

SPECIAL QUALITY V.H.F. DOUBLE TRIODE

M808 I

Special quality double triode for use in equipment where 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	6.3	V
I_h	450	mA

CAPACITANCES² (measured without an external shield)

* C_{a-g}	1.6	pF
* C_{in}	2.1	pF
$C_{out'}$	450	mpF
$C_{out''}$	350	mpF
C_{h-k}	4.0	pF

*Each section

CHARACTERISTICS³ (each section)

V_a	100	V
I_a	9.0	mA
* V_g	-0.9	V
g_m	5.6	mA/V
μ	38	
r_a	6.8	k Ω
R_k	0	Ω

* Fixed bias operation is not recommended

LIMITING VALUES⁴ (absolute ratings)

f max.	250	Mc/s
$V_{a(b)}$ max.	550	V
V_a max.	330	V
p_a max.	2×1.6	W
I_k max.	25	mA
$-V_g$ max.	110	V
I_g max.	2×4.5	mA
V_{h-k} max.	100	V
R_{g-k} max. (cathode resistor bias)	500	k Ω
Maximum acceleration (continuous operation)	2.5	g
Maximum shock (short duration)	500	g
T_{bulb} max.	165	$^{\circ}$ C

TEST CONDITIONS (unless otherwise specified)

V_h	V_{a-e}	V_{g-e}	R_k	C_k
(V)	(V)	(V)	(Ω)	(μF)
6.3	100	0	50	1000

Voltages are applied simultaneously to both sections. The measurements apply to each section, unless otherwise stated.

TESTSA.Q.L.⁵Individuals⁶Lot average⁷Lot standard
deviation⁸
Max.

(%)

Bogey⁹

Min.

Max.

Min.

Max.

GROUP A

Insulation

a-rest, measured at -300V

0.25

—

100

—

—

—

—

M Ω

g-rest, measured at -100V

0.25

—

100

—

—

—

—

M Ω

Reverse grid current

 $R_{gmax.} = 1M\Omega$, $V_{a-e} = 250V$, $R_k = 500\Omega$ both sections strapped

0.25

—

—

0.5

—

—

—

 μA **GROUP B**

Heater current

0.65

—

420

480

—

—

—

mA

Heater to cathode leakage current

0.65

—

—

—

—

—

—

 $V_{h-k} = 100V$ cathode negative

—

—

—

10

—

—

—

 μA $V_{h-k} = 100V$ cathode positive

—

—

—

10

—

—

—

 μA

Anode current

0.65

—

6.5

11.5

—

—

—

mA

Mutual conductance

0.65

—

4.0

7.5

—

—

mA/V

Anode current $V_{g-e} = -30V$, $V_{a-e} = 250V$

0.65

—

—

75

—

—

—

 μA Group quality level¹⁰

1.0

—

—

—

—

—

—

GROUP C

Change in mutual conductance. $V_h = 5.7V$	2.5	—	—	15	—	—	—	%
Microphonic noise at the anode at 50c/s and 2.0g min. peak acceleration, both sections connected in parallel, $V_b = 250V$, $R_a = 2k\Omega$, $R_k = 1.5k\Omega$, $R_{g'} = R_{g''} = 0\Omega$.	2.5	—	—	15	—	—	—	mV (r.m.s.)

GROUP D

Glass strain test ^{11A} . No applied voltages	6.5	—	—	—	—	—	—	
Base strain test ¹² . No applied voltages	6.5	—	—	—	—	—	—	
Capacitances (unshielded). No applied voltages	6.5	—	—	—	—	—	—	
C_{in}	—	—	1.4	2.8	—	—	—	pF
$C_{out'}$	—	—	250	650	—	—	—	mpF
$C_{out''}$	—	—	250	550	—	—	—	mpF
C_{a-g}	—	—	1.2	1.8	—	—	—	pF
C_{h-k}	—	—	3.3	7.5	—	—	—	pF
Amplification factor	6.5	—	28	48	—	—	—	
Reverse grid current. $V_h = 7.0V$, $R_g = 1M\Omega$ both sections connected in parallel	6.5	—	—	1.0	—	—	—	μA

TESTS

GROUP E

Fatigue¹⁴

$V_h = 6.9V$, 1 minute on 3 minutes off. No other voltages applied, 2g min. peak acceleration, $f = 170c/s$ for 33 hours in each of 3 mutually perpendicular planes.

Post fatigue tests

Heater to cathode leakage current.

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

Reverse grid current as in group A

Mutual conductance

Microphonic noise as in group C

Sub-group quality level¹⁰

Shock¹⁵

No applied voltages, 500g

Post shock tests

Heater to cathode leakage current.

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

Reverse grid current as in group A

Mutual conductance

Microphonic noise as in group C

Sub-group quality level¹⁰

A.Q.L.⁵

(%)

Individuals⁶Bogey⁹

Min.

Max.

Lot average⁷

Min.

Max.

Lot standard
deviation⁸

Max.

2.5

—

—

20

—

—

— μA

2.5

—

—

1.0

—

—

— μA

2.5

—

3.5

7.5

—

—

— mA/V

2.5

—

—

35

—

—

— mV

(r.m.s.)

4.0

—

—

—

—

—

—

2.5

—

—

20

—

—

— μA

2.5

—

—

1.0

—

—

— μA

2.5

—

3.5

7.5

—

—

— mA/V

2.5

—

—

35

—

—

— mV

(r.m.s.)

4.0

—

—

—

—

—

—

GROUP F

Stability life test¹⁴

Running conditions: $V_{a-e} = 125V$, $R_k = 50\Omega$,
 $V_{h-k} = 180V$ (cathode negative)

Stability life test end points

Change in mutual conductance after 1 hour	1.0	—	—	15	—	—	—	%
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Intermittent life test

Running conditions: $V_{a-e} = 125V$, $R_k = 50\Omega$,
 $V_{h-k} = 180V$ (cathode negative)

Intermittent life test end points

								A.Q.L. ⁵ (%)	Min.	Max.	
Sub-group (a)											
Inoperatives ¹⁶	..	..	..	..	..	..	..	500 hours	2.5	—	—
								1000 hours	4.0	—	—
Heater current	..	..	..	..	..	..	..	500 hours	2.5	420	480 mA
Heater to cathode leakage current, $V_{h-k} = \pm 100V$	..	..	..	..	..	..	..	500 hours	2.5	—	20 μA
								1000 hours	4.0	—	20 μA
Reverse grid current as in group A	..	..	..	..	..	..	..	500 hours	2.5	—	0.75 μA
								1000 hours	4.0	—	1.0 μA
Mutual conductance	..	..	..	..	..	..	..	500 hours	2.5	3.5	7.5 mA/V
								1000 hours	4.0	3.25	7.5 mA/V
Average change in mutual conductance	..	..	..	..	..	..	..	500 hours	—	—	15 %
Sub-group (b)											
Insulation as in group A	..	..	..	..	..	..	..	500 hours	4.0	50	— M Ω
								1000 hours	6.5	30	— M Ω
Group quality level ¹⁰	..	..	..	..	..	..	..	500 hours	6.5	—	—
								1000 hours	10	—	—

M808 I

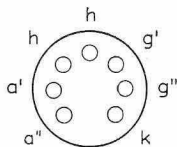
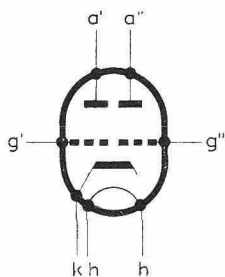
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GROUP G

Valves are held for 28 days and retested for
Inoperatives¹⁶

Reverse grid current as in group A.

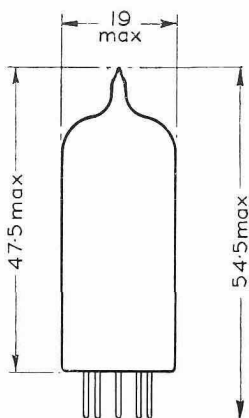
A.Q.L. ⁵ (%)	Min.	Max.
0.5	—	—
0.5	—	0.75 μ A



B7G Base

4749

All dimensions in mm



The bulb and base dimensions of this valve are in accordance with BS448, Section B7G

