R.F. DOUBLE TRIODE

Double triode intended for use as R.F. and A.F. amplifier and self oscillating mixer.

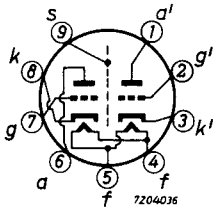
QUICK REFERENCE DATA (each unit)			
Anode current	I_a	10	mA
Transconductance	S	6.1	mA/V
Amplification factor	μ	55	-

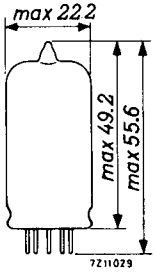
HEATING: Indirect by A.C. or D.C.; parallel supply

Heater voltage	V_f	6.3	V
Heater current	I_f	435	mA

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Noval





CAPACITANCES

Anode to grid	C_{ag}	1.5	pF
	$C_{a'g'}$	1.5	pF
Anode to cathode	C_{ak}	0.17	pF
	$C_{a'k'}$	0.18	pF
Anode to cathode + heater + screen	$C_{a/kfs}$	1.2	pF
	$C_{a'/k'fs}$	1.2	pF
Grid to cathode + heater + screen	$C_{g/kfs}$	3.1	pF
	$C_{g'/k'fs}$	3.1	pF
Anode to cathode + heater + screen with external screen of 22.5 mm diam.	$C_{a/kfs}$	1.8	pF
	$C_{a'/k'fs}$	1.8	pF
Anode to anode	$C_{aa'}$	max. 0.04	pF
Grid to grid	$C_{gg'}$	max. 0.003	pF
Anode to grid other unit	$C_{ag'}$	max. 0.008	pF
Grid to anode other unit	$C_{ga'}$	max. 0.008	pF
Anode to anode with external screen of 22.5 mm diam.	$C_{aa'}$	max. 0.008	pF
Anode to cathode other unit	$C_{ak'}$	max. 0.008	pF
Grid to cathode other unit	$C_{gk'}$	max. 0.003	pF
Cathode to anode other unit	$C_{ka'}$	max. 0.008	pF
Cathode to grid other unit	$C_{kg'}$	max. 0.003	pF

TYPICAL CHARACTERISTICS

Anode voltage	V_a	250	V
Grid voltage	V_g	-2.7	V
Anode current	I_a	10	mA
Transconductance	S	6.1	mA/V
Amplification factor	μ	55	-

REMARK

Microphony

This tube can be used without special precautions against microphony in A.F. applications in which the input voltage $V_i \geq 5$ mV for an output of 50 mW (or 50 mV for an output of 5 W) provided the peak acceleration of the tube is not greater than indicated in the section "Microphony" of the "General Operational Recommendations".

OPERATING CHARACTERISTICS

As R.F. amplifier

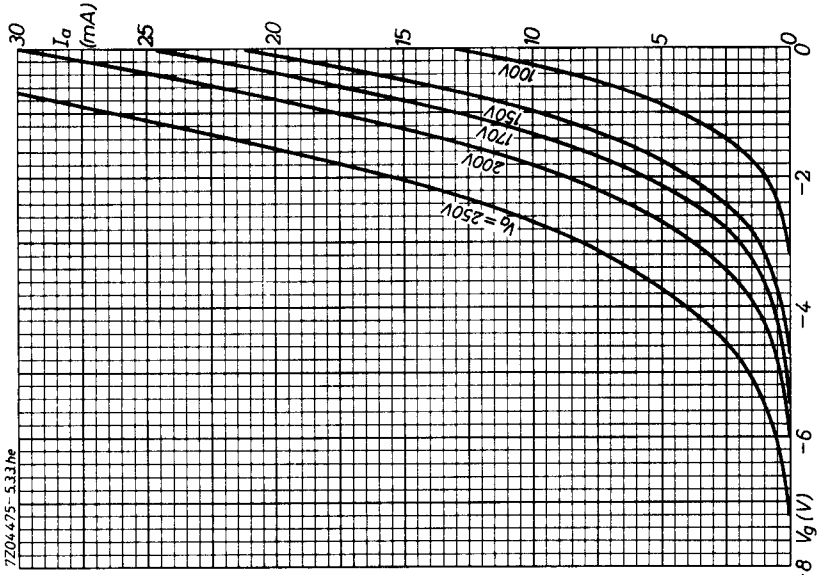
Supply voltage	V_b	250	V
Anode resistor	R_a	1.8	kΩ
Anode voltage	V_a	230	V
Cathode resistor	R_k	200	Ω
Grid voltage	V_g	-2.2	V
Anode current	I_a	10.8	mA
Transconductance	S	6.8	mA/V
Internal resistance	R_i	8.3	kΩ
Grid input resistance (f = 100 MHz)	r_g	4.7	kΩ
Equivalent noise resistance	R_{eq}	580	Ω

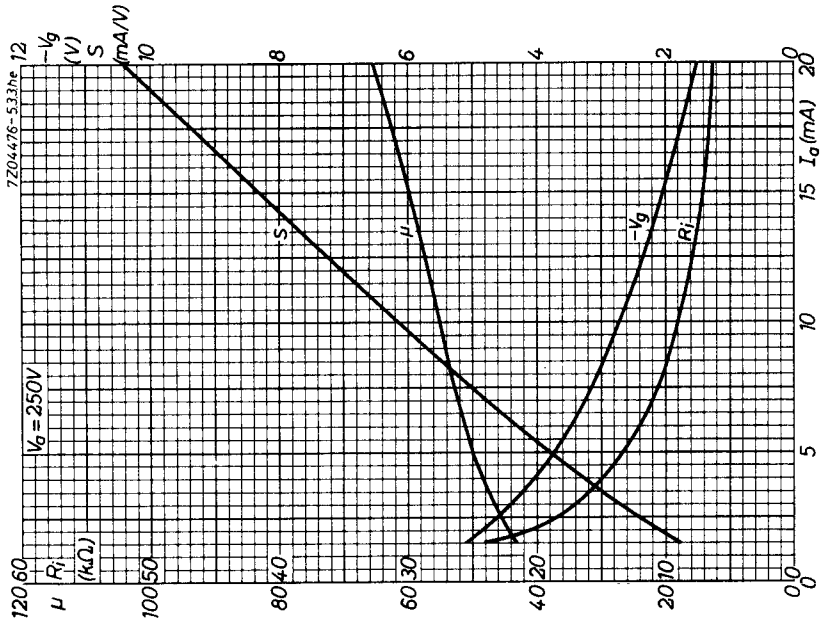
As self-oscillating mixer

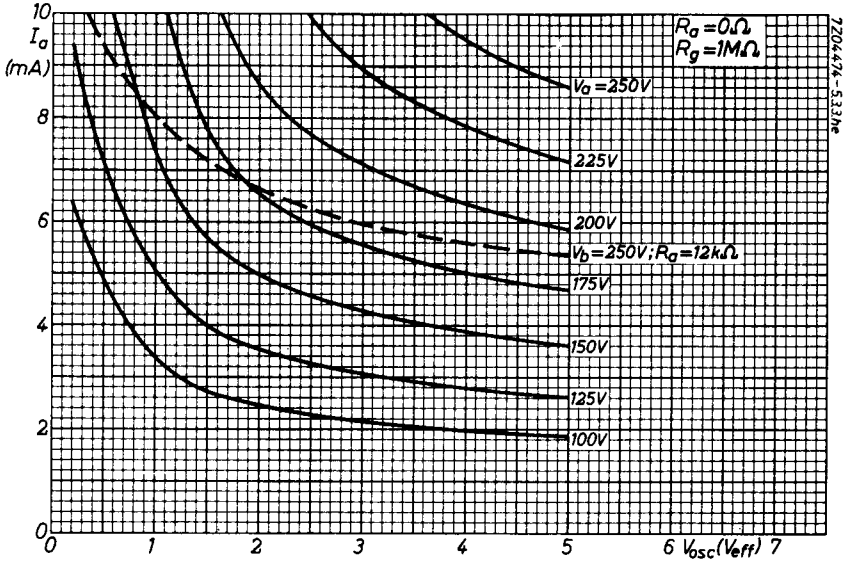
Supply voltage	V_b	250	V
Anode resistor	R_a	12	kΩ
Grid resistor	R_g	1	MΩ
Oscillator voltage	V_{osc}	3.0	V_{RMS}
Anode current	I_a	6	mA
Conversion conductance	S_c	3	mA/V
Internal resistance	R_i	18	kΩ
Grid input resistance (f = 100 MHz)	r_g	15	kΩ

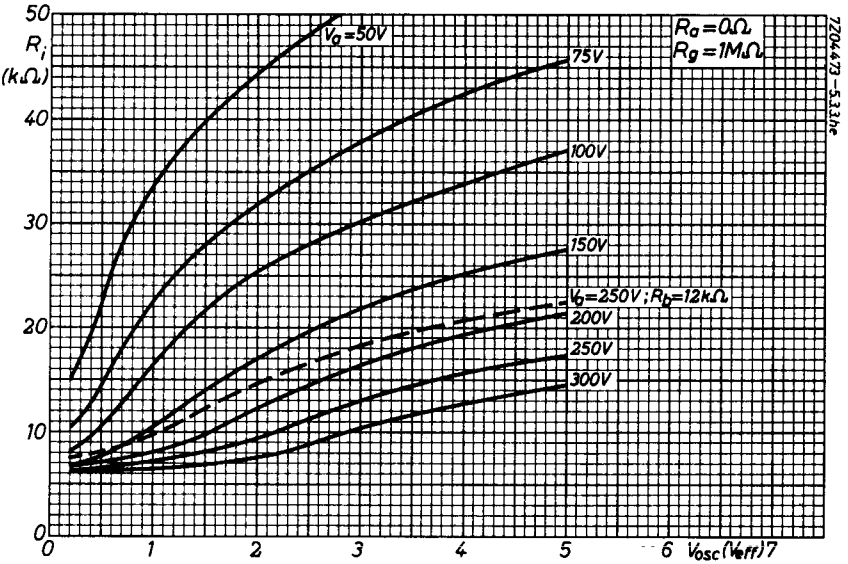
LIMITING VALUES (Design centre rating system) (Each unit unless otherwise stated)

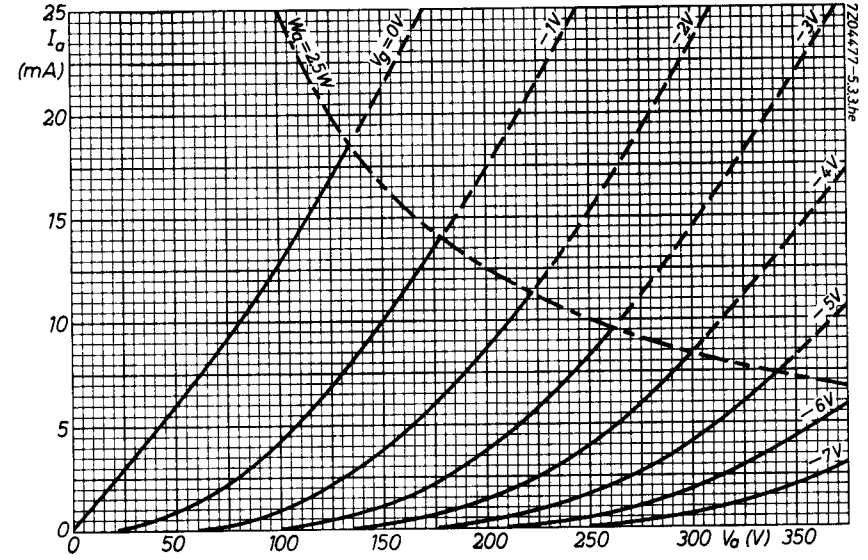
Anode voltage	V_{a_o}	max. 550	V
	V_a	max. 300	V
Anode dissipation	W_a	max. 2.5	W
Anode dissipation, total for both units	$W_a+W_{a'}$	max. 4.5	W
Cathode current	I_k	max. 15	mA
Grid voltage	$-V_g$	max. 100	V
Grid resistor	R_g	max. 1	MΩ
Cathode to heater voltage	V_{kf}	max. 90	V

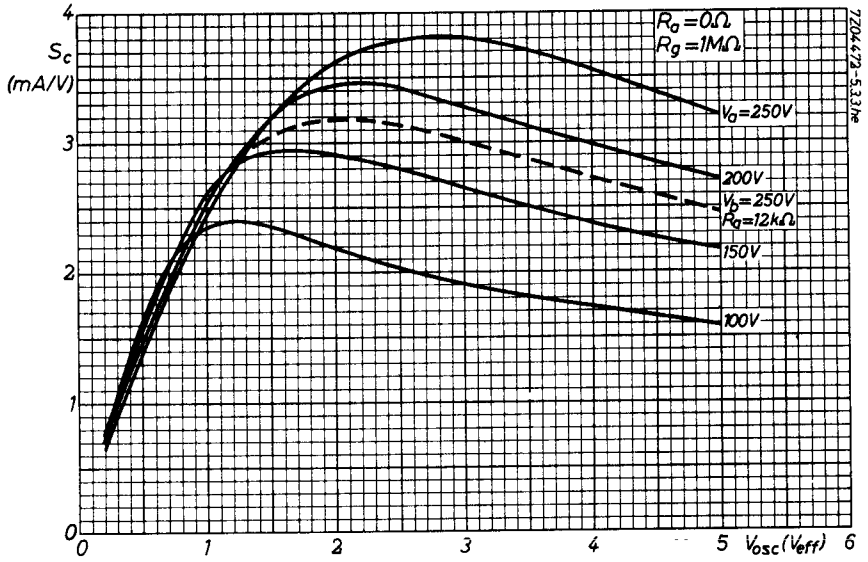

7Z04475-5.33he
I_a (mA)
30
25
20
15
10
5
0
100V
150V
170V
200V
V_b = 250V
0
−2
−4
−6
−8
V_g (V)


7Z04476-5.33he
$-V_g$ (V)
12
10
8
6
4
2
0
S (mA/V)
I_a (mA)
20
15
10
5
0
V_G = 250V
R_i (kΩ)
μ
120
100
80
60
40
20
0
60
50
40
30
20
10
0
S
μ
$-V_g$
R_i


I_a (mA)
$R_a = 0\Omega$
$R_g = 1M\Omega$
$V_a = 250V$
225V
200V
$V_b = 250V; R_a = 12k\Omega$
175V
150V
125V
100V
$V_{osc}(V_{eff})$
7204474-533he


R_i (kΩ)
$R_a = 0\Omega$
$R_g = 1M\Omega$
$V_a = 50V$
75V
100V
150V
$V_b = 250V; R_b = 12k\Omega$
200V
250V
300V
$V_{osc}(V_{eff})$
7204473-533he


25
I_a
(mA)
20
15
10
5
0
0
50
100
150
200
250
300 V_a (V) 350
$W_{a_{max}}$=2,5W
-0,5V
-1V
-1,5V
-2V
-2,5V
-3V
-4V
-5V
-6V
-7V
7204477-5.3.3.he


4
S_c
(mA/V)
3
2
1
0
0
1
2
3
4
5 V_{osc}(V_{eff}) 6
R_a=0Ω
R_g=1MΩ
V_a=250V
200V
V_a=250V
R_g=12kΩ
150V
100V
7204472-5.3.3.he

PHILIPS

Data handbook

Electronic components and materials

ECC85

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3	3	1969.01
4	4	1969.01
5	5	1969.01
6	6	1969.01
7	FP	1999.08.14