

DOUBLE DIODE VARIABLE-MU R.F. PENTODE

EBF89

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 or parallel operation a.c. or d.c.

V_h	6.3	V
I_h	300	mA

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_{in}	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	250	250	V
V_{g3}	0	0	V
V_{g2}	80	100	V
V_{g1}	-1.0*	-2.0	V
I_a	9.0	9.0	mA
I_{g2}	2.7	2.7	mA
g_m	4.5	3.8	mA/V
r_a	0.9	1.0	MΩ
μ_{g1-g2}	20	20	

*At this voltage grid current may occur. If this is not acceptable the negative bias voltage should be increased to -2.0V.



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TYPICAL OPERATING CONDITIONS

$V_a = V_b$	200	200	250	250	V
V_{g3}	—	0	0	0	V
R_{g2}	47	30	82	56	k Ω
V_{g1}	-0.5*	-1.5	-0.5*	-2.0	V
R_k	—	105	—	170	Ω
I_a	9.5	11	8.0	9.0	mA
I_{g2}	2.8	3.3	2.2	2.7	mA
g_m	5.0	4.5	4.7	3.8	mA/V
r_a	0.6	0.6	0.8	1.0	M Ω
R_{eq}	2.5	3.5	2.3	4.0	k Ω
$g_m (V_{g1} = -20V)$	115	120	180	200	$\mu A/V$

*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 at $V_a = 200V$ and -2.0V at $V_a = 250V$.

LIMITING VALUES

Pentode section

$V_{a(b)}$ max.	550	V
* V_a max.	300	V
p_a max.	2.25	W
$V_{g2(b)}$ max.	550	V
* V_{g2} max. ($I_a < 4.0mA$)	300	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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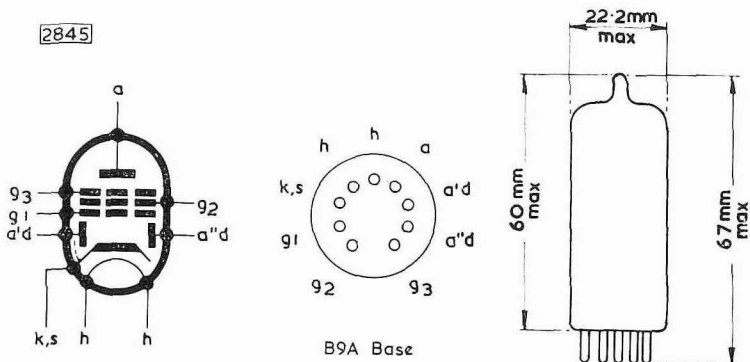
Diode sections (each section)

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

*If the heater, anode and screen-grid voltages are obtained from an accumulator by means of a vibrator, V_a max. = 250V, V_{g2} max. = 250V.

MICROPHONY

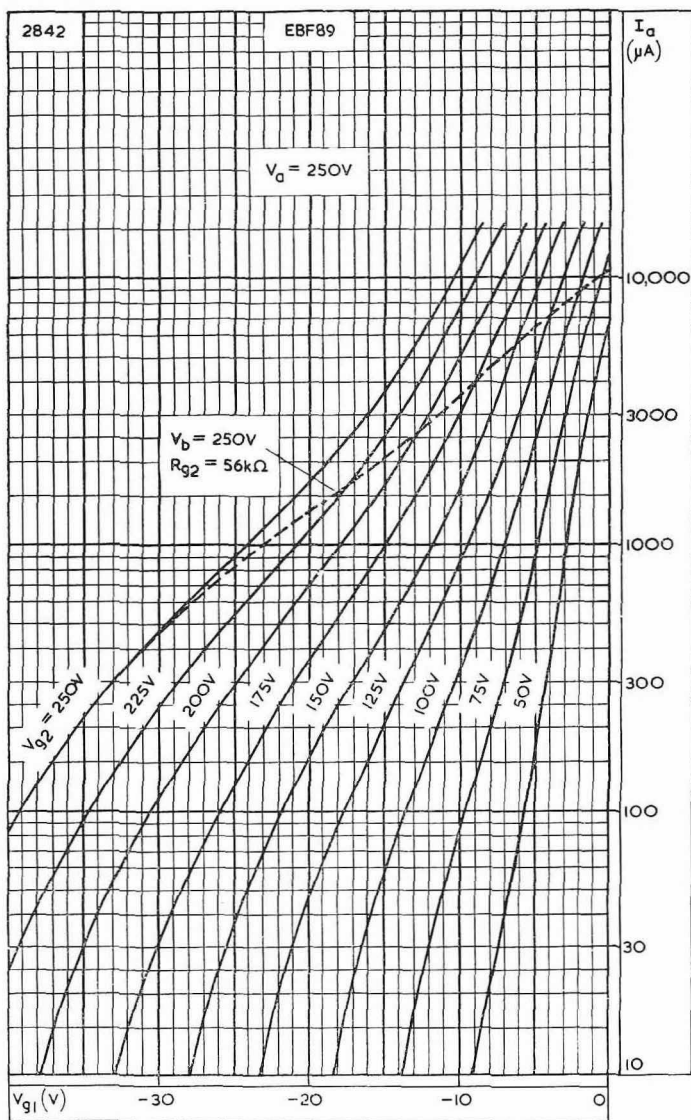
This valve can be used without special precautions against microphony in circuits in which the input voltage is $>25mV$ (r.m.s.) for an output of 50mW from the output valve.



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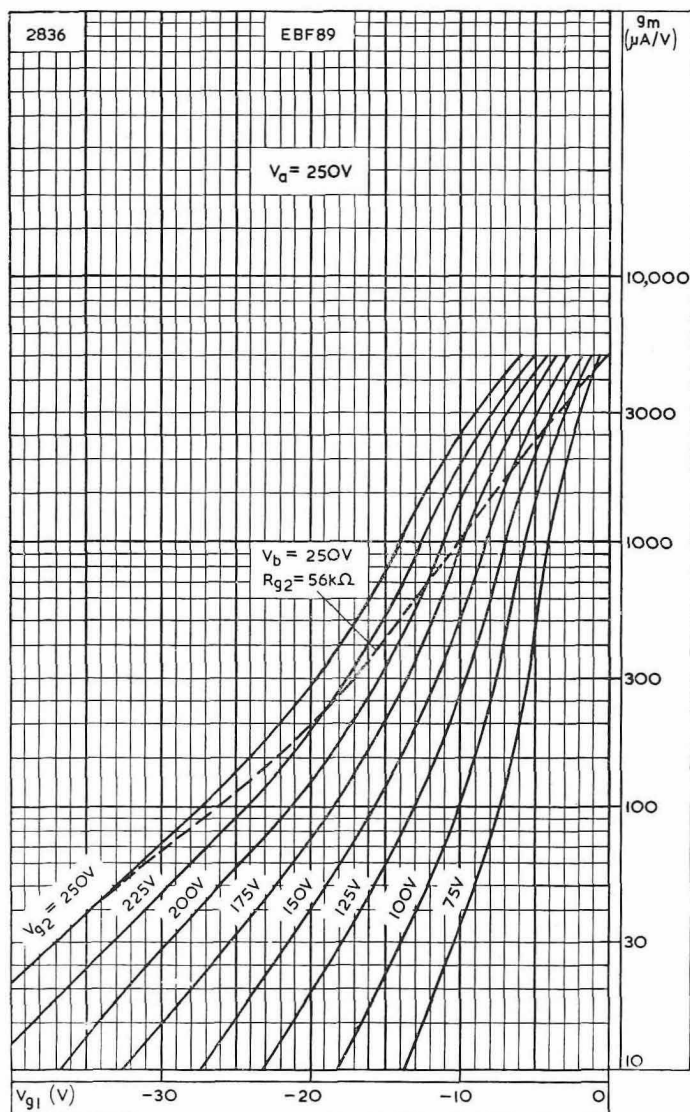


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER

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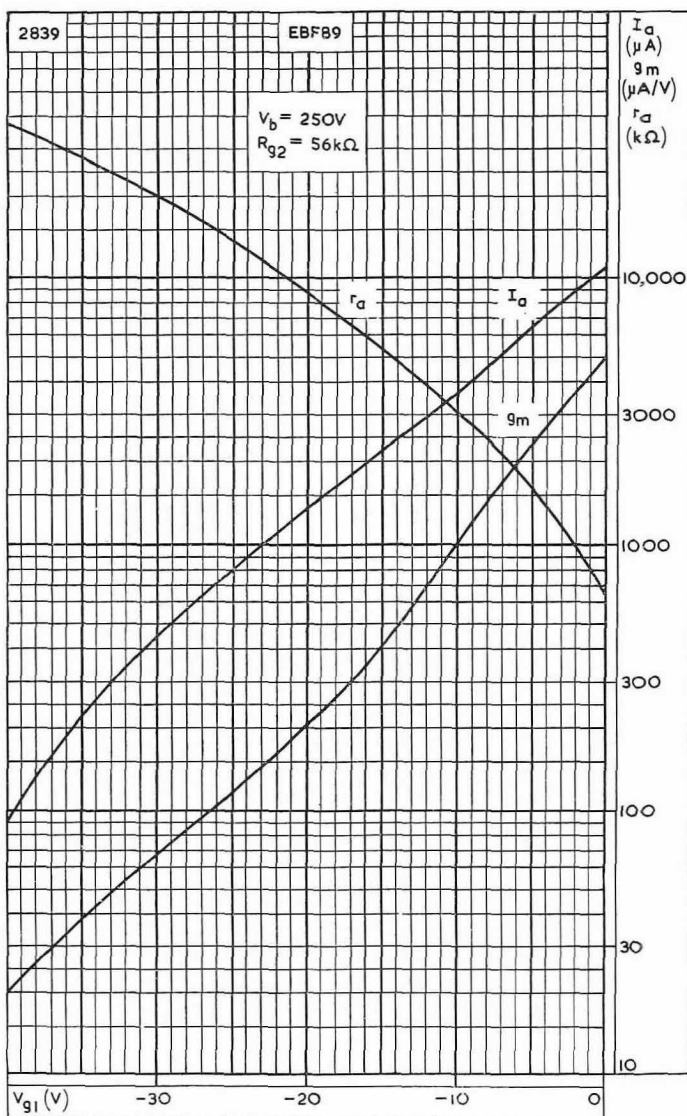


MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER

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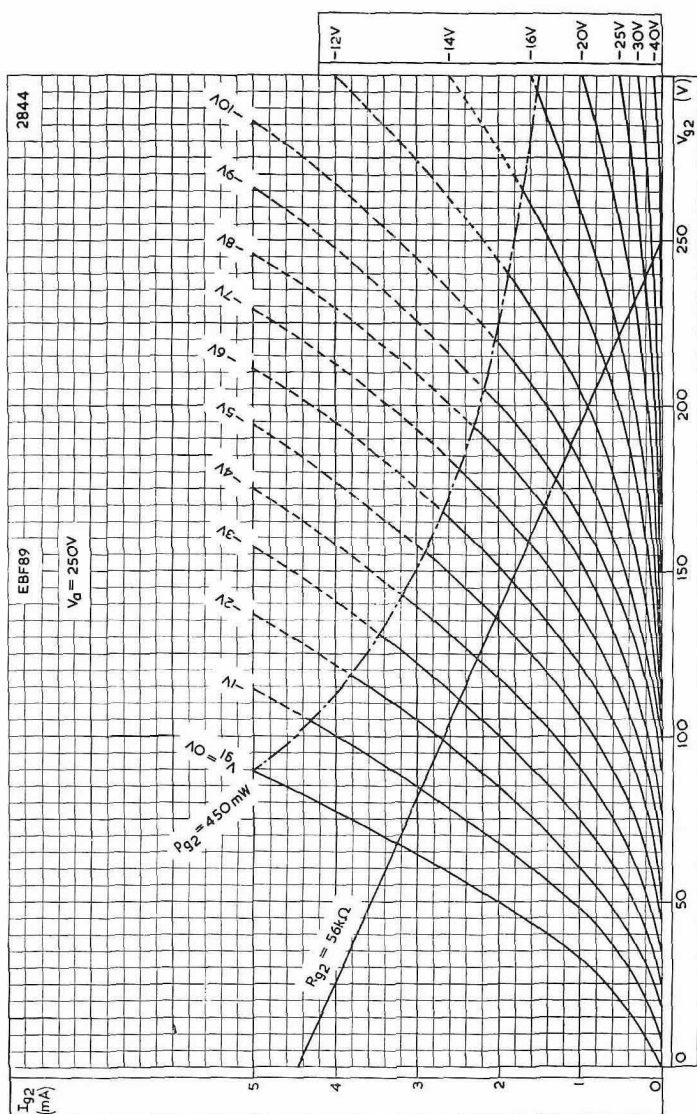


ANODE CURRENT, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE
PLOTTED AGAINST CONTROL-GRID VOLTAGE

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

