

SPECIAL QUALITY A.F. AMPLIFYING PENTODE

E80F

Special quality a.f. amplifying pentode for use in general industrial applications where stability of characteristics and long life 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

Suitable for series or parallel operation a.c. or d.c.

V_h^1	6.3	V
I_h	300	mA

The maximum variation of heater current at $V_h = 6.3V$ is $\pm 15mA$.

In order to achieve a useful life with the heater in a series connected chain the absolute maximum variation of heater current due to voltage fluctuations and component tolerances should be $< \pm 1.5\%$.

MOUNTING POSITION

Any

CAPACITANCES² (measured with an external shield)

C_{in}	5.0 ± 0.5	pF
C_{out}	7.3 ± 0.5	pF
C_{a-g1}	< 25	mpF
C_{k1-h}	< 2.0	mpF
C_{h-k}	3.7	pF

CHARACTERISTICS³

V_{a-k}	250	V
V_{g3-k}	0	V
V_{g2-k}	100	V
R_k	550	Ω
$\dagger I_a$	3.0 ± 0.5	mA
$\dagger I_{g2}$	650 ± 200	μA
$\dagger g_m$	1.85 ± 0.35	mA/V
r_a	1.5	M Ω
r_a min.	1.0	M Ω
μ_{g1-g2}	25	
$*R_{eq}$ max.	40	k Ω
$\dagger -I_{g1}$ max. ($R_{g1} = 100k\Omega$)	0.1	μA
V_{g1-k} for $I_a < 20\mu A$	-7.5	V

*Measured with $R_{g1} = 0\Omega$, $f = 0$ to 10kc/s.

$\dagger$ To allow for valve deterioration during life, circuits should be designed to function with a valve in which one or more of these characteristics have changed to the following values.

I_a	2.0	mA
I_{g2}	350	μA
g_m	1.2	mA/V
$-I_{g1}$	0.2	μA

OPERATING CONDITIONS

As r.c. coupled a.f. amplifier

V_b (V)	R_a (k Ω)	R_{g2} (M Ω)	R_{g1} (M Ω)	R_k (k Ω)	I_a (mA)	I_{g2} (μ A)	$\frac{V_{out}}{V_{in}}$	$V_{out}^\dagger$ (V _{r.m.s.})	D_{tot} (%)	R_{g1}^* (k Ω)
400	220	1.2	1.0	1.0	1.37	280	200	40	0.9	680
300	220	1.2	1.0	1.2	0.98	200	190	30	1.1	680
250	220	1.2	1.0	1.5	0.8	170	175	25	1.4	680
200	220	1.2	1.0	1.8	0.61	130	165	20	1.6	680
100	220	1.0	1.0	3.3	0.29	70	120	8.0	1.7	680

*Grid resistor of following valve.

†Output voltage measured at the start of positive grid current.

As an electrometer pentode

V_h	4.5	V
V_a	40	V
V_{g3}	0	V
V_{g2}	40	V
V_{g1}	-2.15	V
I_a	40	μ A
I_{g2}	9.0	μ A
I_{g1}	< 10^{-10}	A
R_k	0	Ω
g_m	140	μ A/V ←
μ	22	←

INSULATION

Between heater and cathode

V_h	6.3	V
V_{h-k}	120	V
Leakage current	< 12	μ A

SHOCK AND VIBRATION RATINGS

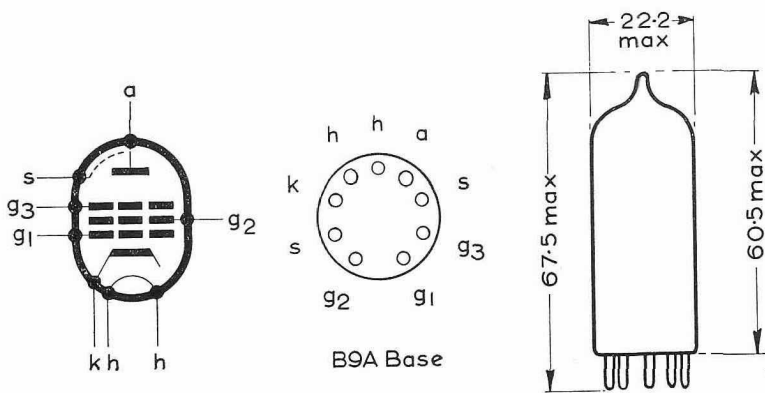
The E80F can withstand vibrations of 2.5g and 50c/s for 96 hours and is proof against impact accelerations of approximately 300g.

LIMITING VALUES¹ (absolute ratings)

$V_{a(b)}$ max.	600	V
V_a max.	300	V
p_a max.	1.3	W
$V_{g2(b)}$ max.	600	V
V_{g2} max.	200	V
p_{g2} max.	400	mW
$-V_{g3}$ max.	100	V
$-V_{g1}$ max.	100	V
I_k max.	9.0	mA
R_{g1-k} max.	See page C7	
V_{h-k} max. (cathode positive)	120	V
V_{h-k} max. (cathode negative)	60	V
R_{h-k} max.	20	k Ω
T_{bulb} max.	170	°C

OPERATING NOTE

The hum voltage referred to g1 has a maximum value of $5\mu\text{V}$ with a grid leak of $1\text{M}\Omega$ at 50c/s with one side of the heater earthed.



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All dimensions in mm

The bulb and base dimensions of this valve are in accordance with BS448, Section B9A

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