I_{g2}	1.2	mA
g_m	4.2	mA/V
μ_{g1-g2}	6.0	
r_a	> 10	k Ω ←
V_{g1}	-8.3	V
R_k	0	Ω
V_{g1} ($I_a < 100\mu A$)	-40	V

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.	3.7	W
$V_{g2(b)}$ max.	310	V
V_{g2} max.	155	V
P_{g2} max.	400	mW
$+V_{g1}$ max.	0	V ←
$-V_{g1}$ max.	55	V
I_k max.	50	mA
R_{g1-k} max.	550	k Ω
V_{h-k} max.	200	V
Maximum acceleration (continuous operation)	2.5	g
Maximum shock (short duration)	500	g
T_{bulb} max.	220	$^{\circ}C$



TEST CONDITIONS (unless otherwise specified)

V_h (V)	V_{a-e} (V)	V_{g2-e} (V)	V_{g1-e} (V)	R_k (Ω)	C_k (μ F)	V_{h-k} (V)
6.3	110	110	0	270	1000	0

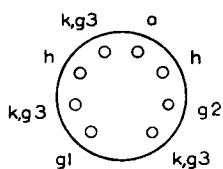
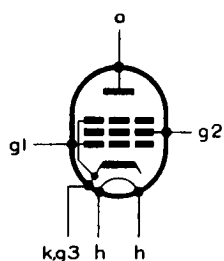
TESTS

	A.Q.L. ⁵ (%)	Individuals ⁶		Lot average ⁷		Lot standard deviation ⁸ Max.	
		Bogey ⁹	Min.	Max.	Min.		Max.
GROUP A							
Heater current	{ 0.65	450	420	480	432	468	— mA 12.5 mA
Heater-to-cathode leakage current $V_{h-k} = \pm 100V$	0.65	—	—	15	—	—	μ A
Reverse grid current $R_{g1} = 1.0M\Omega$	0.65	—	0	1.0	—	—	μ A
Anode current	{ 0.65	30	23	37	27	33	— mA 2.8 mA
Anode current $V_{g1} = -40V, R_k = 0\Omega$	0.65	—	—	100	—	—	μ A
Power output $V_{in(r.m.s.)} = 6.4V, R_a = 3.0k\Omega$	0.65	—	750	—	—	—	mW
Sub-group quality level ¹⁰	1.0	—	—	—	—	—	—
Inoperatives ¹⁶	0.4	—	—	—	—	—	—

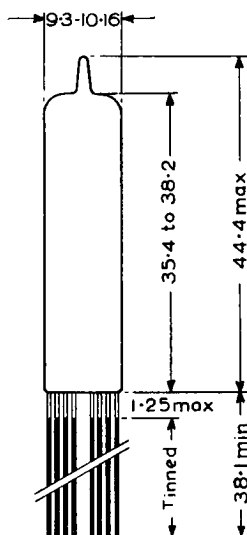
TESTS	A.Q.L. ⁵	Individuals ⁶		Lot average ⁷		Lot standard deviation ⁸ Max.
	(%)	Bogey ⁹	Min.	Max.	Min.	
GROUP C						
Lead fragility test ^{13B} , 4 arcs	2.5	—	—	—	—	—
Fatigue¹⁴						
$V_h = 6.3V$. No other voltages applied. 2.5g min. peak acceleration, fixed frequency $f = 25c/s$ min. 60c/s max. for 32 hours in each of 3 mutually perpendicular planes						
Post fatigue tests						
Heater-to-cathode leakage current	} 6.5 {	—	—	—	—	—
$V_{h-k} = \pm 100V$		—	—	—	—	—
Change in power output		—	—	—	—	—
Microphonic noise as in group B		—	—	—	—	—
Shock¹⁵						
$V_{h-k} = 100V$ (cathode negative), $R_{g1} = 100k\Omega$, 500g						
Post shock tests						
Heater-to-cathode leakage current	} 20 {	—	—	—	—	—
$V_{h-k} = \pm 100V$		—	—	—	—	—
Change in power output		—	—	—	—	—
Microphonic noise as in group B		—	—	—	—	—
Glass strain test ^{11B} . No applied voltages	6.5	—	—	—	—	—

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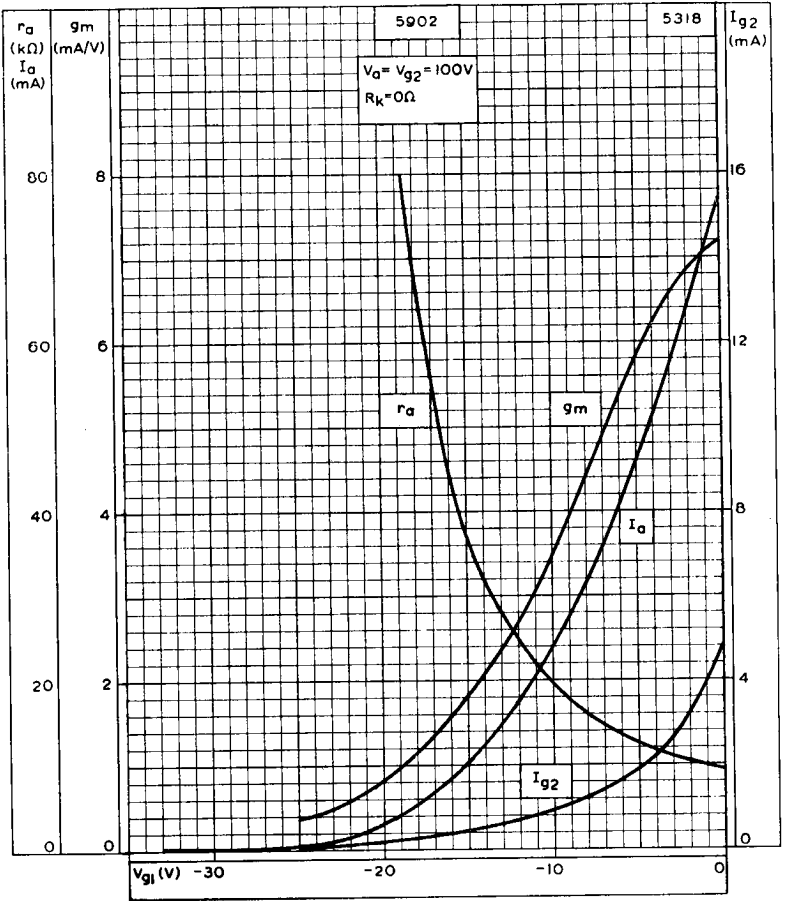
B8D/F Base



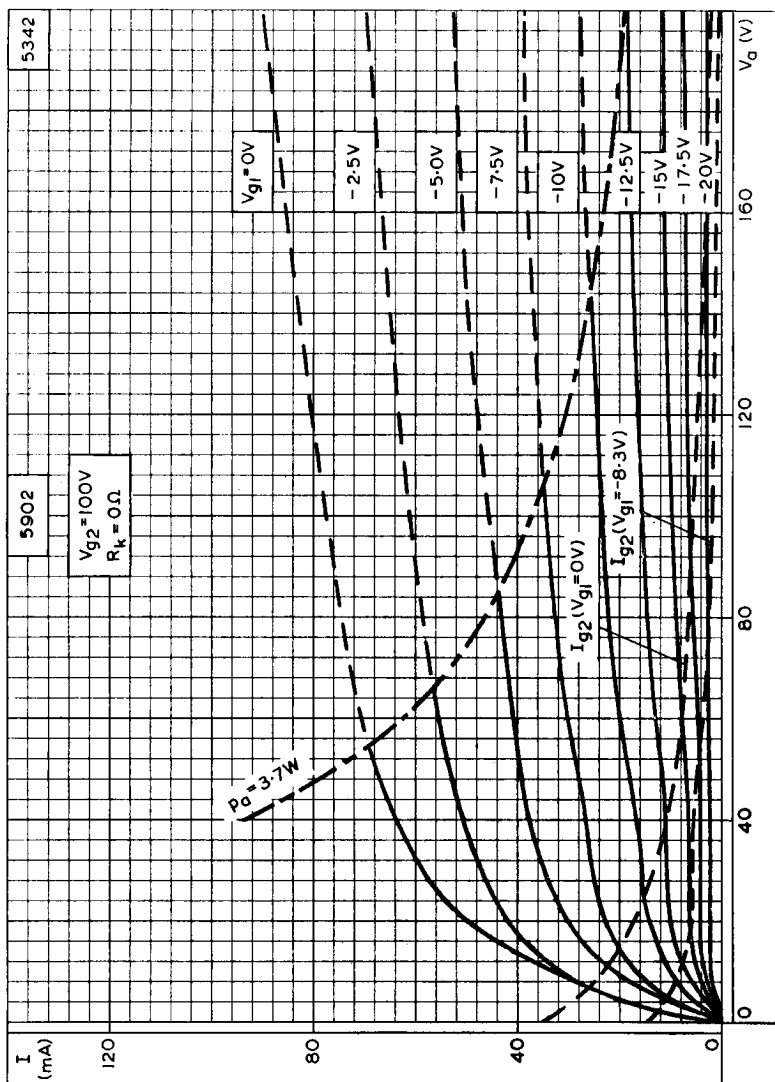
5326

All dimensions in mm

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



ANODE AND SCREEN-GRID CURRENTS, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE.



ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER.