

DOUBLE DIODE VARIABLE-MU R.F. PENTODE

UBF89

Double diode variable-mu pentode. The pentode section is suitable for use as an r.f. or i.f. amplifier. The diode sections are only suitable for a.m. detection.

HEATER

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

I_h	100	mA
V_h	19	V

MOUNTING POSITION

Any

CAPACITANCES

$C_{a'-d-g1}$	<0.0008	pF
$C_{a''-d-g1}$	<0.001	pF
$C_{a'-d-a}$	<0.15	pF
$C_{a''-d-a}$	<0.025	pF

Pentode section

C_{a-g1}	<0.0025	pF
C_{out}	5.2	pF
C_{i1}	5.0	pF
C_{g1-h}	0.05	pF

Diode sections

$C_{a'-d-k}$	2.5	pF
$C_{a''-d-k}$	2.5	pF
$C_{a'-d-a''-d}$	<0.25	pF
$C_{a'-d-h}$	<0.015	pF
$C_{a''-d-h}$	<0.003	pF

CHARACTERISTICS

V_a	100	200	V
V_{g3}	0	0	V
V_{g2}	100	100	V
V_{g1}	-2.0	-1.5	V
I_{i1}	8.5	11	mA
I_{g2}	2.8	3.3	mA
g_m	3.5	4.5	mA/V
r_{i1}	300	600	kΩ
μ_{g1-g2}	—	20	
$V_{g1} (g_m = 120\mu A/V)$	-10	-20	V



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TYPICAL OPERATING CONDITIONS

$V_a = V_b$	170	170	200	200	V
V_{g3}	0	0	0	0	V
R_{g2}	27	21	47	30	k Ω
V_{g1}	-0.5*	-1.5	-0.5*	-1.5	V
R_k	—	105	—	105	Ω
I_a	11	11	9.5	11	mA
I_{g2}	3.4	3.4	2.8	3.3	mA
g_m	5.0	4.5	5.0	4.5	mA/V
r_a	450	450	600	600	k Ω
R_{eq}	2.5	3.5	2.5	3.5	k Ω
$g_m (V_{g1} = -20V)$	65	65	115	120	$\mu A/V$

*This voltage is produced by the grid current flowing through the grid resistor and the steady current of the diode. If this condition is not acceptable the negative grid bias should be increased to -1.5V.

LIMITING VALUES

Pentode section

$V_{a(b)}$ max.	550	V
V_a max.	250	V
p_a max.	2.25	W
$V_{g2(b)}$ max.	550	V
V_{g2} max. ($I_a < 4.0mA$)	250	V
V_{g2} max. ($I_a > 8.0mA$)	125	V
p_{g2} max.	450	mW
I_k max.	16.5	mA
V_{g1} max. ($I_{g1} = +0.3\mu A$)	-1.3	V
R_{g1-k} max.	3.0	M Ω
R_{g1-k} max. (grid current biasing)	22	M Ω
R_{g3-k} max.	10	k Ω
R_{h-k} max.	20	k Ω
V_{h-k} max.	100	V

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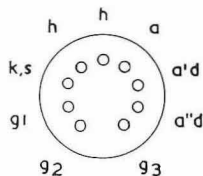
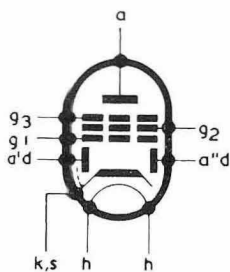
Diode sections (each section)

P.I.V. max.	200	V
I_{ad} max.	800	μA
$\bar{I}_{ad(pk)}$ max.	5.0	mA
R_{h-k} max.	20	k Ω
V_{h-k} max.	100	V

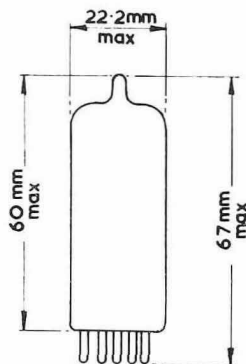
MICROPHONY

This valve can be used without special precautions against microphony in circuits in which the input voltage is $>25mV$ (r.m.s) for an output of 50mW from the output valve.

2845



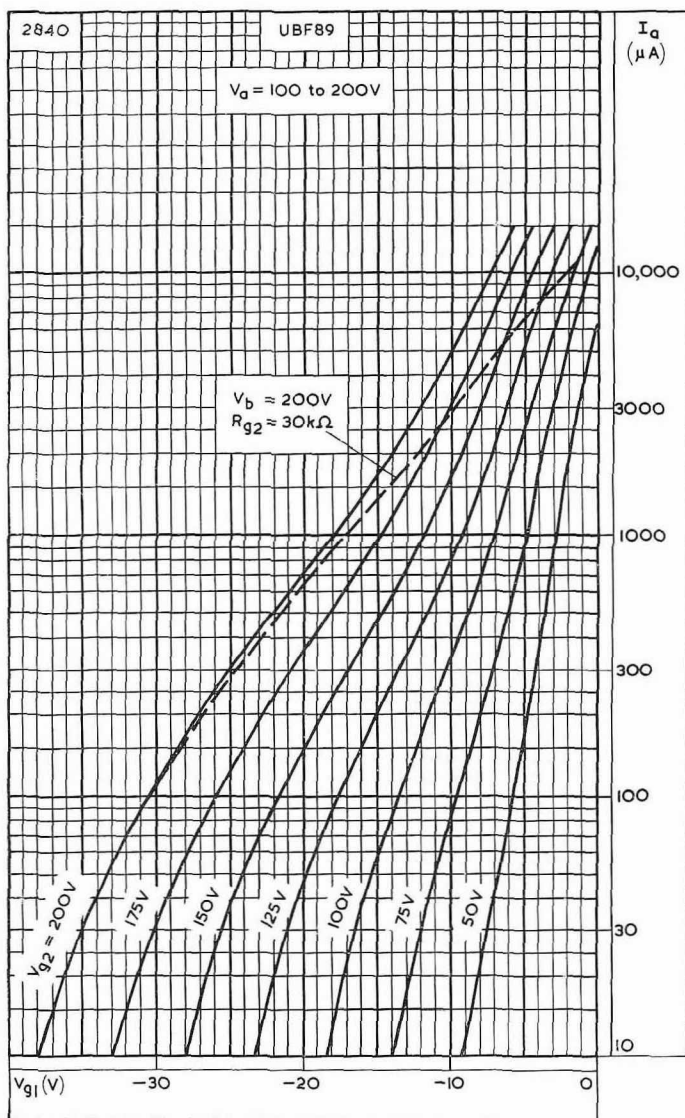
B9A Base



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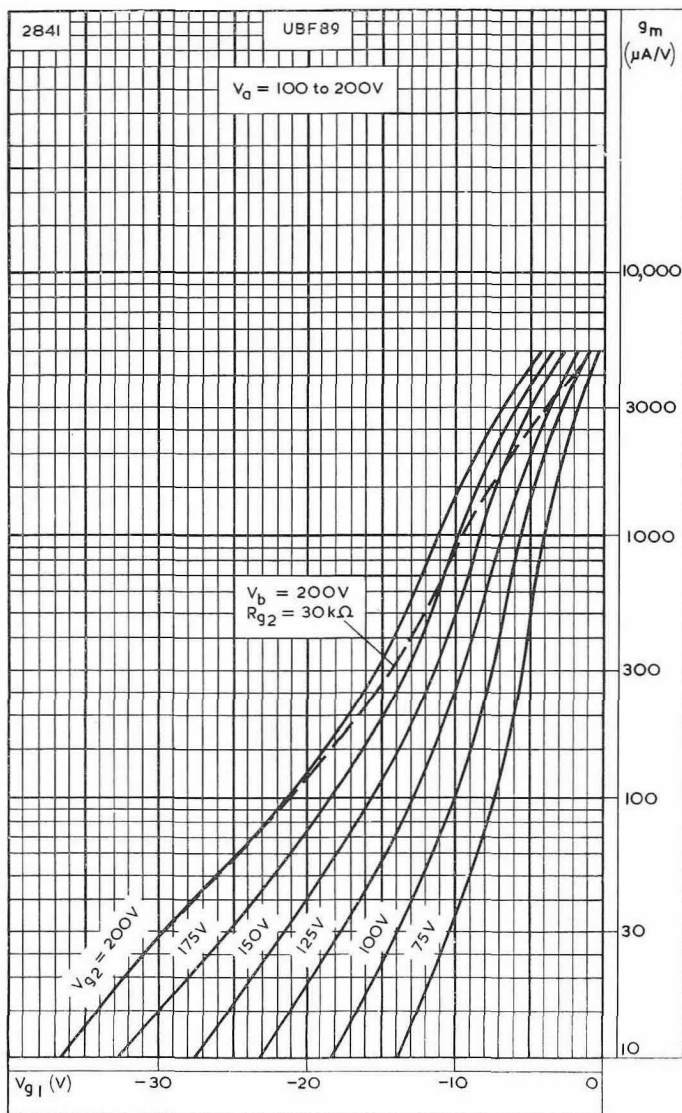


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE WITH
SCREEN-GRID VOLTAGE AS PARAMETER

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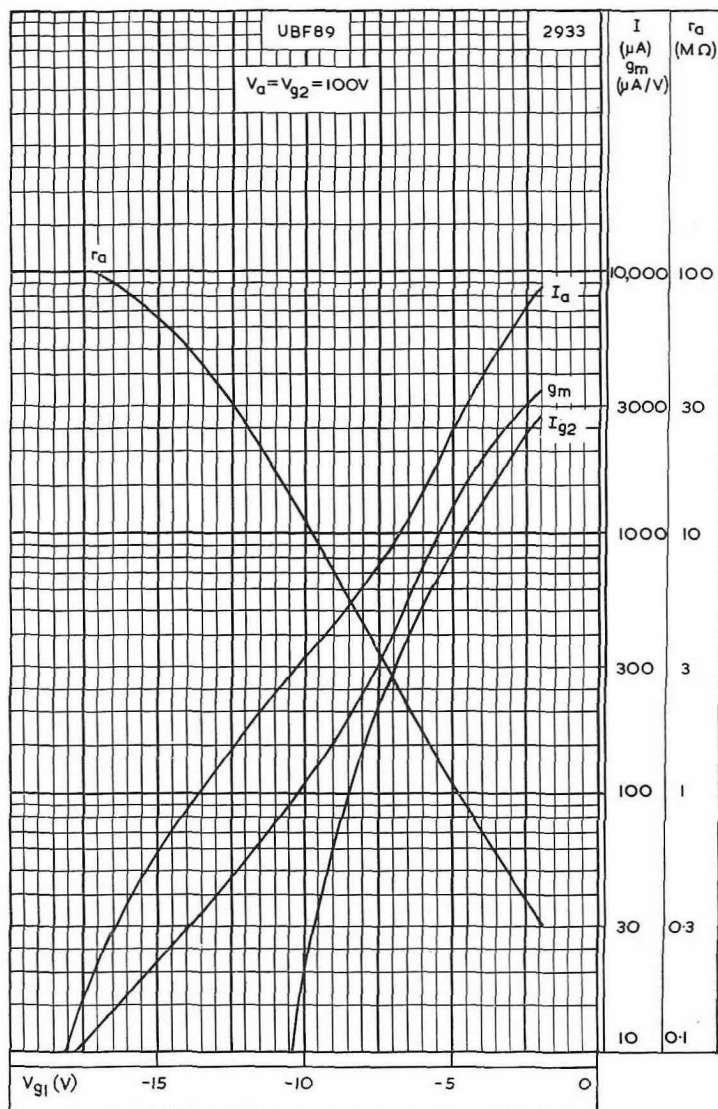


MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER

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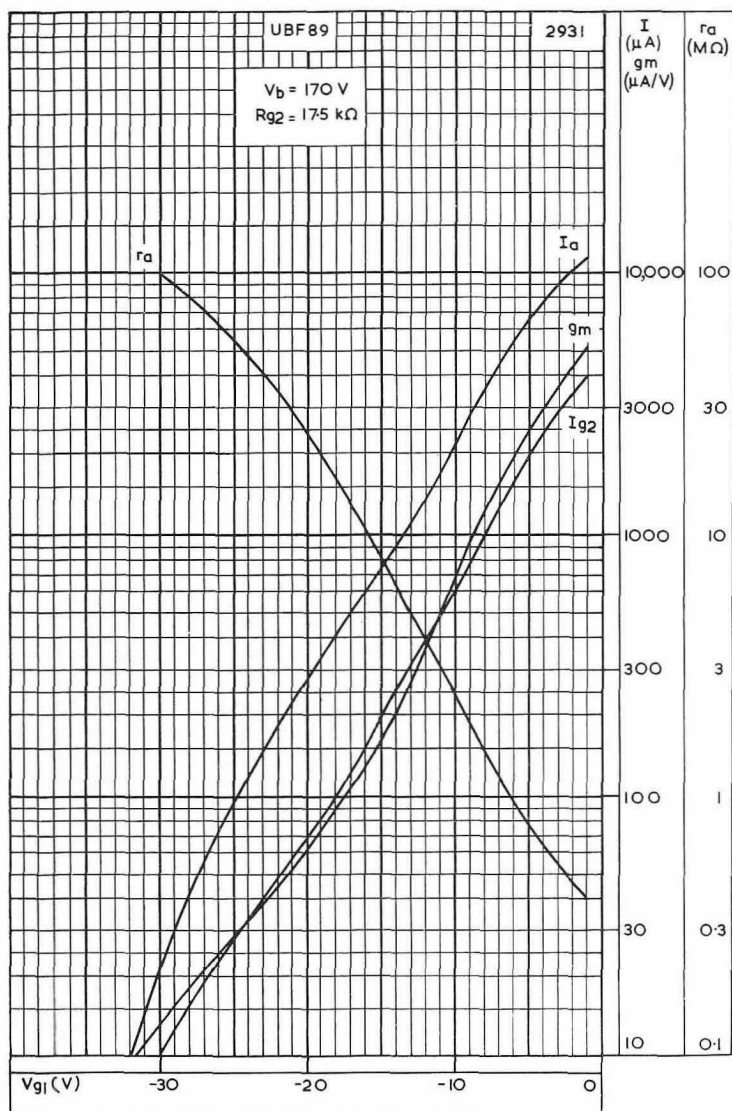
ANODE AND SCREEN-GRID CURRENT, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
 $V_a = V_{g2} = 100V$



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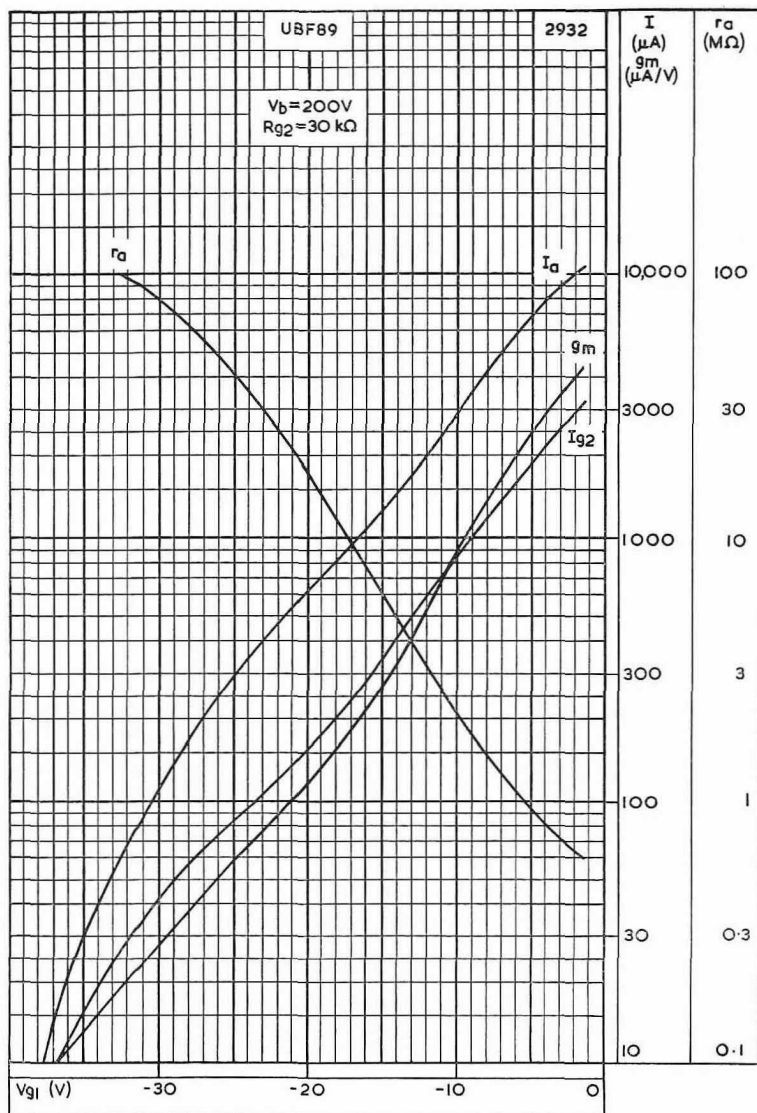


ANODE AND SCREEN-GRID CURRENT, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
 $V_b = 170\text{ V}$

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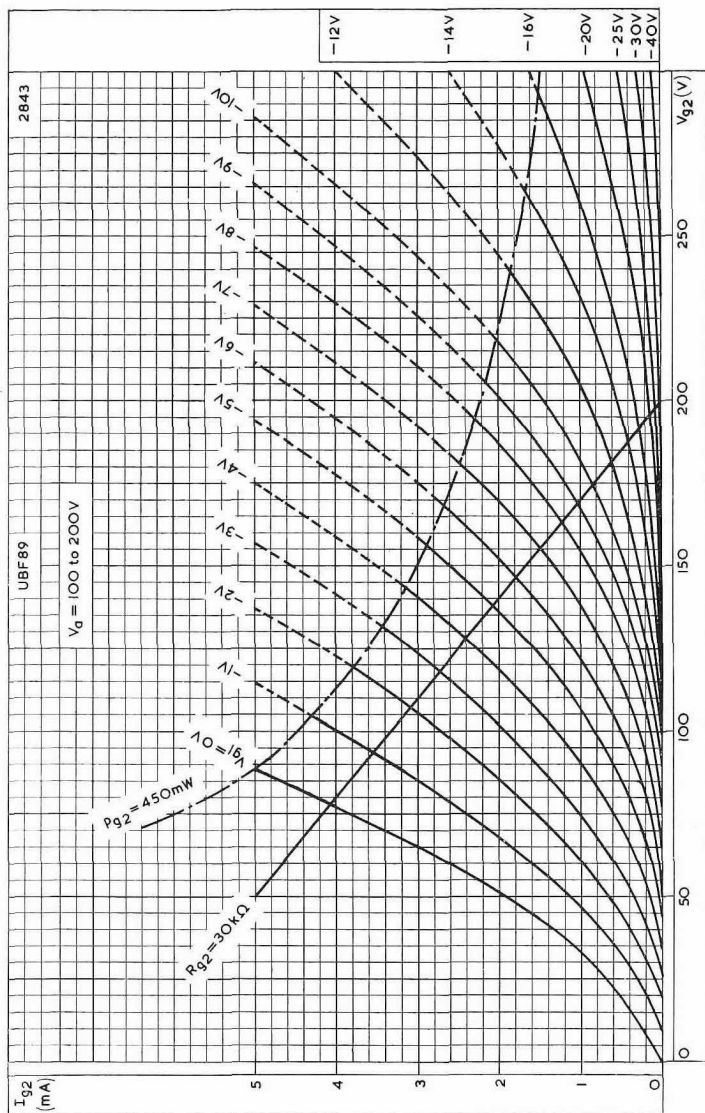
ANODE AND SCREEN-GRID CURRENT, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
 $V_b = 200V$



DOUBLE DIODE VARIABLE-MU R.F. PENTODE

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SCREEN-GRID CURRENT PLOTTED AGAINST SCREEN-GRID VOLTAGE
WITH CONTROL-GRID VOLTAGE AS PARAMETER

