

VARIABLE-MU R.F. PENTODE

EF183

Frame-grid variable-mu r.f. pentode for use as an automatic gain controlled i.f. amplifier in television receivers.

HEATER

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

V_h	6.3	V
I_h	300	mA

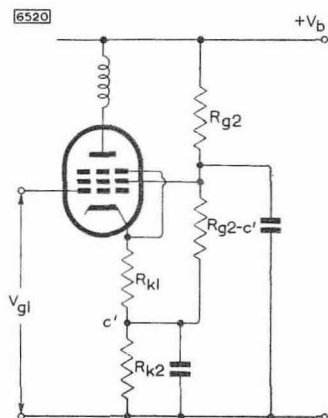
CAPACITANCES

C_{in}	9.5	pF
C_{out}	3.0	pF
C_{a-g1}	5.5	mpF←
C_{g1-g2}	2.8	pF

CHARACTERISTICS

V_a	170	200	230	V
V_{g2}	90	90	90	V
V_{g3}	0	0	0	V
I_a	14	12	10.5	mA
I_{g2}	5.3	4.5	3.6	mA
V_{g1}	-1.8	-2.0	-2.1	V
g_m	14	12.5	10.6	mA/V
r_a	350	500	650	k Ω
r_{g1} ($f = 40\text{Mc/s}$)	11.6	13	15.3	k Ω
R_{eq} ($f = 40\text{Mc/s}$)	—	490	—	Ω ←

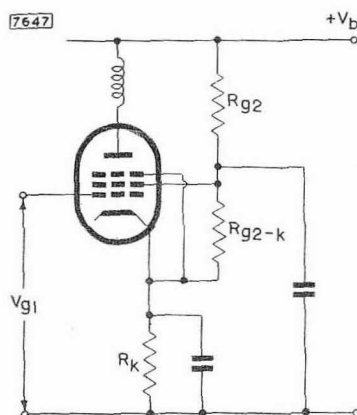
OPERATING CONDITIONS



With compensating resistor R_{k1} (e.g. vision i.f. amplifier)

Condition	1	2	3	4	
* V_b	190	190	190	190	V
R_{g2}	22	6.8	8.2	10	k Ω
$R_{g2-c'}$	—	8.2	12	18	k Ω
R_{k1}	22	22	22	22	Ω
R_{k2}	100	56	68	82	Ω
R_{g1}	—	—	—	—	k Ω
I_a	11.6	11.8	11.7	11.4	mA
I_{g2}	4.3	4.4	4.4	4.3	mA
g_m	12.3	12.4	12.2	12	mA/V
V_{g1} for 100 : 1 reduction in g_m	-18.5	-9.0	-10	-11	V
I_{total}	16	27	24	21	mA
Condition	5	6	7	8	
* V_b	190	190	190	190	V
R_{g2}	12	15	18	33	k Ω
$R_{g2-c'}$	27	47	82	—	k Ω
R_{k1}	22	22	22	22	Ω
R_{k2}	82	82	82	0	Ω
R_{g1}	—	—	—	470	k Ω
I_a	11.8	11.9	12	11.6	mA
I_{g2}	4.4	4.5	4.5	4.4	mA
g_m	12.3	12.5	12.5	15.5	mA/V
V_{g1} for 100 : 1 reduction in g_m	-12	-13.5	-14.5	-17	V
I_{total}	19.7	18.5	14.7	16	mA

*For other values of V_b up to 210V, the above conditions can be used providing the values of R_{g2} are changed to keep V_{g2} at approx. 90V.



Without compensating resistor (e.g. sound i.f. amplifier)

Condition	1	2	3	4	
* V_b	190	190	190	190	V
R_{g2}	22	6.8	8.2	10	k Ω
R_{g2-k}	—	8.2	12	18	k Ω
R_k	120	68	82	100	Ω
I_a	11.7	12	11.8	11.4	mA
I_{g2}	4.3	4.5	4.4	4.3	mA
g_m	12.4	13	12.3	12	mA/V
V_{g1} for 10 : 1 reduction in g_m	-5.0	-3.0	-3.25	-3.5	V
V_{g1} for 100 : 1 reduction in g_m	-18.5	-9.0	-10	-11	V
I_{total}	16	27	24	21	mA

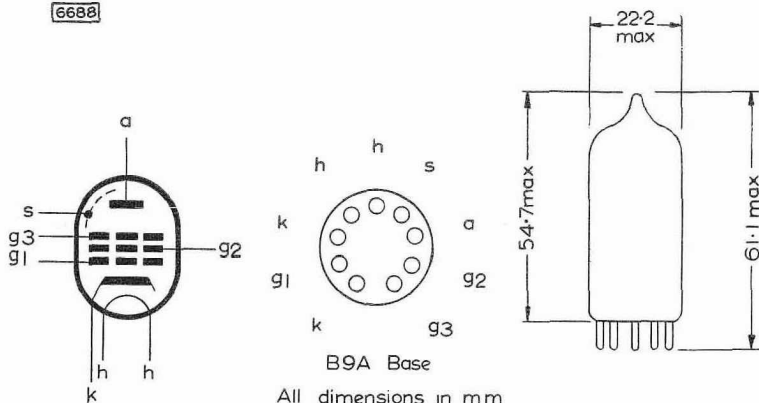
Condition	5	6	7	
* V_b	190	190	190	V
R_{g2}	12	15	18	k Ω
R_{g2-k}	27	47	82	k Ω
R_k	100	100	100	Ω
I_a	11.8	12	12	mA
I_{g2}	4.4	4.5	4.5	mA
g_m	12.4	12.5	12.5	mA/V
V_{g1} for 10 : 1 reduction in g_m	-4.0	-4.4	-4.6	V
V_{g1} for 100 : 1 reduction in g_m	-12	-13.5	-14.5	V
I_{total}	19.7	18.5	17.5	mA

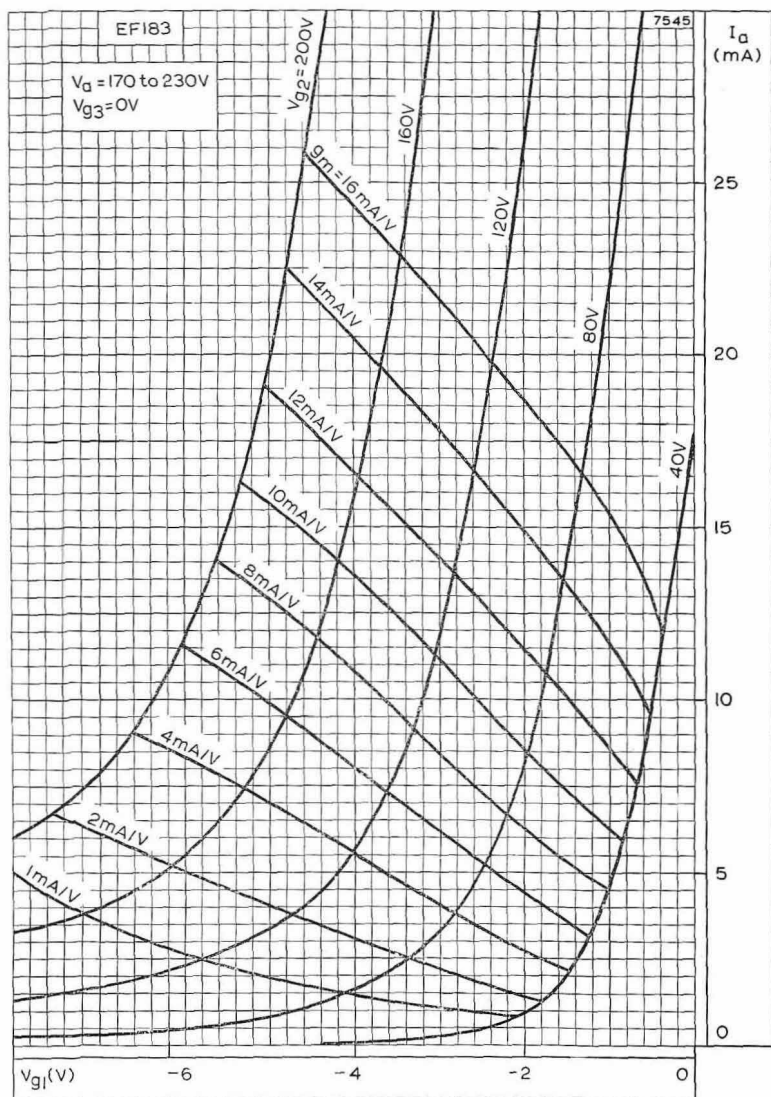
*For other values of V_b up to 210V, the above conditions can be used providing the values of R_{g2} are changed to keep V_{g2} at approx. 90V.

DESIGN CENTRE RATINGS

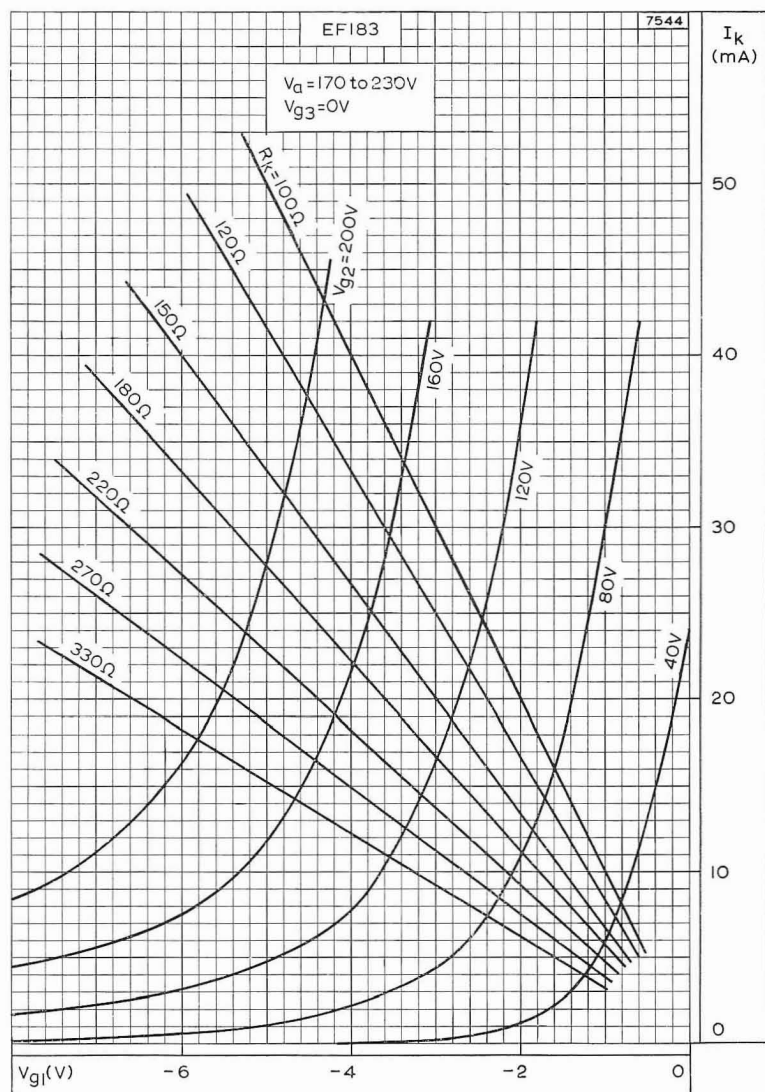
$V_{a(b)}$ max.	550	V
V_a max.	250	V
p_a max.	2.5	W
$V_{g2(b)}$ max.	550	V
V_{g2} max.	250	V
p_{g2} max.	650	mW
$-V_{g1(pk)}$ max.	50	V
I_k max.	20	mA
R_{g1-k} max.	1.0	M Ω
R_{g3-k} max.	50	k Ω
V_{h-k} max.	150	V
R_{h-k} max.	20	k Ω
T_{bulb} max.	180	$^{\circ}\text{C}$

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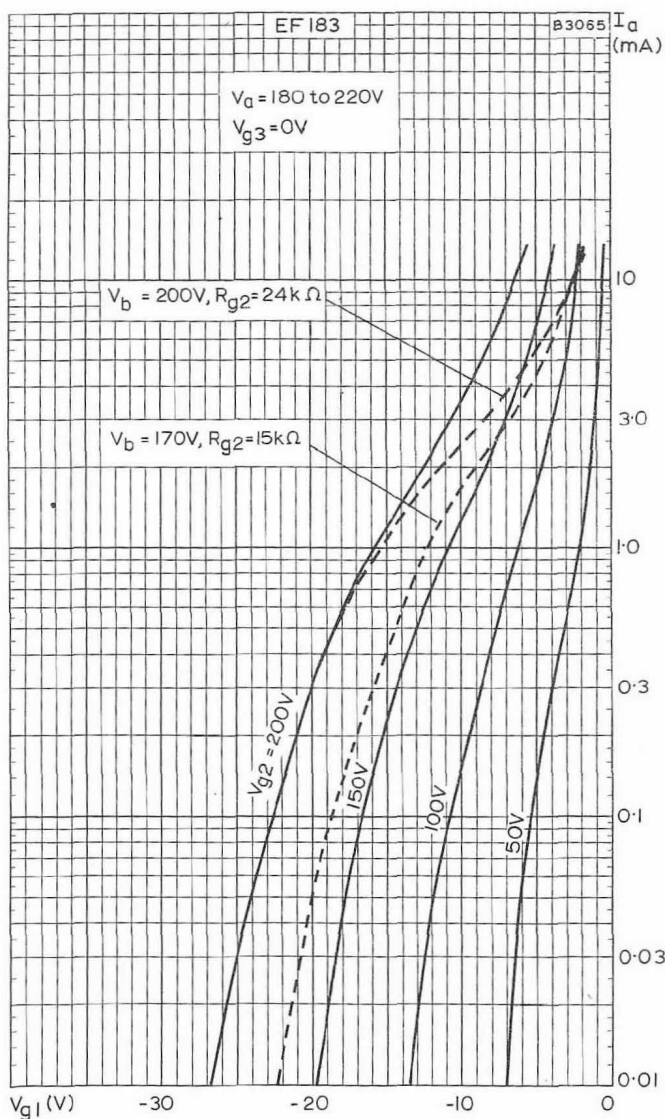




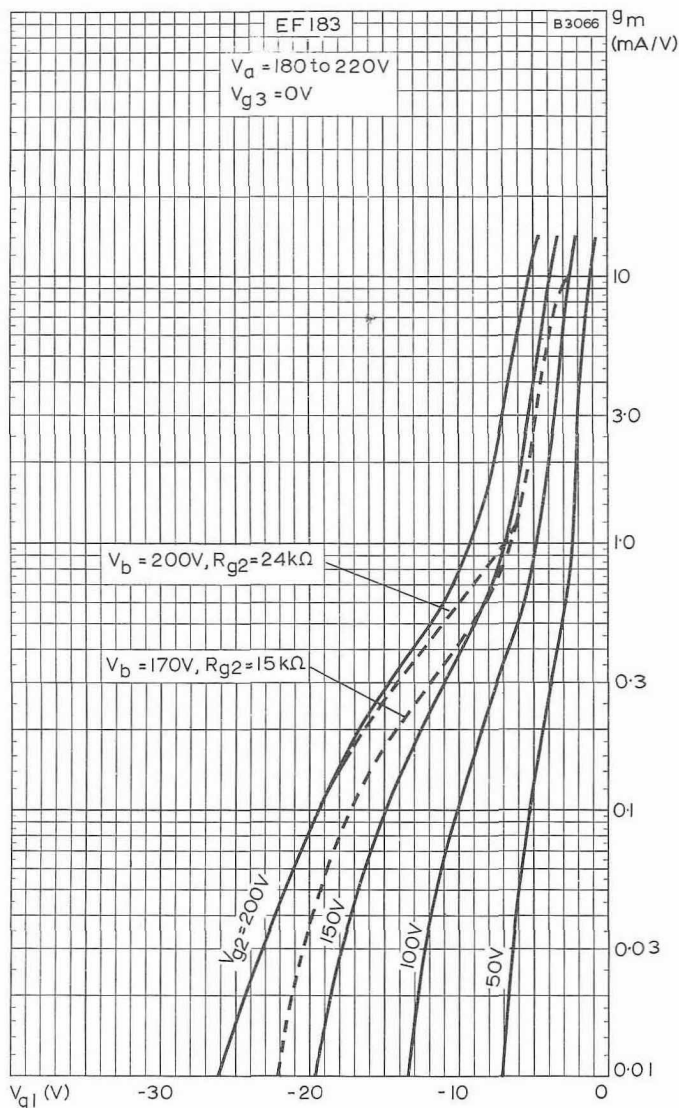
ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE WITH
 SCREEN-GRID VOLTAGE AS PARAMETER AND WITH MUTUAL
 CONDUCTANCE CONTOURS



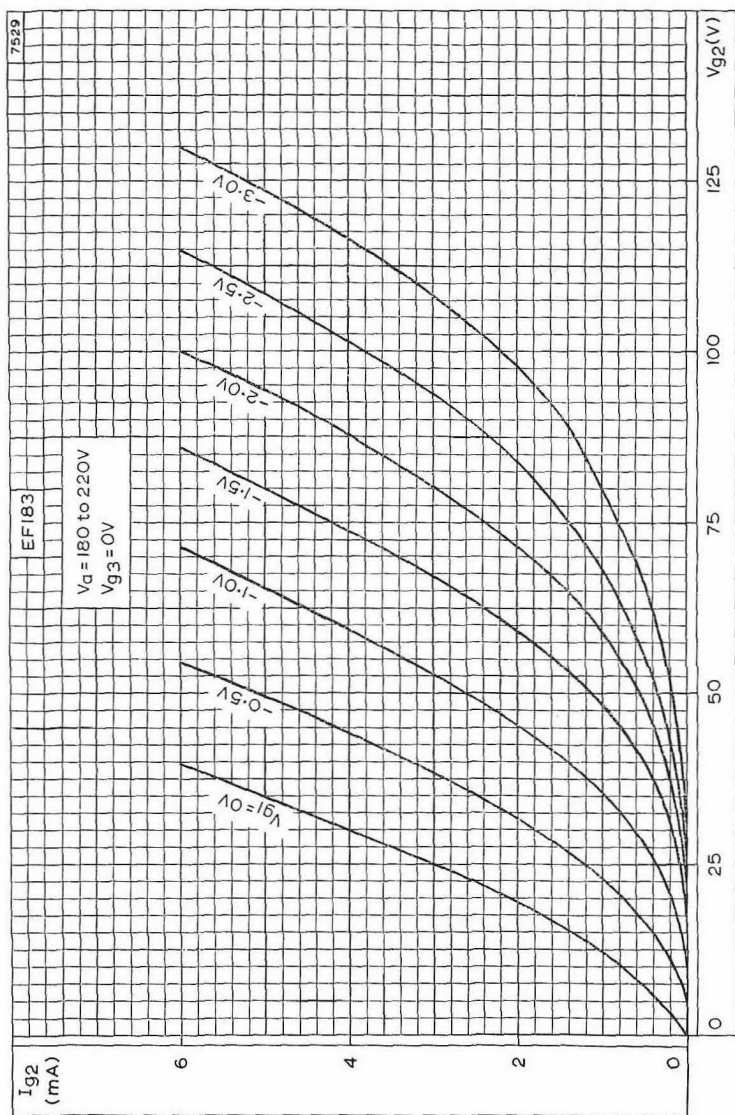
CATHODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE
 WITH SCREEN-GRID VOLTAGE AS PARAMETER



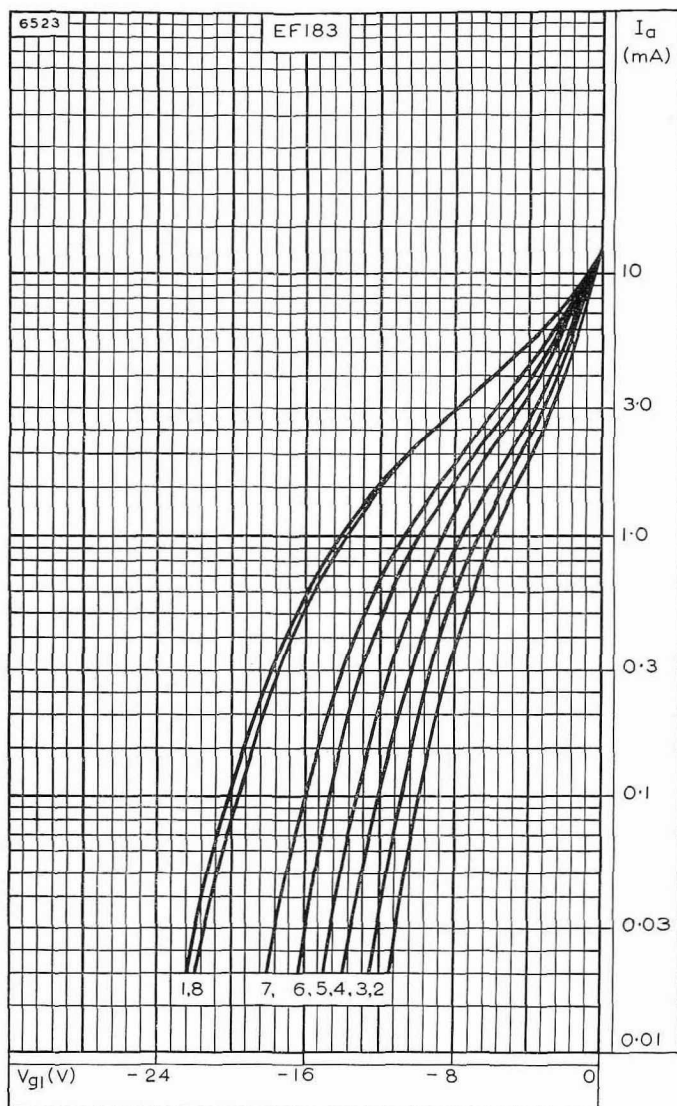
ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE WITH SCREEN-GRID VOLTAGE AS PARAMETER



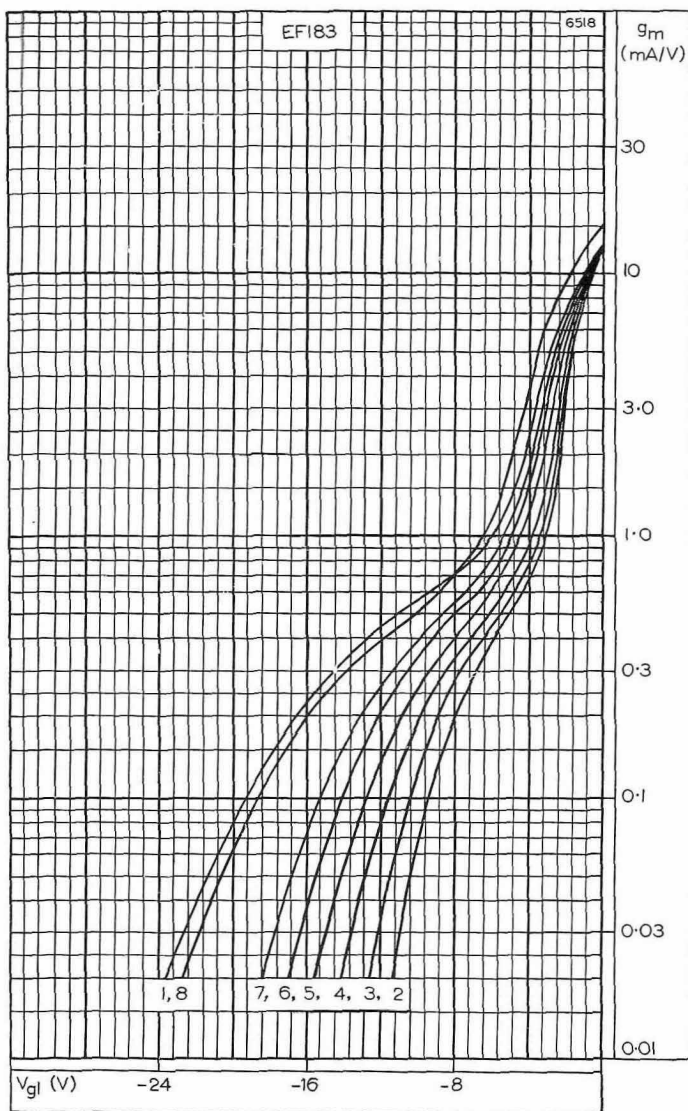
MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE
 WITH SCREEN-GRID VOLTAGE AS PARAMETER



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

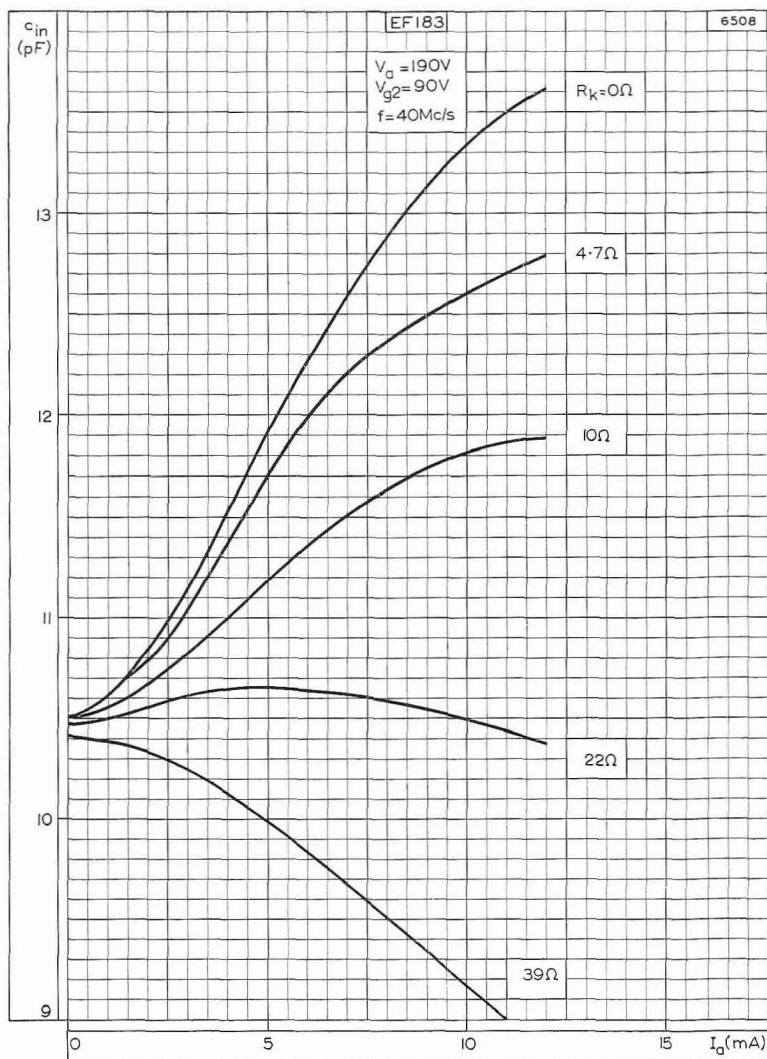


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE.
Curve numbers refer to operating conditions on pages D2, D3

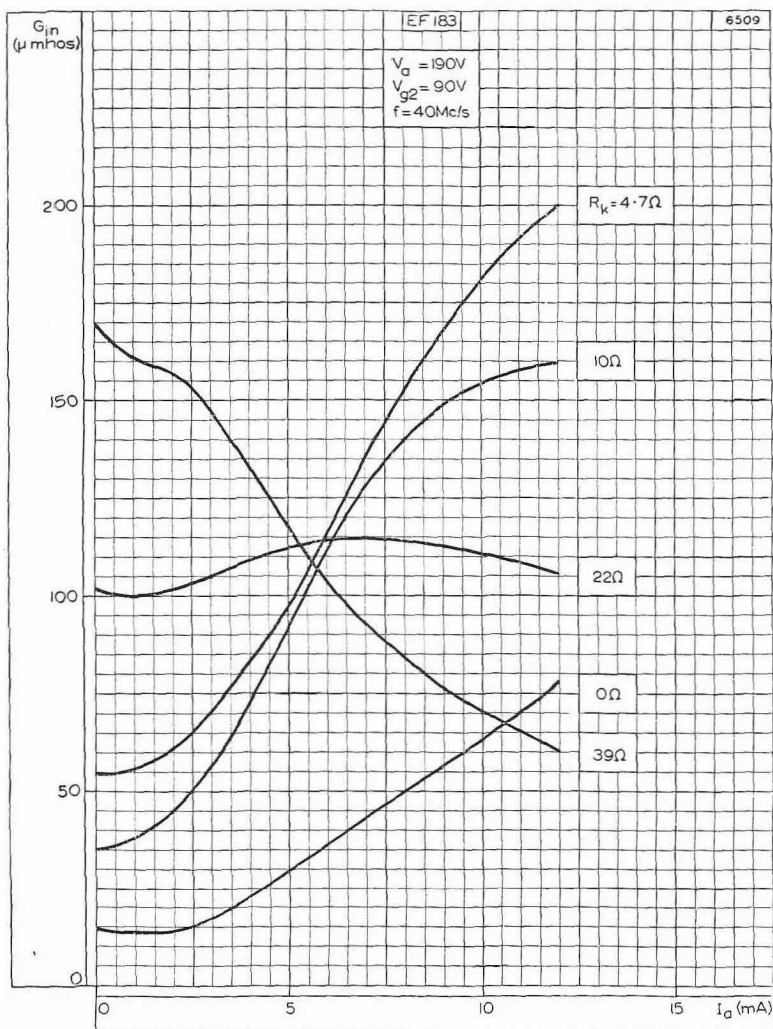


MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE.

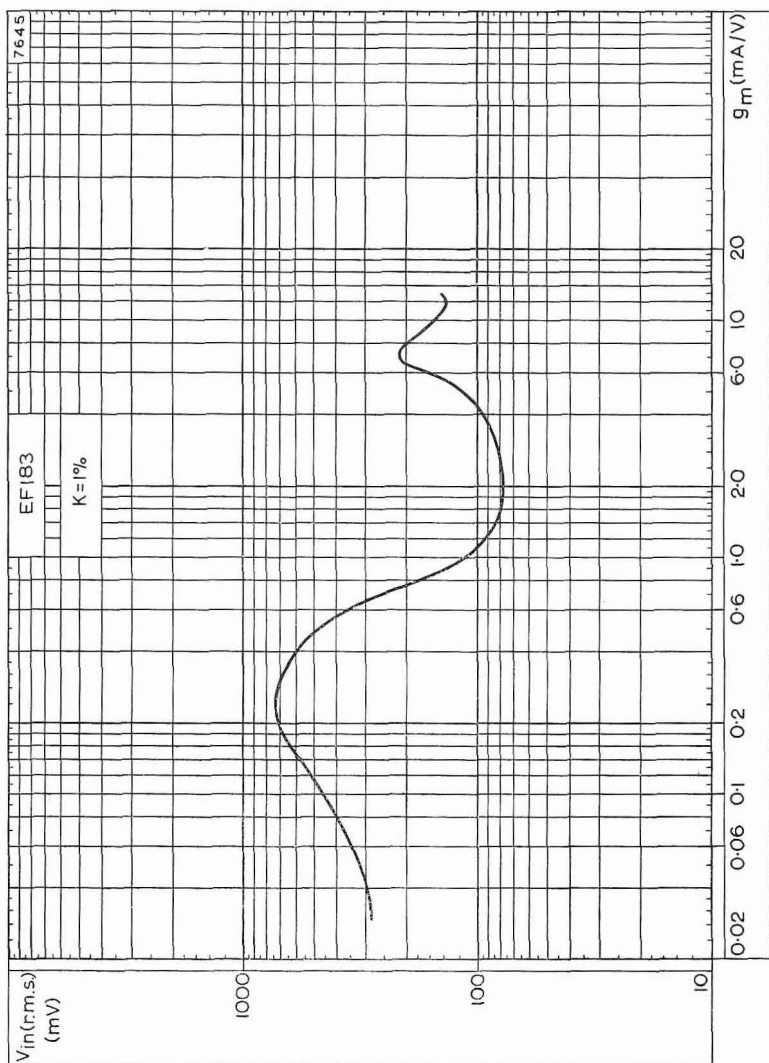
Curve numbers refer to operating conditions on pages D2, D3



INPUT CAPACITANCE PLOTTED AGAINST ANODE CURRENT FOR VARIOUS VALUES OF CATHODE RESISTOR



INPUT CONDUCTANCE PLOTTED AGAINST ANODE CURRENT FOR
 VARIOUS VALUES OF CATHODE RESISTOR



CROSS-MODULATION CURVE