

TRIODE PENTODE

ECF80

Combined triode and high slope r.f. pentode with separate cathodes. Primarily intended for use as a frequency changer at frequencies up to 220Mc/s.

HEATER

V_h	6.3	V
I_h	430	mA

MOUNTING POSITION

Any

CAPACITANCES (measured without external shield)

C_{p-at}	<0.06	pF
C_{p-gt}	<0.02	pF
C_{gp-at}	<0.16	pF
C_{gp-gt}	<0.02	pF

Pentode section

* C_{a-g1}	<0.025	pF
C_{in}	5.5	pF
C_{out}	3.8	pF

*May be reduced to <0.01pF by the use of a skirted base.

Triode section

C_{a-k+h}	1.8	pF
C_{g-k+h}	2.5	pF
C_{a-g}	1.5	pF

CHARACTERISTICS

Pentode section

V_a	250	V
V_{g2}	200	V
V_{g1}	-3.2	V
I_a	7.0	mA
I_{g2}	1.8	mA
g_m	5.5	mA/V
r_a	900	k Ω
μ_{g1-g2}	47	
R_{in} (f=50Mc/s)	11	k Ω
R_{eq}	1.5	k Ω

Triode section

V_a	100	V
I_a	14	mA
V_g	-2.0	V
g_m	5.0	mA/V
μ	20	
r_a	4.0	k Ω

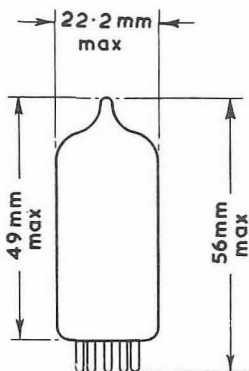
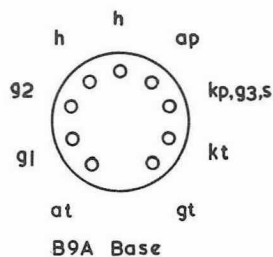
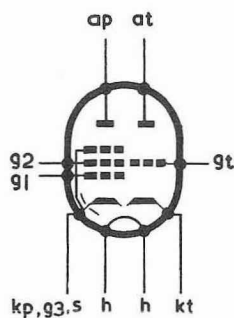


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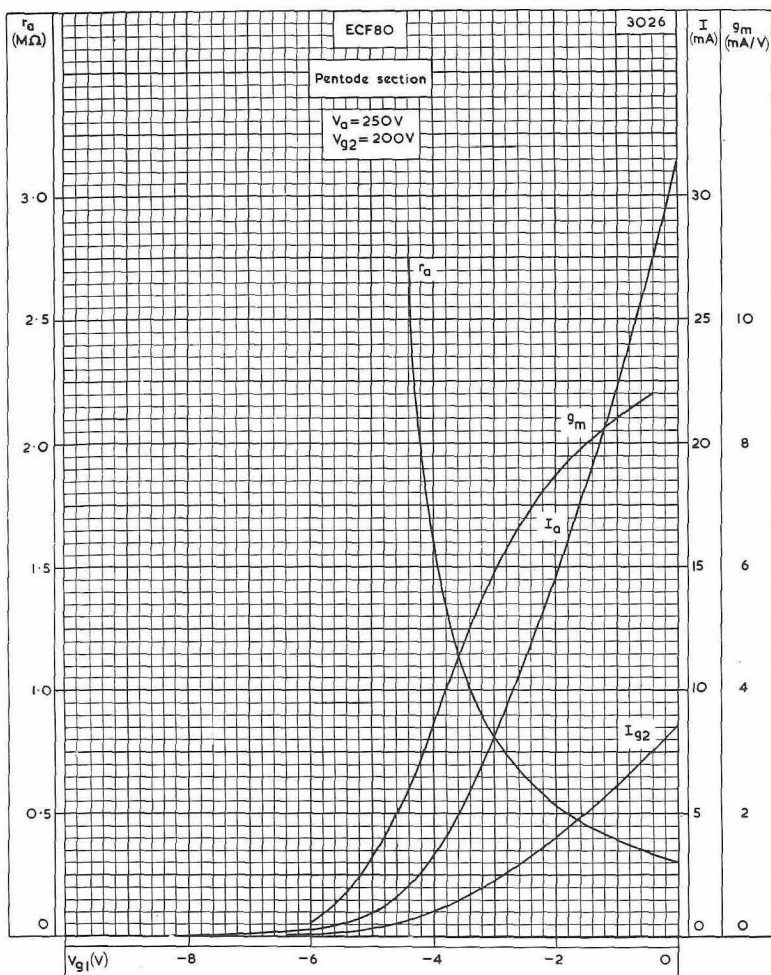
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ANODE AND SCREEN-GRID CURRENTS, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE OF PENTODE SECTION. $V_a = 250V$, $V_{g2} = 200V$

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TYPICAL OPERATING CONDITIONS

As a frequency changer

$V_a = V_b$	250	250	V
R_{g2}	68	47	k Ω
R_{g1}	100	100	k Ω
R_k	0	820	Ω
I_a	5.6	5.7	mA
I_{g2}	1.52	1.4	mA
$V_{OSC}(r.m.s.)$	4.0	3.5	V
I_{g1}	58	0	μ A
g_c	1.95	2.1	mA/V
r_a	1.15	1.5	M Ω

LIMITING VALUES

Pentode section

$V_{a(b)}$ max.	550	V
V_a max.	250	V
p_a max.	1.7	W
$V_{g2(b)}$ max.	550	V
V_{g2} max. ($I_k \leq 10$ mA)	200	V
V_{g2} max. ($I_k > 10$ mA)	175	V
p_{g2} max. ($p_a \leq 1.2$ W)	750	mW
p_{g2} max. ($p_a > 1.2$ W)	500	mW
I_k max.	14	mA
V_{g1} max. ($I_{g1} = +0.3$ μ A)	-1.3	V
R_{g1-k} max. (cathode bias)	1.0	M Ω
R_{g1-k} max. (fixed bias)	500	k Ω
V_{h-k} max. (cathode positive)	150	V
V_{h-k} max. (cathode negative)	100	V

Triode section

$V_{a(b)}$ max.	550	V
V_a max.	250	V
p_a max.	1.5	W
I_k max.	14	mA
$*I_{k(p_k)}$ max.	200	mA
V_{g1} max. ($I_{g1} = +0.3$ μ A)	-1.3	V
$-V_{g1(p_k)}$ max.	350	V
V_{h-k} max. (cathode positive)	150	V
V_{h-k} max. (cathode negative)	100	V

*Max. pulse duration 200 μ s

OPERATING NOTE

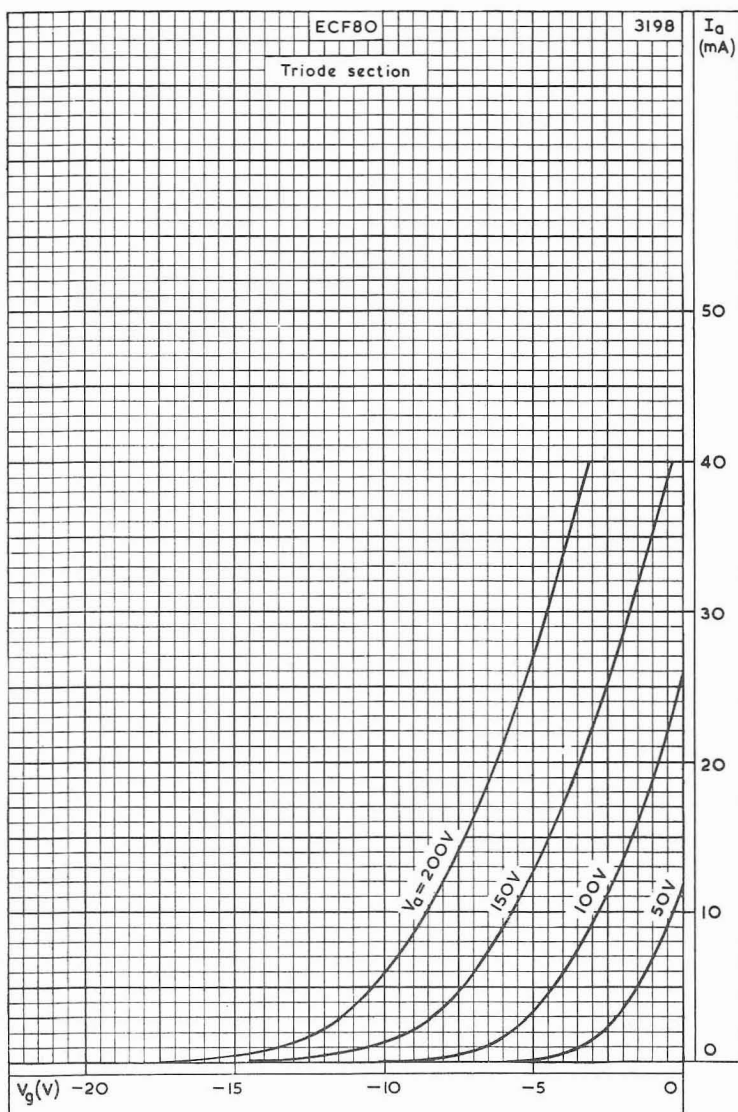
It is anticipated that variations in heater-to-cathode capacitance may render the valve unsuitable for use in Hartley oscillator circuits, particularly in f.m. receivers. For this reason it is recommended that a Colpitts type of circuit be employed.



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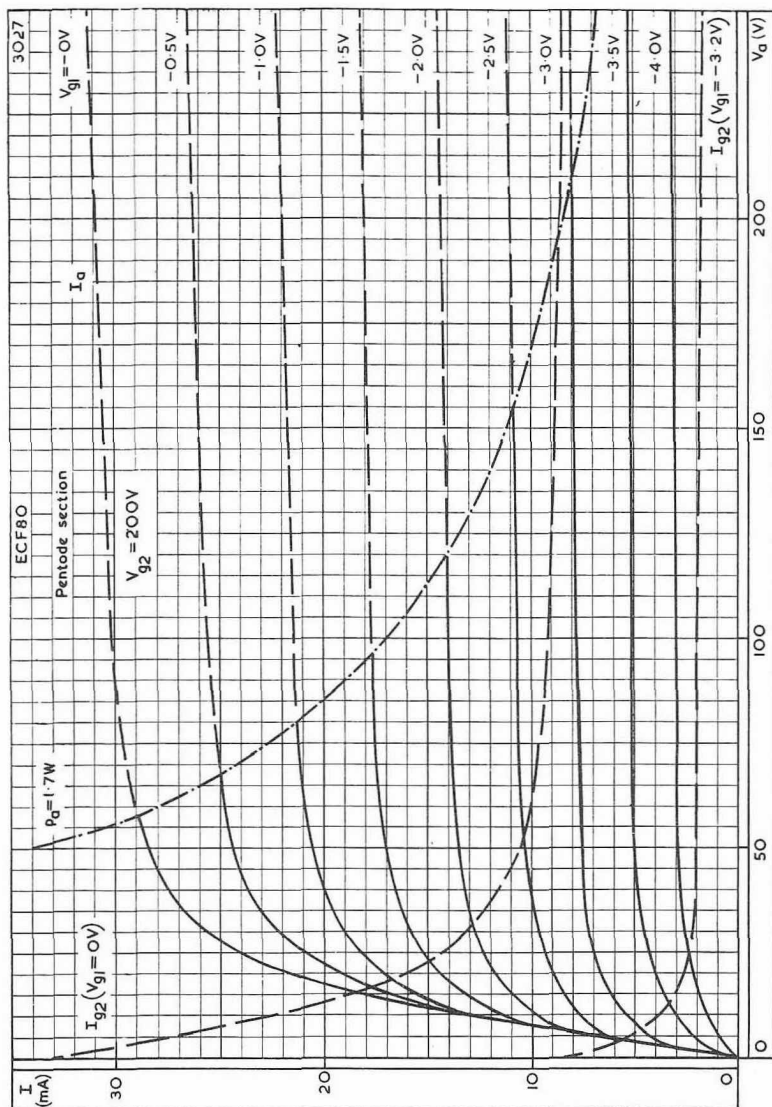


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE FOR TRIODE SECTION FOR VARIOUS VALUES OF ANODE VOLTAGE

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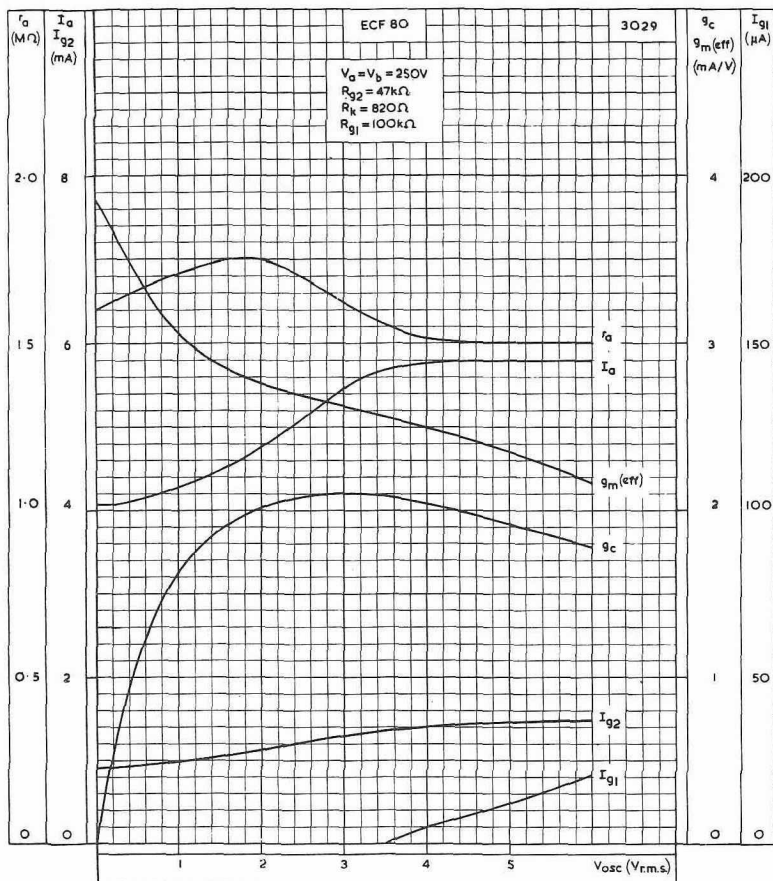


ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE FOR PENTODE SECTION WITH CONTROL-GRID VOLTAGE AS PARAMETER

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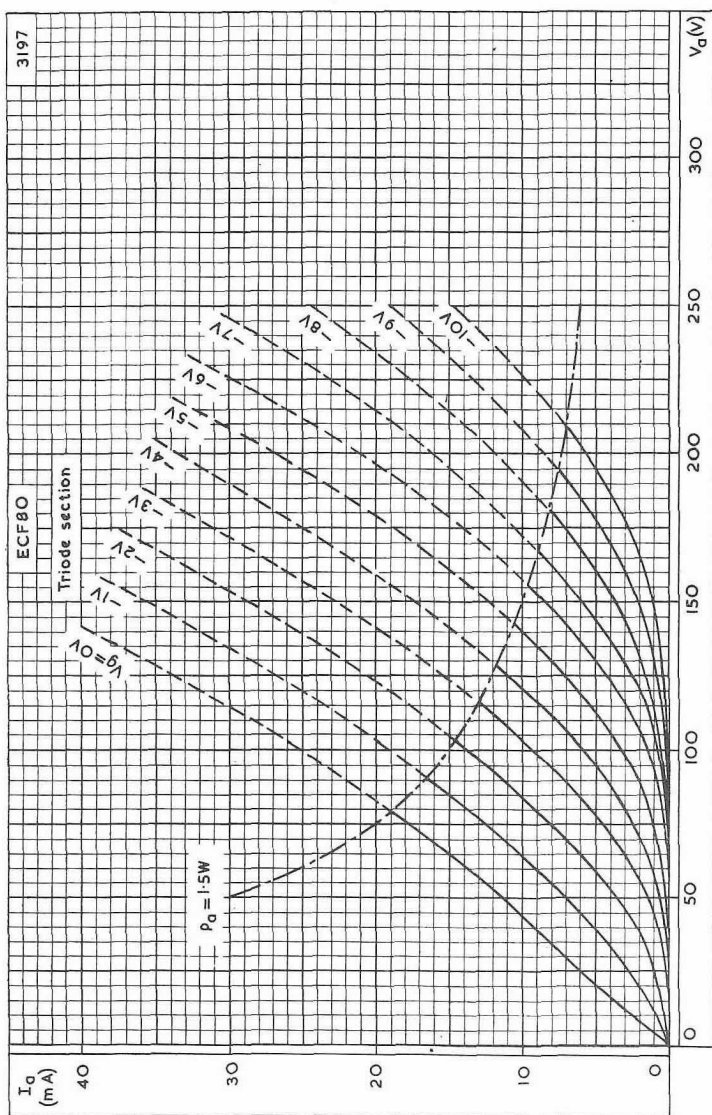


PERFORMANCE CURVES FOR USE AS FREQUENCY CHANGER WITH
 $R_k = 820\Omega$

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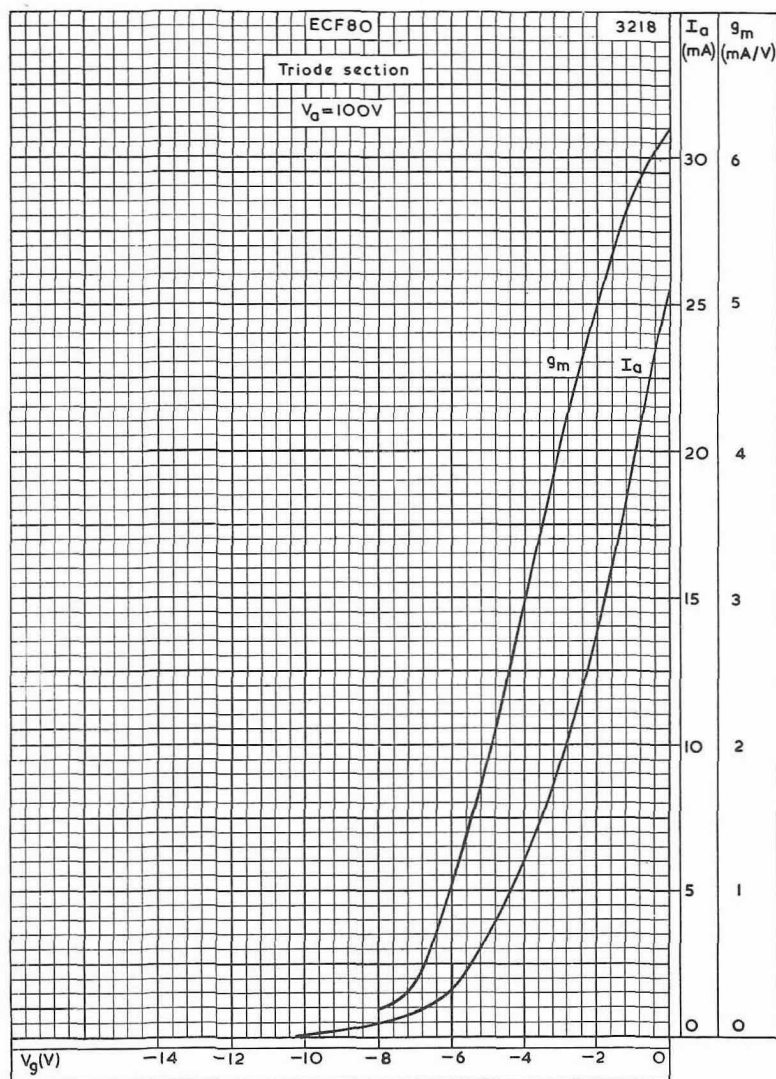


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE FOR TRIODE SECTION WITH CONTROL-GRID VOLTAGE AS PARAMETER

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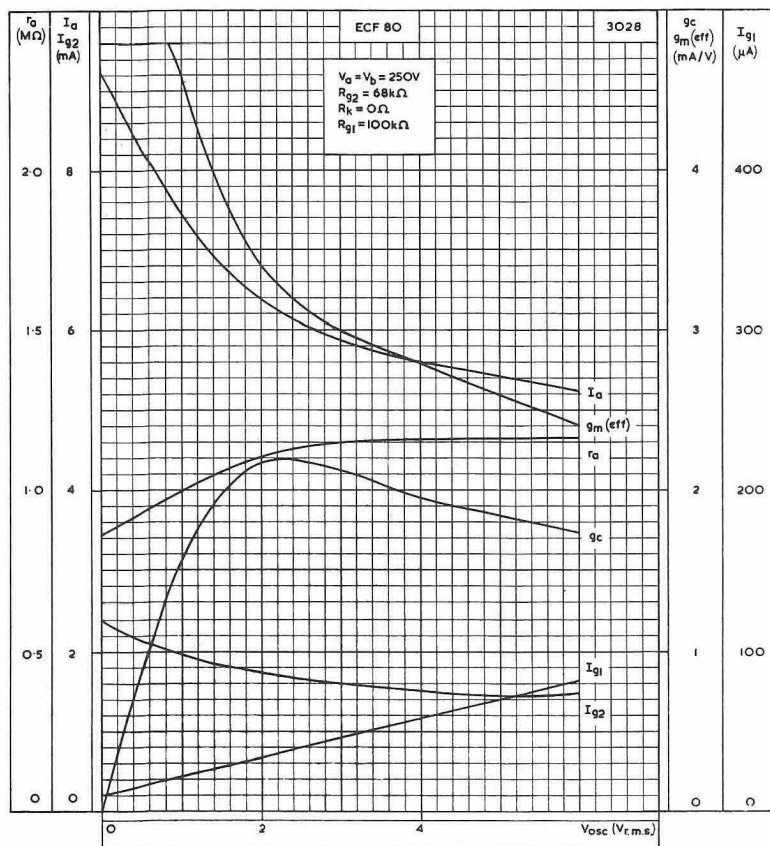
ANODE CURRENT AND MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE FOR TRIODE SECTION
 $V_a = 100V$



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PERFORMANCE CURVES FOR USE AS FREQUENCY CHANGER WITH
 $R_k = 0\Omega$

