

TETRODE for use as H.F. amplifier and oscillator
 TETRODE pour utilisation en amplificatrice H.F. et en oscillatrice
 TETRODE zur Verwendung als HF-Verstärker und Oszillator

Cooling : radiation/low velocity air flow
 Refroidissement: radiation/léger courant d'air
 Kühlung : Strahlung/schwacher Luftstrom

Filament : thoriated tungsten
 Filament : tungstène thorié
 Heizfaden: thoriertes Wolfram

Heating : direct $V_f = 5 \text{ V}$
 Chauffage: direct $I_f = 14,1 \text{ A}$
 Heizung : direkt

Capacitances $C_a = 4,5 \text{ pF}$
 Capacités $C_{g1} = 12,7 \text{ pF}$
 Kapazitäten $C_{ag1} = 0,12 \text{ pF}$

Typical characteristics
 Caractéristiques types
 Kenndaten

$\mu_{g2g1} = 5,1$
 $S (I_a = 100 \text{ mA}) = 4 \text{ mA/V}$

λ	Freq.	C telegr.		B teleph.		$C_{ag2} \cdot \text{mod.}$		$B_{\text{mod}}^1)$	
m	Mc/s	V_a (V)	W_o (W)	V_a (V)	W_o (W)	V_a (V)	W_o (W)	V_a (V)	W_o (W)
>4	<75	4000	1000	4000	126	3000	510	3000	1240
		3000	800	3000	125	2500	375	2500	1140
		2500	575	2500	125			2000	974
2,5	120	2500	500					1500	660

¹⁾ Two tubes; deux tubes; zwei Röhren

Temperatures and cooling
 Températures et refroidissement
 Temperaturen und Kühlung

Temperature of anode seal
 Température du scellement de l'anode = max. 220 °C
 Temperatur der Anodeneinschmelzung

Temperature of pin seals
 Température des scellements des broches = max. 180 °C
 Temperatur der Stifteneinschmelzungen

Bulb temperature
 Température de l'ampoule = max. 350 °C
 Kolbentemperatur

In order to keep the temperatures below the maximum permitted values a low velocity air flow has to be directed onto the anode seal and the bottom of the envelope.

In order to prevent overheating of the screen-grid pins by high-frequency current it is recommended to include both screen-grid socket connections in the circuit.

Afin de maintenir les températures au-dessous des valeurs maximum admissible, il sera nécessaire de diriger un léger courant d'air vers le scellement de l'anode et vers le fond de l'ampoule.

Il est recommandé d'incorporer les deux bornes de raccordement de la grille-écran dans le circuit pour éviter le surchauffage des broches de la grille-écran par le courant haute fréquence.

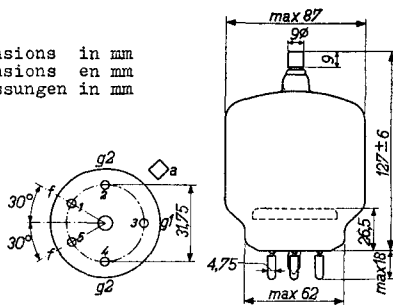
Damit die Temperaturen unterhalb der höchstzulässigen Werte bleiben, soll ein schwacher Luftstrom auf die Anodeneinschmelzung und auf den Boden des Kolbens gerichtet werden.

Es empfiehlt sich, zur Vermeidung einer Überhitzung der Schirmgitterstifte vom Hochfrequenzstrom, beide Anschlussklemmen an der Schaltung zu beteiligen.

Net weight
 Poids net 185 g
 Nettogewicht

Shipping weight
 Poids brut 910 g
 Bruttogewicht

Dimensions in mm
Dimensions en mm
Abmessungen in mm



Base, culot, Sockel: GIANT 5-PIN.

Socket
Support
Fassung

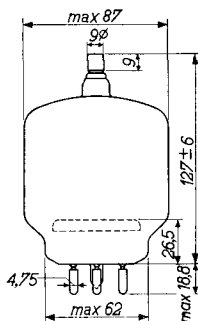
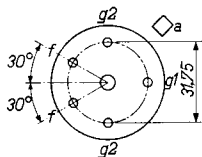
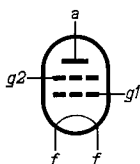
40211/01

Clip
Borne de connexion
Anschlussklemme

40624

Mounting position: vertical with base up or down
Montage : vertical avec le culot en haut ou en bas
Einbau : senkrecht mit dem Sockel oben oder unten

Dimensions in mm
Dimensions en mm
Abmessungen in mm



Base, culot, Sockel: GIANT 5-PIN.

Socket
Support
Fassung

40211/01

Clip
Borne de connexion
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40624

Mounting position: vertical with base up or down
Montage : vertical avec le culot en haut ou en bas
Einbau : senkrecht mit dem Sockel oben oder unten

H.F. class C telegraphy
 H.F. classe C télégraphie
 HF - Klasse C Telegraphie

Limiting values
 Caractéristiques limites
 Grenzdaten

f	= max.	75 Mc/s		
V_a	= max.	4000 V	f	= max. 100 Mc/s
W_{ia}	= max.	1250 W	V_a	= max. 3300 V
W_a	= max.	250 W	W_{ia}	= max. 1000 W
I_a	= max.	350 mA		
V_{g2}	= max.	600 V		
W_{g2}	= max.	35 W	f	= max. 120 Mc/s
$-V_{g1}$	= max.	500 V	V_a	= max. 2500 V
I_{g1}	= max.	20 mA	W_{ia}	= max. 750 W

Operating conditions
 Caractéristiques d'utilisation
 Betriebsdaten

f	=	75	75	75 Mc/s
V_a	=	4000	3000	2500 V
V_{g2}	=	500	500	500 V
V_{g1}	=	-225	-180	-150 V
I_a	=	312	345	300 mA
I_{g2}	=	45	60	60 mA
I_{g1}	=	9	10	9 mA
V_{g1p}	=	303	265	220 V
W_{ig1}	=	2,5	2,4	1,8 W
W_{g2}	=	22,5	30	30 W
W_{ia}	=	1248	1035	750 W
W_a	=	246	235	175 W
W_o	=	1000	800	575 W
η	=	80	77	77 %

H.F. class C telegraphy
H.F. classe C télégraphie
HF - Klasse C Telegraphie

Limiting values
Caractéristiques limites
Grenzdaten

f = max. 75 Mc/s

V_a = max. 4000 V

W_{ia} = max. 1250 W

W_a = max. 250 W

I_a = max. 350 mA

V_{g2} = max. 600 V

W_{g2} = max. 35 W

$-V_{g1}$ = max. 500 V

I_{g1} = max. 20 mA

f = max. 100 Mc/s

V_a = max. 3300 V

W_{ia} = max. 1000 W

f = max. 120 Mc/s

V_a = max. 2500 V

W_{ia} = max. 750 W

Operating conditions
Caractéristiques d'utilisation
Betriebsdaten

f	=	75	75	75 Mc/s
V_a	=	4000	3000	2500 V
V_{g2}	=	500	500	500 V
V_{g1}	=	-225	-180	-150 V
I_a	=	312	345	300 mA
I_{g2}	=	45	60	60 mA
I_{g1}	=	9	10	9 mA
V_{g1p}	=	303	265	220 V
W_{ig1}	=	2,5	2,4	1,8 W
W_{g2}	=	22,5	30	30 W
W_{ia}	=	1248	1035	750 W
W_a	=	248	235	175 W
W_o	=	1000	800	575 W
η	=	80	77	77 %

H.F. class B telephony
H.F. classe B téléphonie
HF Klasse B Telephonie

Limiting values
Caractéristiques limites
Grenzdaten

f = max. 75 Mc/s	f = max. 100 Mc/s
V_a = max. 4000 V	V_a = max. 3300 V
W_{ia} = max. 400 W	W_{ia} = max. 320 W
W_a = max. 250 W	
I_a = max. 250 mA	f = max. 120 Mc/s
V_{g2} = max. 600 V	V_a = max. 2500 V
W_{g2} = max. 23 W	W_{ia} = max. 240 W

Operating conditions
Caractéristiques d'utilisation
Betriebsdaten

f = 75	75	75 Mc/s
V_a = 4000	3000	2500 V
V_{g2} = 500	500	500 V
V_{g1} = -100	-90	-84 V
I_a = 94	125	150 mA
I_{g2} = 0	0	0 mA
V_{g1p} = 55,5	61	66 V
W_{ia} = 376	375	375 W
W_a = 250	250	250 W
W_o = 126	125	125 W
η = 33,5	33	33 %
m = 100	100	100 %
I_{g1} = 0,5	2	5,5 mA
W_{ig1} = 0,06	0,25	0,75 W
W_{g2} = 4	3,8	6 W

H.F. class C anode and screen grid modulation
 H.F. classe C modulation d'anode et de grille-écran
 HF Klasse C Anoden- und Schirmgittermodulation

Limiting values
 Caractéristiques limites
 Grenzdaten

f	= max.	75 Mc/s		
V_a	= max.	3200 V	f	= max. 100 Mc/s
W_{ia}	= max.	825 W	V_a	= max. 2600 V
W_a	= max.	165 W	W_{ia}	= max. 660 W
I_a	= max.	275 mA		
V_{g2}	= max.	600 V		
W_{g2}	= max.	35 W	f	= max. 120 Mc/s
$-V_{g1}$	= max.	500 V	V_a	= max. 2000 V
I_{g1}	= max.	20 mA	W_{ia}	= max. 500 W

Operating conditions
 Caractéristiques d'utilisation
 Betriebsdaten

f	=	75	75 Mc/s
V_a	=	3000	2500 V
V_{g2}	=	400	400 V
V_{g1}	=	-310	-200 V
I_a	=	225	200 mA
I_{g2}	=	30	30 mA
I_{g1}	=	9	9 mA
V_{g1p}	=	400	280 V
W_{ig1}	=	3,3	2,3 W
W_{g2}	=	12	12 W
W_{ia}	=	675	500 W
W_a	=	165	125 W
W_o	=	510	375 W
η	=	75,5	75 %
m	=	100	100 %
V_{g2p}	=	350	350 V
W_{mod}	=	344	256 W

¹⁾ V_{g2} = max. 1000 V, when the temperature of the pinseals is max. 120 °C
 V_{g2} = max. 1000 V, si la température des scellements des broches est de 120°C aux max.
 V_{g2} = max. 1000 V, wenn die Temperatur der Stiftendurchführungen max. 120°C ist.

H.F. class B amplifier, single side band
 Amplificatrice H.F. classe B à une bande latérale
 HF Einseitenbandverstärker, Klasse B

Limiting values

Caractéristiques limites

Grenzdaten

 $f_{max} = 30 \text{ Mc/s}$
 $V_a = \text{max. } 4 \text{ kV}$
 $I_a = \text{max. } 350 \text{ mA}$
 $W_{1a} = \text{max. } 1250 \text{ W}$
 $W_{ap} = \text{max. } 275 \text{ W}^1)$
 $W_a = \text{max. } 250 \text{ W}$
 $T_{av} = \text{max. } 5 \text{ sec}$
 $V_{g2} = \text{max. } 600 \text{ V}$
 $W_{g2} = \text{max. } 35 \text{ W}$
 $R_{g1} = \text{max. } 250 \text{ k}\Omega$
Operating conditions

Caractéristiques d'utilisation

Betriebsdaten

f	=	30		30	Mc/s
V_a	=	4		3,5	kV
V_{g1}	=	-105		-110	V
V_{g2}	=	550		600	V
V_{g1p}	=	0	105	0	110 V
I_a	=	50	182	50	207 mA
I_{g1}	=	0	0	0	0 mA
I_{g2}	=	0	9	0	12 mA
W_{1g1}	=	0	0	0	0 W
W_{g2}	=	0	5	0	7,2 W
W_{1a}	=	200	730	175	725 W
W_a	=	200	220	175	235 W
W_o	=	-	510	-	490 W
η	=	-	69	-	67 %

f	=	30	30	30	30	Mc/s				
V_a	=	4	3,5	3	2,5	kV				
V_{g1}	=	-105	-98	-94	-91	V				
V_{g2}	=	500	500	500	500	V				
V_{g1p}	=	0	105	0	98	0	94	0	91	V
I_a	=	50	164	50	164	50	164	50	164	mA
I_{g1}	=	0	0	0	0	0	0	0	0	mA
I_{g2}	=	0	8	0	9	0	10	0	10,5	mA
W_{1g1}	=	0	0	0	0	0	0	0	0	W
W_{g2}	=	0	4	0	4,5	0	5	0	5,3	W
W_{1a}	=	200	660	175	575	150	490	125	410	W
W_a	=	200	200	175	175	150	157	125	140	W
W_o	=	-	460	-	400	-	333	-	270	W
η	=	-	70	-	69	-	68	-	66	%

¹⁾ Max. value during a modulation cycle

Valeur max. pendant un cycle de modulation

Max. Wert während eines Modulationszyklus

L.F. class B amplifier and modulator. $I_{g1} > 0$
 Amplificatrice et modulatrice B.F. classe B. $I_{g1} > 0$
 NF-Verstärker und Modulator Klasse B. $I_{g1} > 0$

Limiting values. See page 9
 Caractéristiques limites. Voir page 9
 Grenzdaten. Siehe Seite 9

Operating conditions, two tubes
 Caractéristiques d'utilisation, deux tubes
 Betriebsdaten, zwei Röhren

V_a	=	3000		2500	V
V_{g2}	=	300		300	V
V_{g1}	=	-55		-51	V
R_{aa}	=	14		9,2	k Ω
V_{g1g1p}	=	0	280	0	306 V
I_a	=	2x50	2x275	2x50	2x312 mA
I_{g2}	=	0	2x34,5	0	2x44 mA
I_{g1}	=	0	2x15	0	2x21 mA
W_{ig1}	=	0	2x1,9	0	2x2,9 W
W_{g2}	=	0	2x10,5	0	2x13 W
W_{ia}	=	2x150	2x825	2x125	2x780 W
W_a	=	2x150	2x205	2x125	2x210 W
W_o	=	0	1240	0	1140 W
$\dot{d}_{tot}$	=	-	5	-	5 %
η	=	-	75	-	73 %

V_a	=	2000		1500	V
V_{g2}	=	300		300	V
V_{g1}	=	-49		-45	V
R_{aa}	=	6,6		4,55	k Ω
V_{g1g1p}	=	0	328	0	323 V
I_a	=	2x50	2x347	2x50	2x347 mA
I_{g2}	=	0	2x55	0	2x58 mA
I_{g1}	=	0	2x27	0	2x28 mA
W_{ig1}	=	0	2x4	0	2x4 W
W_{g2}	=	0	2x16,5	0	2x17,5 W
W_{ia}	=	2x100	2x694	2x75	2x520 W
W_a	=	2x100	2x207	2x75	2x190 W
W_o	=	0	974	0	660 W
$\dot{d}_{tot}$	=	-	5	-	5 %
η	=	-	70	-	63,5 %

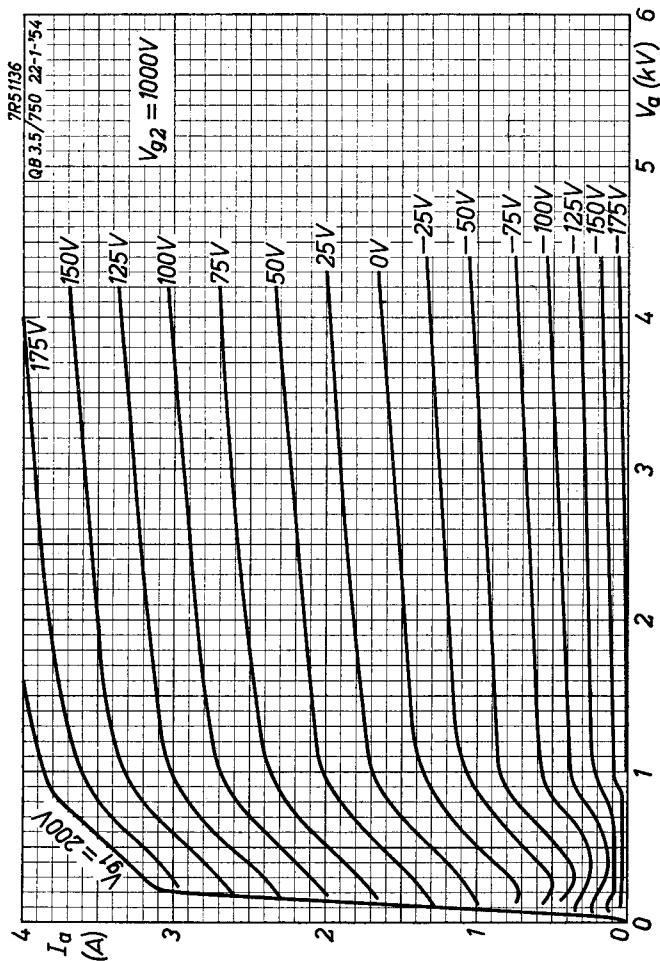
L.F. class B amplifier and modulator. $I_{g1} = 0$
 Amplificatrice et modulatrice B.F. classe B. $I_{g1} = 0$
 NF-Verstärker und Modulator Klasse B. $I_{g1} = 0$

Limiting values	I_a	= max. 350 mA ¹⁾
Caractéristiques limites	V_{g2}	= max. 600 V
Grenzdaten	W_{g2}	= max. 35 W
	$-V_{g1}$	= max. 500 V
V_a = max. 4000 V	I_{g1}	= max. 30 mA
W_a = max. 250 W	R_{g1}	= max. 250 kΩ

Operating conditions, two tubes
 Caractéristiques d'utilisation, deux tubes
 Betriebsdaten, zwei Röhren

V_a	=	3000		2500	V
V_{g2}	=	500		500	V
V_{g1}	=	-94		-91	V
R_{aa}	=	22		18	kΩ
V_{g1g1p}	=	0	184	0	178 V
I_a	=	2x50	2x155	2x50	2x155 mA
I_{g2}	=	0	2x10	0	2x10,5 mA
W_{g2}	=	0	2x5	0	2x5,3 W
W_{ia}	=	2x150	2x465	2x125	2x387 W
W_a	=	2x150	2x147	2x125	2x132 W
W_o	=	0	635	0	510 W
d_{tot}	=	-	2,8	-	2,6 %
η	=	-	68	-	66 %
V_a	=	2000		1500	V
V_{g2}	=	500		500	V
V_{g1}	=	-88		-85	V
R_{aa}	=	14,5		10	kΩ
V_{g1g1p}	=	0	173	0	167 V
I_a	=	2x50	2x150	2x50	2x150 mA
I_{g2}	=	0	2x14,5	0	2x15,5 mA
W_{g2}	=	0	2x7,3	0	2x7,8 W
W_{ia}	=	2x100	2x300	2x75	2x225 W
W_a	=	2x100	2x105	2x75	2x91 W
W_o	=	0	390	0	268 W
d_{tot}	=	-	3,2	-	3 %
η	=	-	65	-	60 %

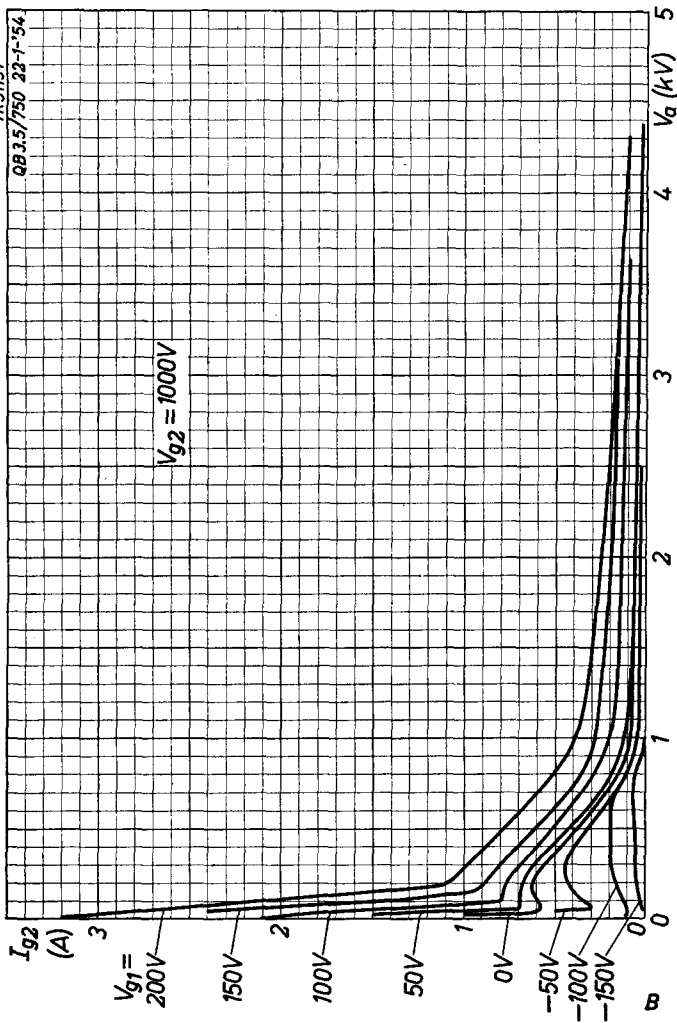
¹⁾ See page 6; voir page 6; siehe Seite 6

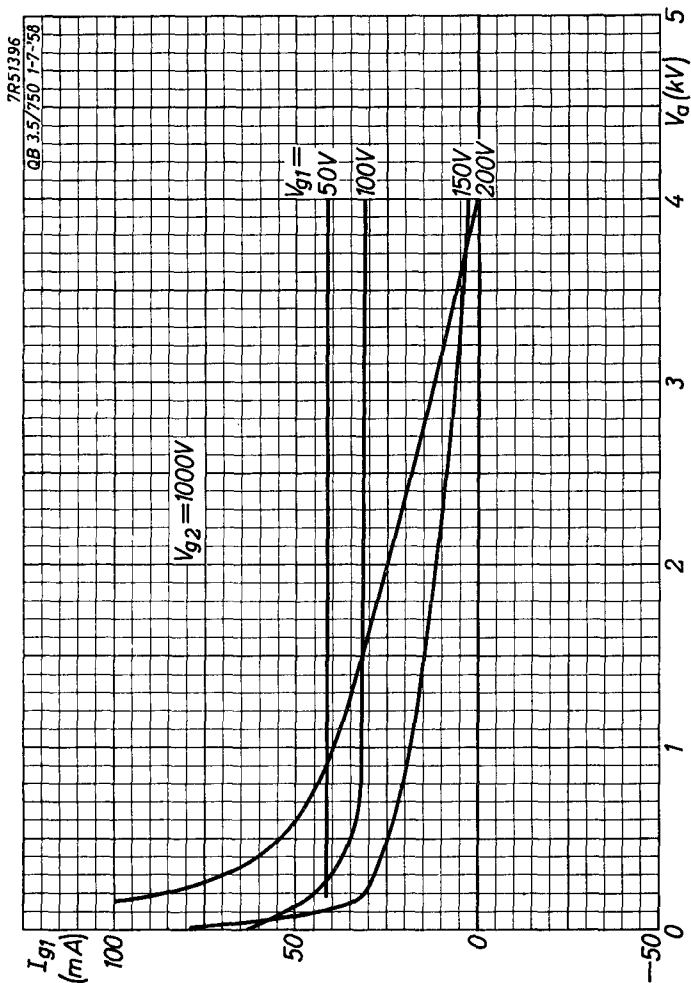


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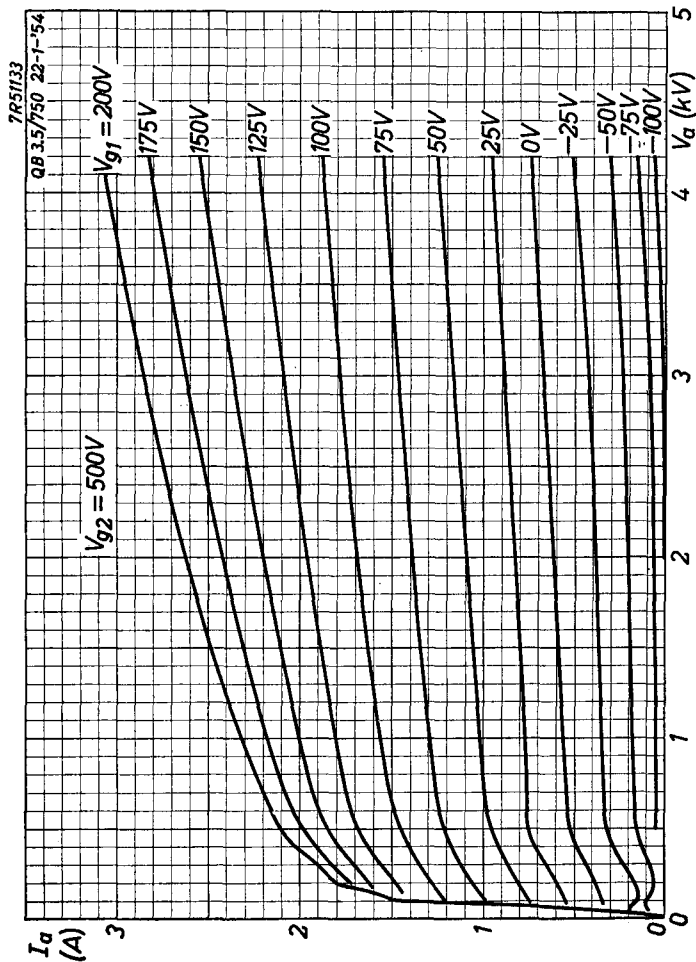
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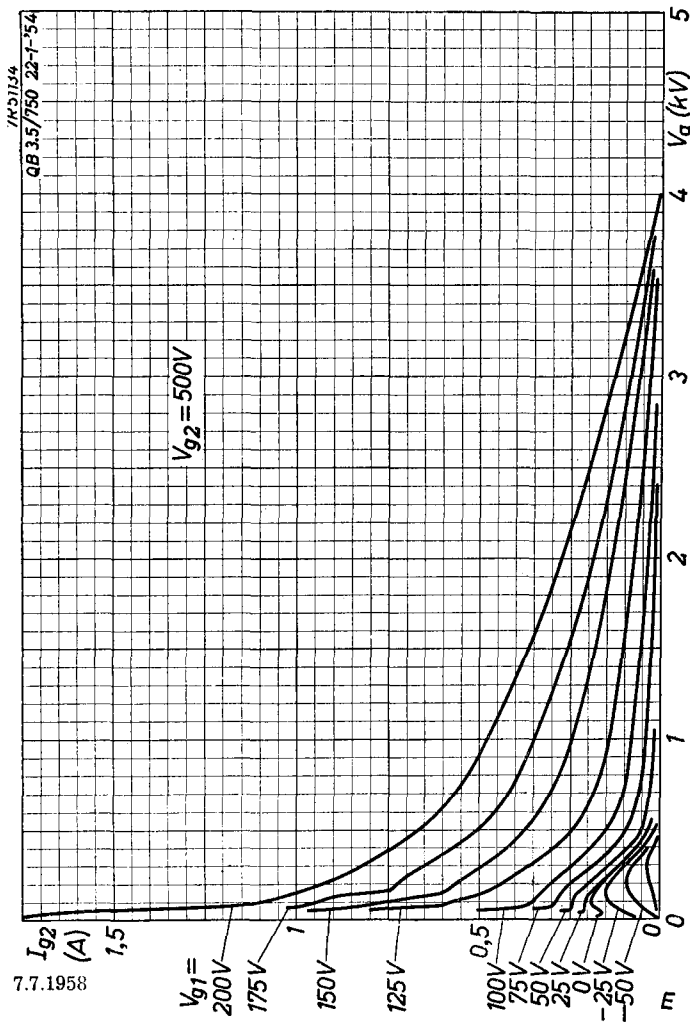




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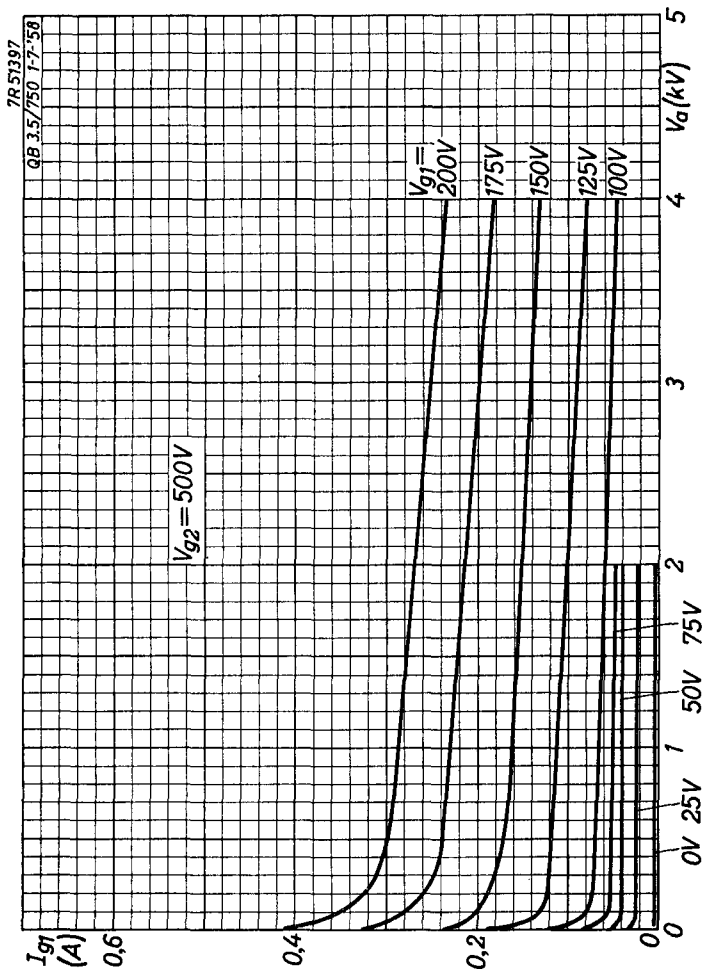
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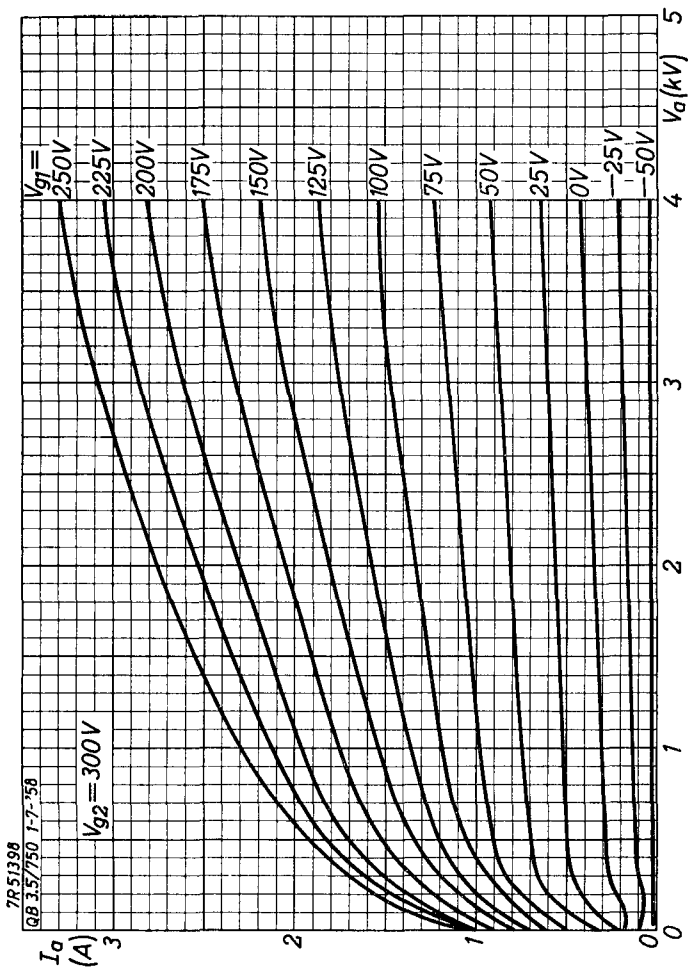




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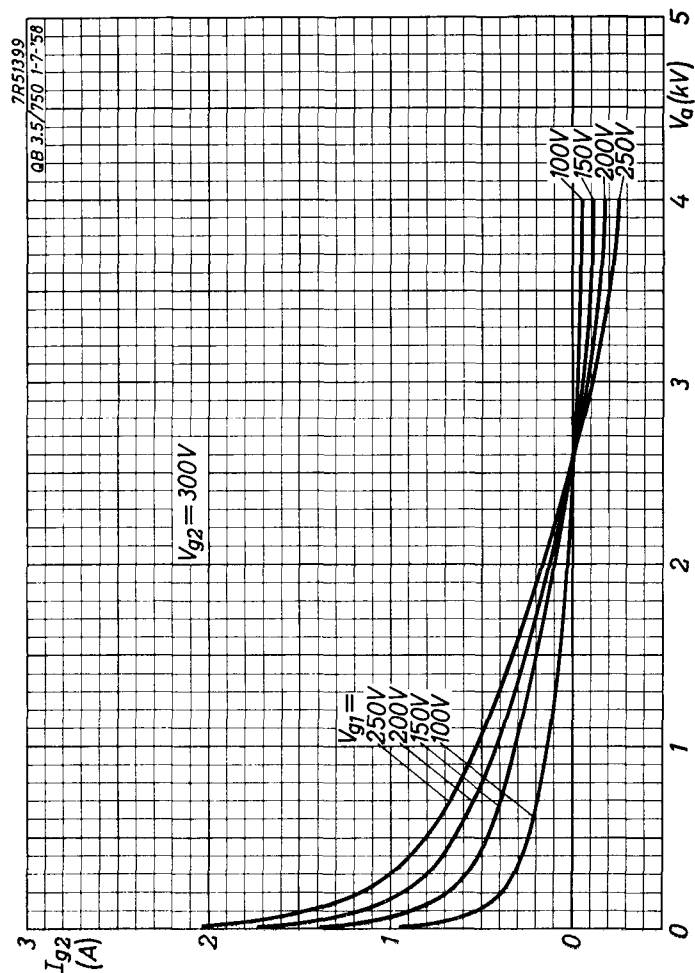
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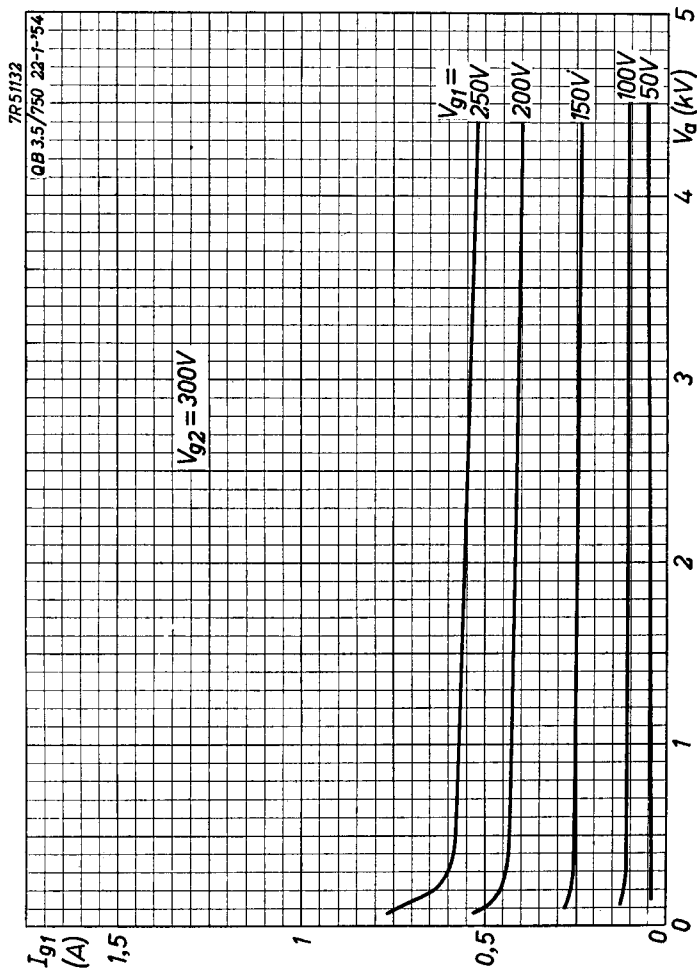




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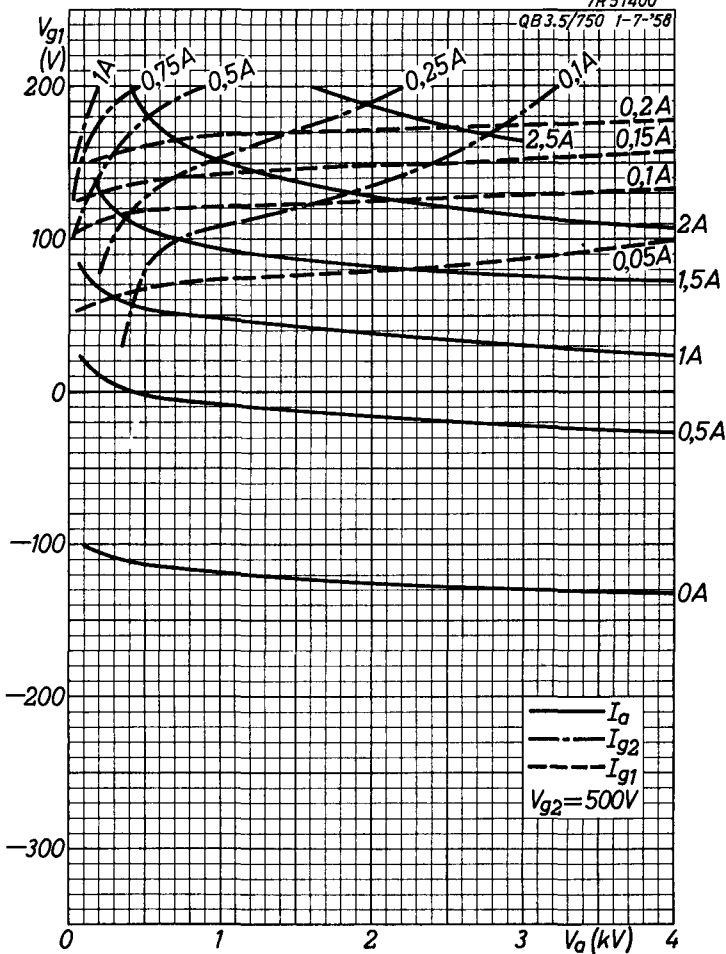


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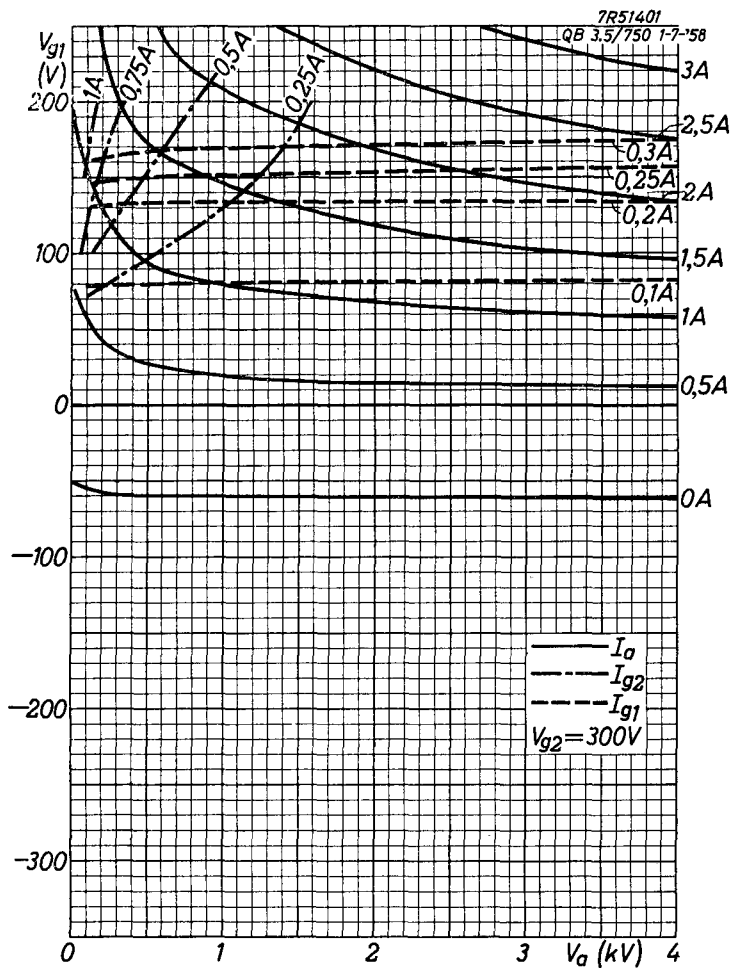
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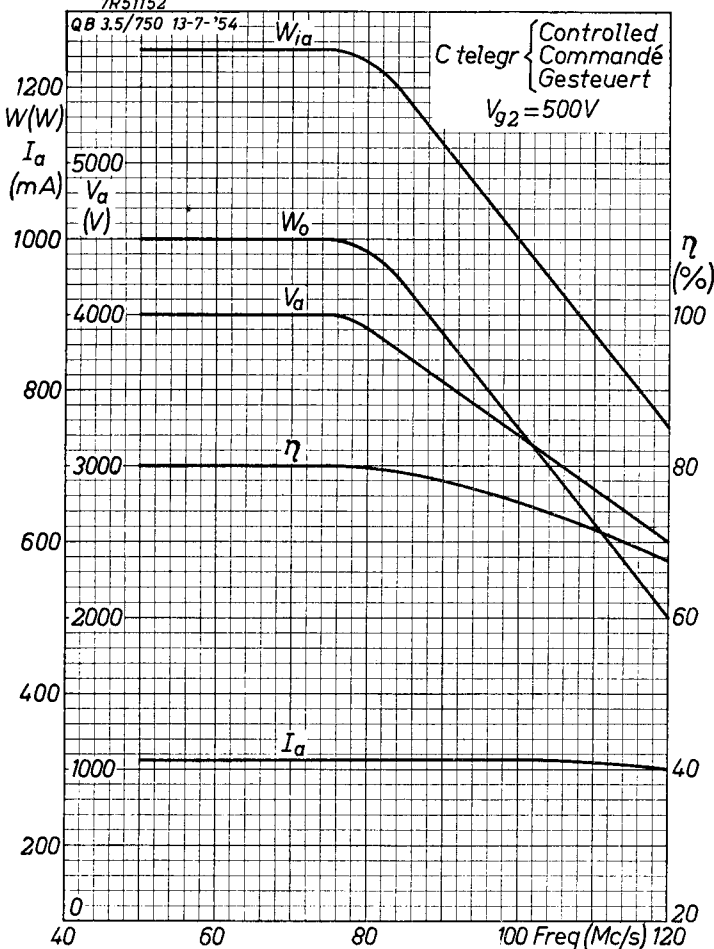
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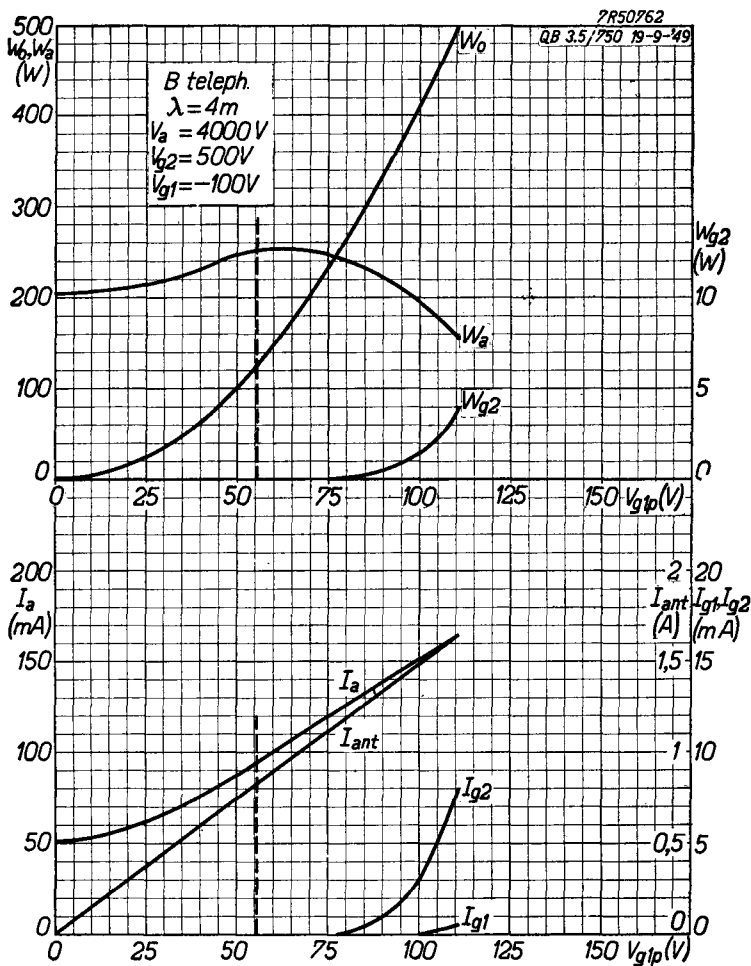
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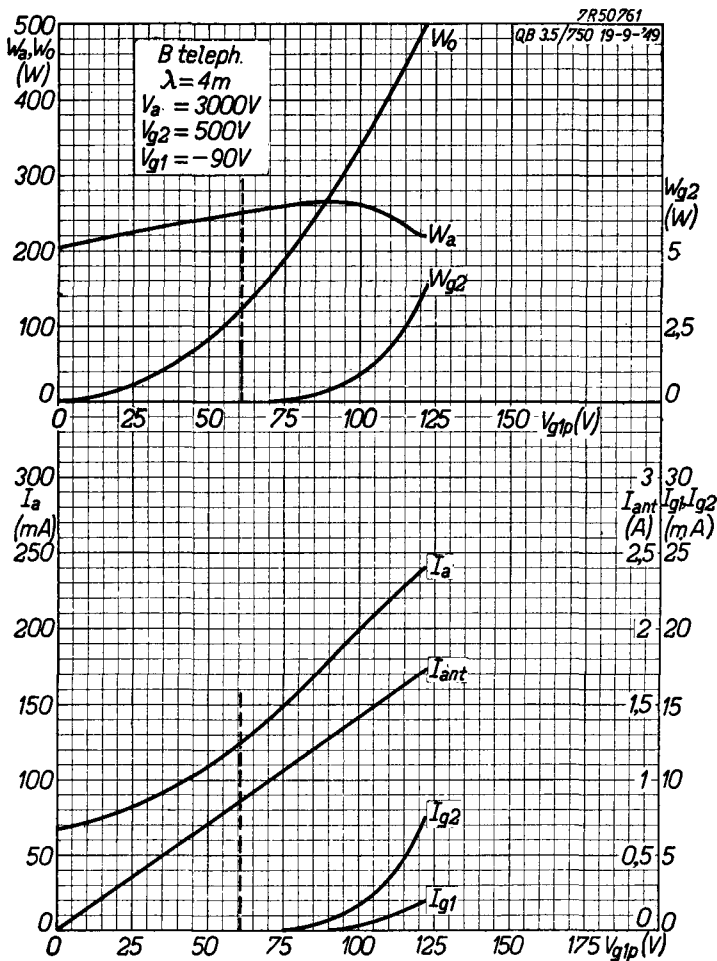
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 $V_{g2}=500V$

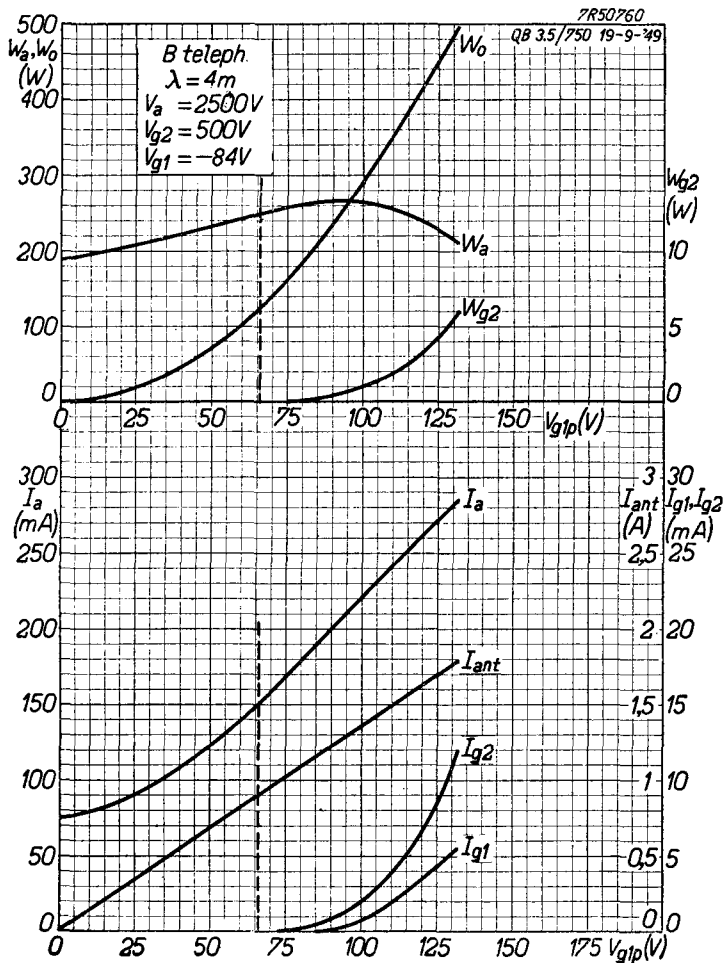




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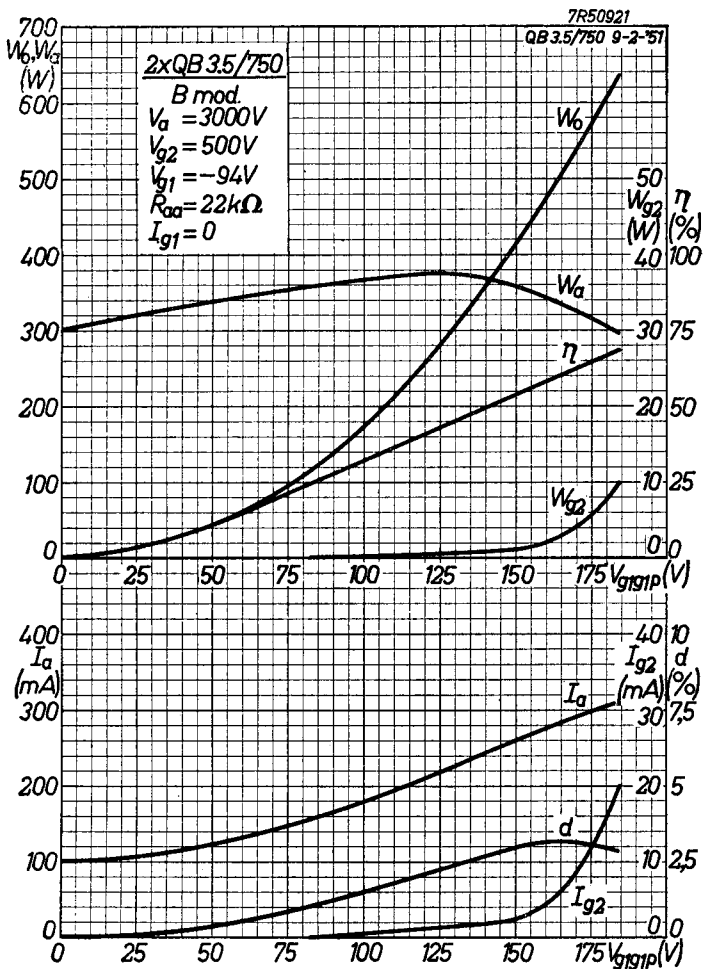
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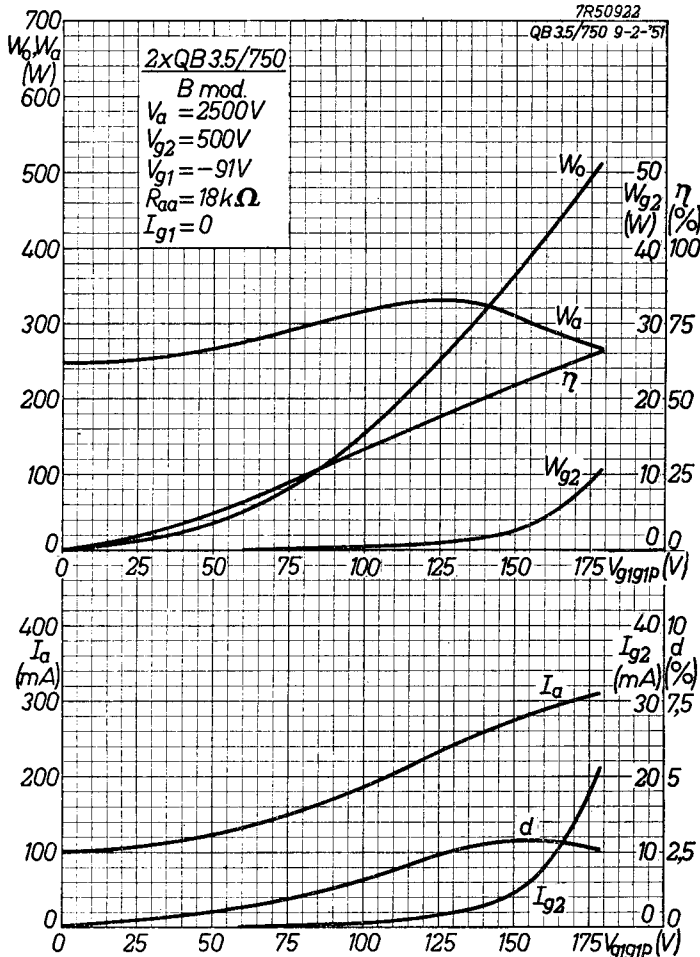
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QB 3.5/750

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2xQB 3.5/750

B_{mod}

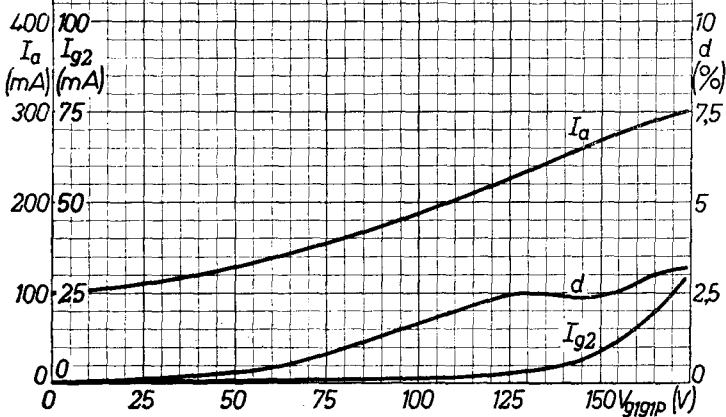
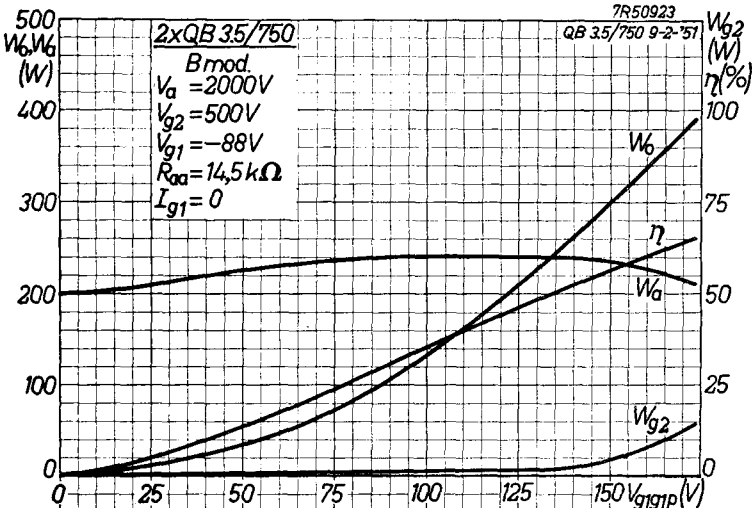
$V_a = 2000V$

$V_{g2} = 500V$

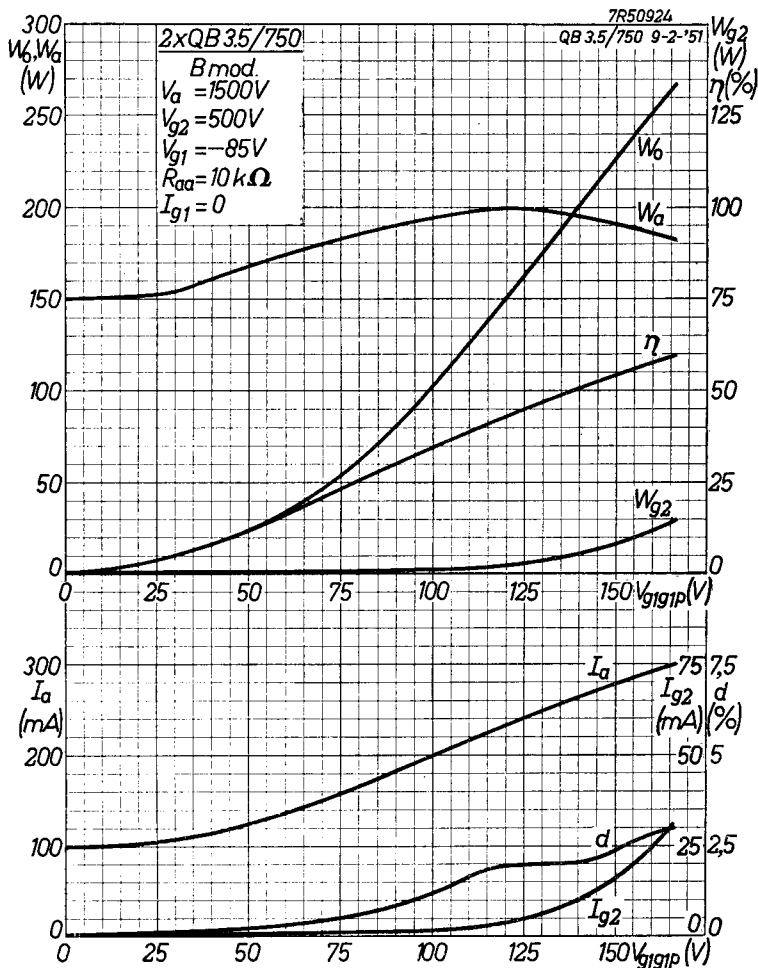
$V_{g1} = -88V$

$R_{aa} = 14,5 k\Omega$

$I_{g1} = 0$

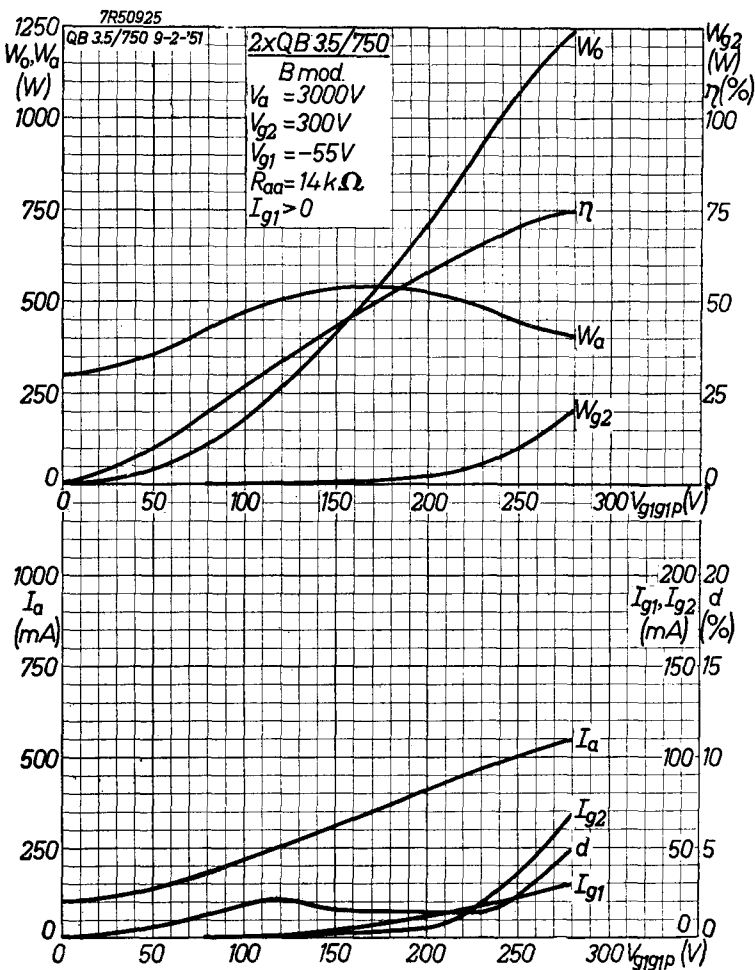


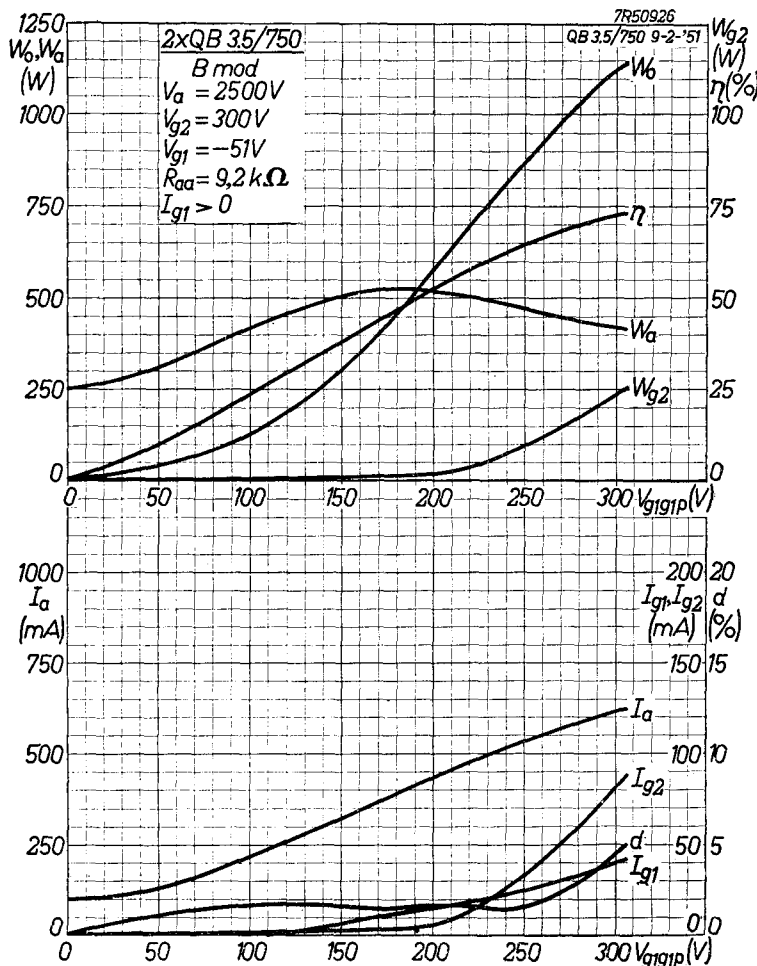
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QB 3.5/750

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QB 3.5/750 9-2-51

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B mod.

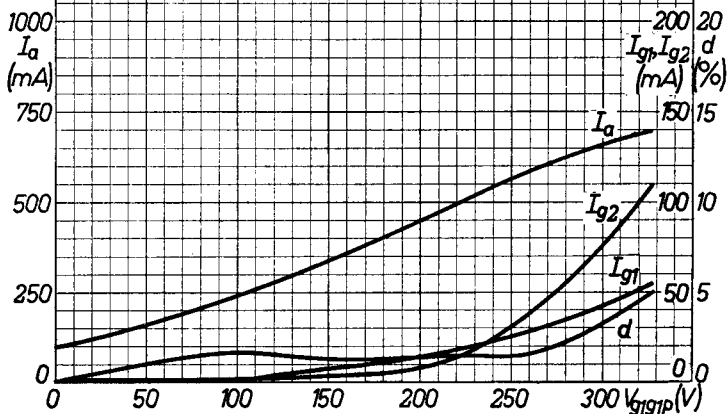
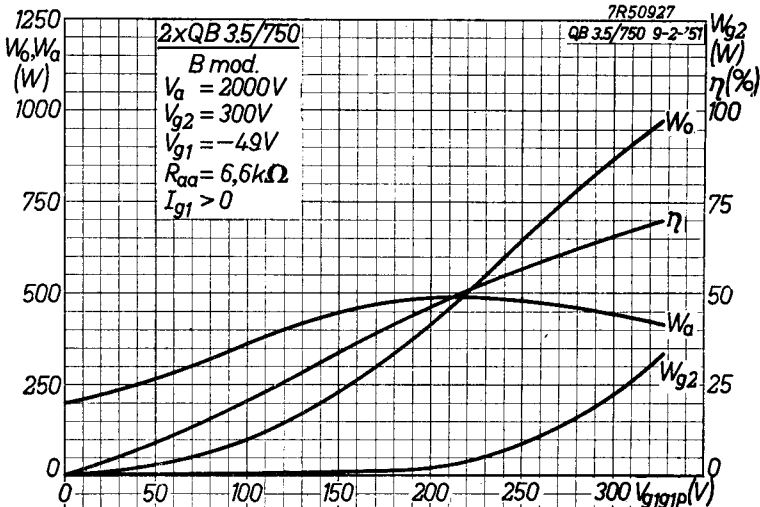
$V_a = 2000V$

$V_{g2} = 300V$

$V_{g1} = -49V$

$R_{aa} = 6,6k\Omega$

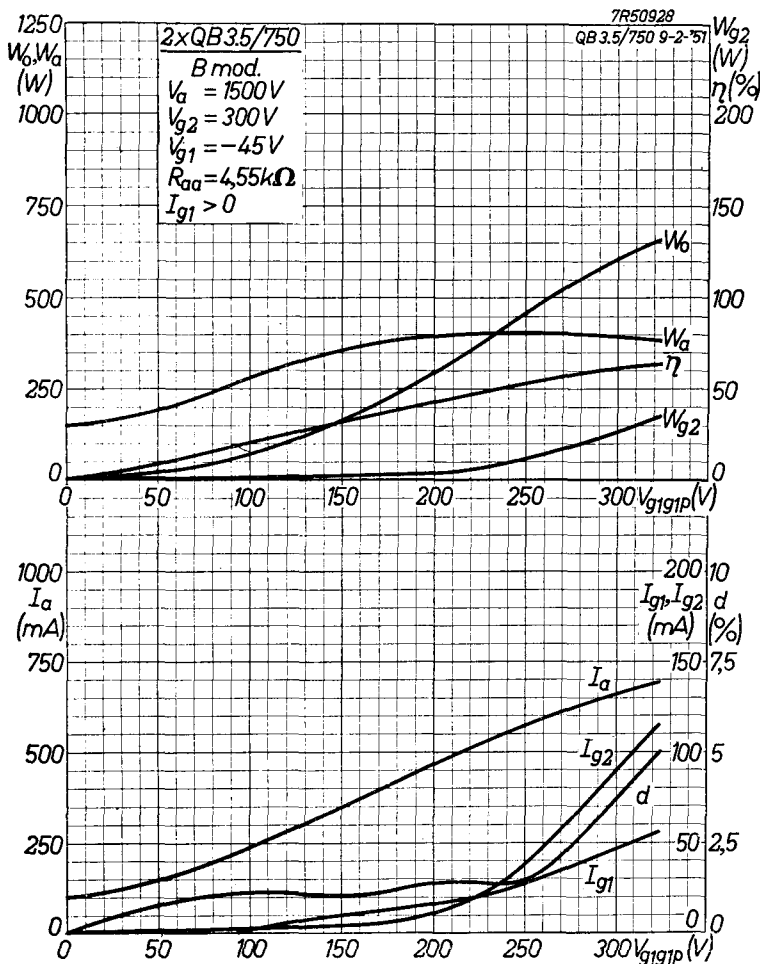
$I_{g1} > 0$



V

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7.7.1954

W



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1	1	1954.07.07
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4	3	1960.09.09
5	4	1954.07.07
6	4	1960.09.09
7	5	1954.07.07
8	6	1954.07.07
9	7	1957.03.03
10	8	1957.03.03
11	9	1956.01.01
12	A	1954.07.07
13	B	1954.07.07
14	C	1958.07.07
15	D	1958.07.07
16	E	1958.07.07
17	F	1958.07.07
18	G	1958.07.07
19	H	1958.07.07

20	I	1958.07.07
21	J	1958.07.07
22	K	1958.07.07
23	L	1958.07.07
24	M	1954.07.07
25	N	1954.07.07
26	O	1954.07.07
27	P	1954.07.07
28	Q	1954.07.07
29	R	1954.07.07
30	S	1954.07.07
31	T	1954.07.07
32	U	1954.07.07
33	V	1954.07.07
34	W	1954.07.07
35, 36	FP	2000.01.15