

10F18 VARIABLE MU H.F. PENTODE Indirectly heated—for series operation

GENERAL

The 10F18 is a variable mu H.F. Pentode intended for use in AM/FM Receivers having series fed heaters and is suitable for use on AC/DC Mains.

RATING

Heater Voltage	V_h	13.0 V
Heater Current	I_h	0.1 A
Maximum Anode Voltage	$V_a(\text{max})$	250 V
Maximum Screen Voltage	$V_{g2}(\text{max})$	250 V
Maximum Anode Dissipation	$P_a(\text{max})$	2.25 W
Maximum Screen Dissipation	$P_{g2}(\text{max})$	0.5 W
Maximum Heater to Cathode Voltage (r.m.s.)	$V_{h-k}(\text{r.m.s.})_{\text{max}}$	150 V

INTER-ELECTRODE CAPACITANCES (pF)

		*	**	***	
Grid/Earth	C_{in}	5.0	5.2	6.2	←
Anode/Earth	C_{out}	4.3	4.5	4.5	←
Anode/Grid 1	C_{a-g1}	0.0019	0.0019	0.0031	←
Anode/Grid 1	C_{a-g1}	0.0017†	0.0017†	0.0029†	←
Anode/Grid 2	C_{a-g2}	0.12	0.23	0.41	←
Anode/Grid 3	C_{a-g3}	0.54	0.56	0.58	←
Grid 1/Grid 2	C_{g1-g2}	1.6	1.6	1.6	←
Grid 1/Grid 3	C_{g1-g3}	0.055	0.064	0.072	←

* Inter-electrode capacitances in fully shielded socket, without can.

** Inter-electrode capacitances with holder capacitance balanced out (using holder quoted below).

*** Total inter-electrode capacitances including B9A ceramic holder without skirt or radial shield (Plessey holder type CP180014/1). The total anode to grid capacitance (in can) may be reduced from 0.0029pF to 0.0019pF by the use of a close fitting vertical shield placed beneath the holder ; between pins 1 and 9, 4 and 5.

† In can.

Earth denotes the remaining earthy potential electrodes, heater and shields connected to cathode.

Indicates a change ←

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DIMENSIONS

Maximum Overall Length	56.0 mm
Maximum Diameter	22.2 mm
Maximum Seated Height	49.0 mm
Approximate Nett Weight	$\frac{1}{2}$ ozs
Approximate Packed Weight	$\frac{3}{8}$ ozs

MOUNTING POSITION—UnrestrictedTYPICAL OPERATION

Anode Voltage	V_a	175	175	V
Screen Voltage	V_{g2}	100	175	V
Grid Bias Voltage	V_{g1}	-1.3	.	V
Anode Current	I_a	12.0	.	mA
Screen Current	I_{g2}	3.5	.	mA
Mutual Conductance	g_m	4.4	.	mA/V
Grid Bias to give mutual conductance of 100 $\mu A/V$		.	-19.5	V
Anode Impedance	r_a	400		k Ω
Input Capacity Working (Hot)	c_{in}	7.0**	.	pF ←
Input Capacity Change at cut-off	Δc	1.5**	.	pF ←
Input Loss at 38 Mc/s, cathode pins strapped		21	.	k Ω ←

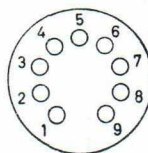
** Inter-electrode capacitances with holder capacitance balanced out (using Plessey holder type CP180014/1)

BULB—Clear

Indicates a change ←

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BASE—Noval (B9A)



Viewed from free end of pins

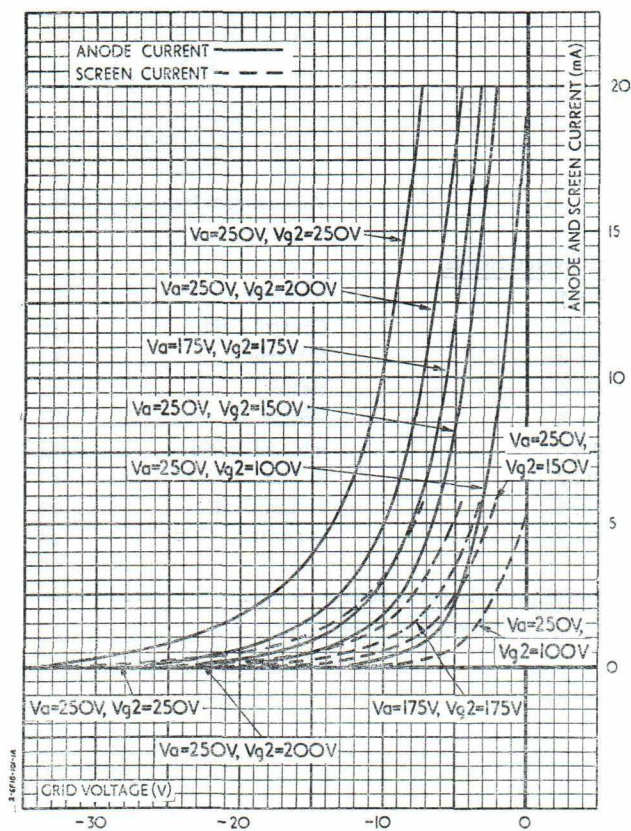
CONNECTIONS

Pin 1	Cathode	k
Pin 2	Control Grid	g1
Pin 3	Cathode	k
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Internal Shield	s
Pin 7	Anode	a
Pin 8	Screen Grid	g2
Pin 9	Suppressor Grid	g3

NOTE.—If only one cathode pin is required it is recommended that pin 3 be used.

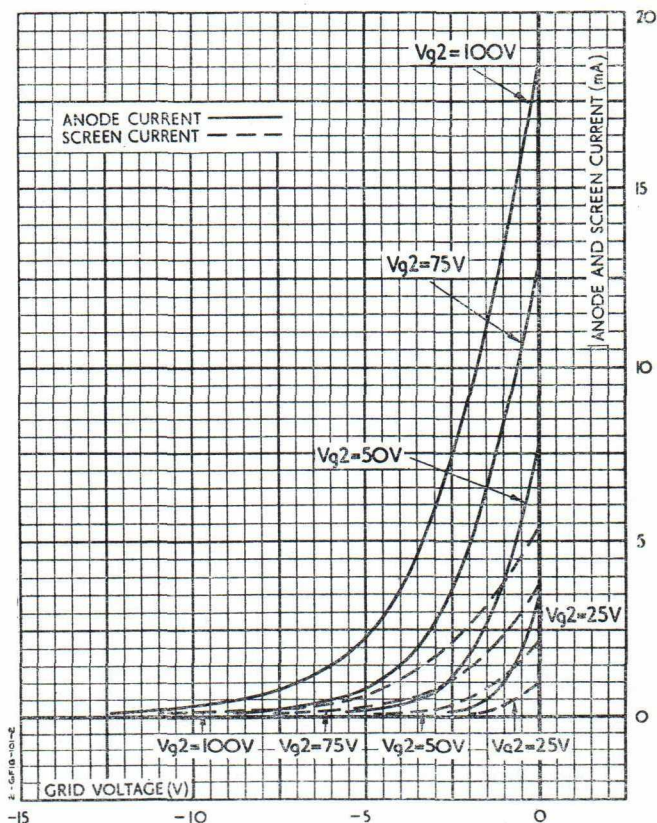
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AVERAGE CHARACTERISTIC CURVES : $I_a, I_{g2}/V_{g1}$



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AVERAGE CHARACTERISTIC CURVES : $I_a, I_{g2}/V_{g1}$
 $V_a=175V.$

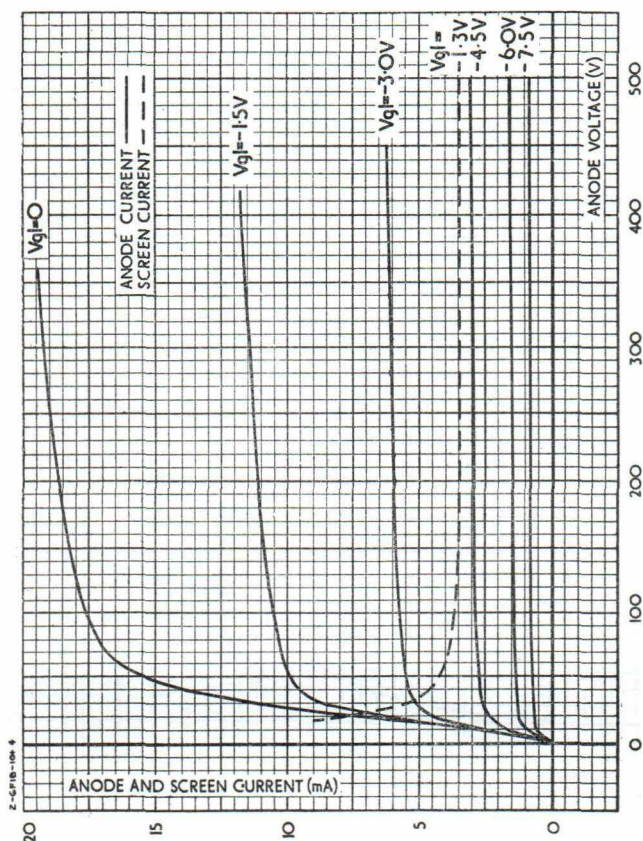


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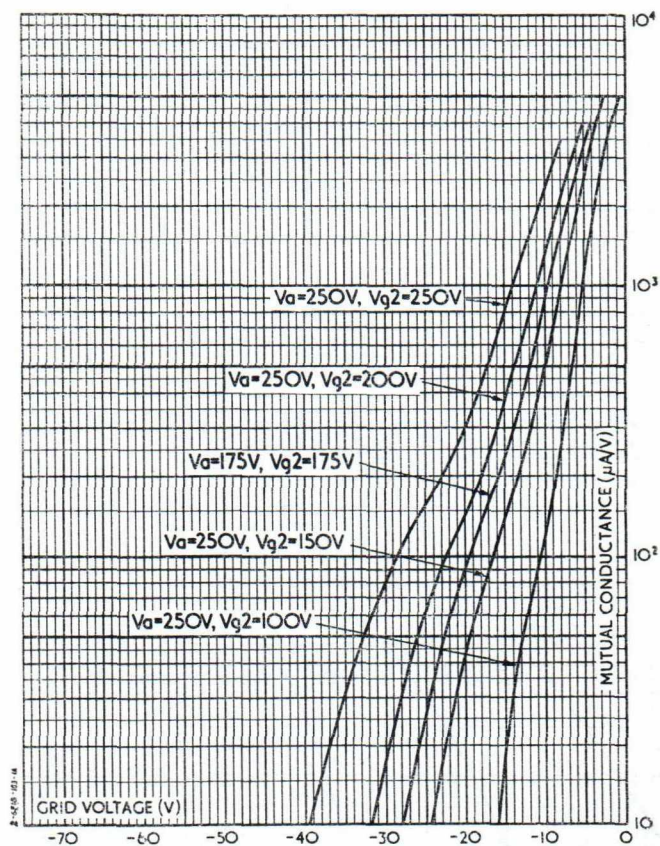
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AVERAGE CHARACTERISTIC CURVES : $I_a, I_{g2}/V_a$
 $V_{g2}=100V.$



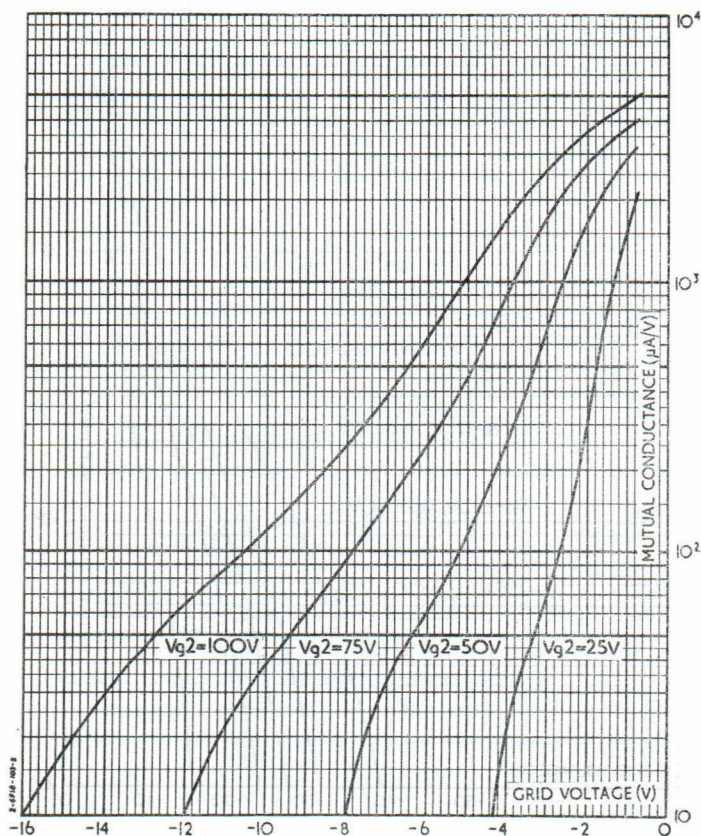
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AVERAGE CHARACTERISTIC CURVES : g_m/V_g



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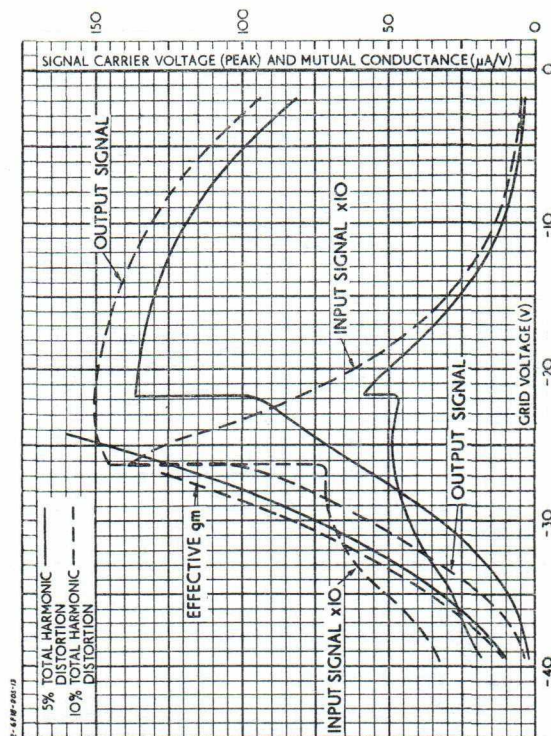
AVERAGE CHARACTERISTIC CURVES : g_m/V_g
 $V_a=175V$.



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AVERAGE CHARACTERISTIC CURVES : $V_{sig(pk)} \cdot g_m / V_g$

Initially: $V_{HT} = 250V$, $R_a = 6.8k\Omega$, $R_{g2} = 39k\Omega$,
 $I_a = 12.0mA$, $I_{g2} = 3.5mA$, $V_{g1} = -1.85V$,
 $Z_L = 100k\Omega$, Mod. = 60%



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AVERAGE CHARACTERISTIC CURVES : $V_{sig(pk)} \cdot g_m / V_{g1}$

Initially : $V_a = 175V$, $V_{g2} = 100V$ (Rising), $I_a = 12.0mA$,
 $I_{g2} = 3.5mA$, $V_{g1} = -1.3V$, $R_{g2} = 22k\Omega$,
 $Z_L = 100k\Omega$, Mod. = 60%

