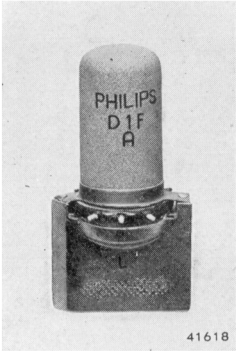
PHILIPS "Miniwatt" SPECIAL VALVES

VALVE FOR PORTABLE TRANSCEIVERS

D1F
D11F



CHARACTERISTICS

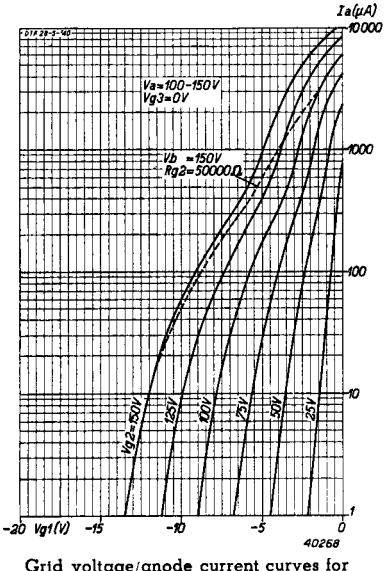
Heater voltage	V_f	=	1.4	V
Heater current	I_f	=	0.1	A
Anode voltage	V_a	=	150	V
Screen-grid voltage	V_{g_2}	=	100	V
Anode current	I_a	=	3	mA
Screen-grid current	I_{g_2}	=	1	mA
Grid bias	V_{g_1}	=	-1.5	V
Slope	S	=	1.8	mA/V
AC resistance	R_i	=	0.5	MΩ
Equivalent noise resistance	R_{aeq}	=	6	kΩ
Input impedance (λ = 6 metres)	R_{g_1}	=	10	kΩ
Output impedance (λ = 6 metres)	R_a	=	150	kΩ

SPECIAL ADVANTAGES

1. Small size, permitting compact apparatus
2. Valves can easily be replaced without opening the set
3. Usable in every stage of a transceiver
4. Light weight
5. Robust construction
6. Operates on wavelengths down to 3 metres

DESCRIPTION

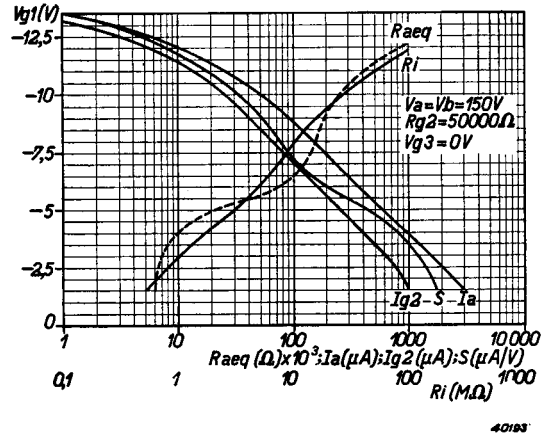
The D1F is a directly heated pentode, whose filaments may be run in series or in parallel.
The radial arrangement of the contacts and the hand grip are described in prospectus B 1 - 1. For special purposes the valve can be supplied without the hand grip, and in that case its type indication is D11 F. The valves are intended chiefly for receiving applications, but may be used also for transmission. In a receiver they can be employed as RF, IF and AF amplifiers, as frequency changer with a



Grid voltage/anode current curves for the D1F or D11F used as variable-gain RF or IF amplifier, with a series-fed screen.

separate oscillator, as oscillator (with triode connection), as detector (either diode or triode), and as output valve.

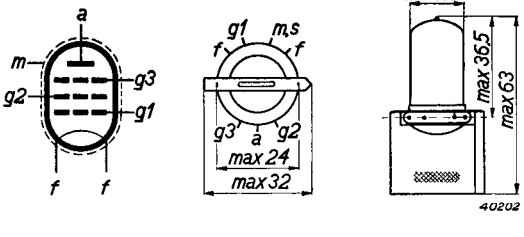
When functioning as RF or IF amplifier, the valve may have series supply to the screen grid; if the series resistance is 50 kΩ, the control-grid voltage must be varied from -1.5 to -11 V, to reduce amplification in the ratio 100 : 1. With the screen-grid potential held constant at 100 V, a similar degree of control is obtained by increasing the control-grid bias from -1.5 to -7.5 V. Series supply to the screen grid may also be applied when the valve functions as mixer; with an HT voltage of 150 V and 38 kΩ resistance in the screen grid lead, the conversion conductance is 500 μA/V. As AF amplifiers, valves of the D1 F and D11 F types provide a gain of 120 times, with only 2% distortion, under the following conditions: HT supply = 150 V, anode resistance = 0.3 MΩ, screen-grid series-resistance = 1 MΩ. In the output stage, the D1 F or D11 F supplies 280 mW, for 10% distortion, with 150 V on anode and screen. Measured cold, the capacities between each electrode and all others connected with the filament are as follows:



Equivalent noise resistance, anode current, screen-grid current, slope and AC resistance shown against negative grid potential, when the valve is used as RF or IF amplifier with a series-fed screen.

$$C_a = 5.2 \text{ pF} \pm 0.5 \text{ pF},$$
$$C_{g_1} = 4.6 \text{ pF} \pm 0.5 \text{ pF},$$
$$C_{g_3} = 8.2 \text{ pF} \pm 0.5 \text{ pF}.$$

The input and output capacities may, if necessary, be adjusted to a specific value, by removing a small area of the metallisation.



Arrangement of electrodes; connections and maximum dimensions in millimetres.