

DOUBLE TETRODES

Double tetrodes for use as linear single side band amplifier.

The YL1071 is electrically identical to the YL1070 except for the heater, and has been designed to fit into heatsink cooling equipment.

QUICK REFERENCE DATA				
AB1 linear S.S.B. amplifier, sections in parallel				
Freq. (Mc/s)	C.C.S.		I.C.A.S.	
	V_a (V)	W_{OPEP} (W)	V_a (V)	W_{OPEP} (W)
7	1000	141	1000	158

HEATING:

Indirect by A.C. or D.C.; parallel supply; oxide coated cathode

Pins 5-(1+7) 1-7

YL1070: Heater voltage	$V_f =$	6.3	12.6 V
Heater current	$I_f =$	1.8	0.9 A
YL1071: Heater voltage	$V_f =$	13.25	26.5 V
Heater current	$I_f =$	0.866	0.433 A

CAPACITANCES (each section)

Anode to all other elements except grid No.1	$C_a =$	3.15 pF
Grid No.1 to all other elements except anode	$C_{g1} =$	10.6 pF
Anode to grid No.1	$C_{ag1} <$	0.09 pF

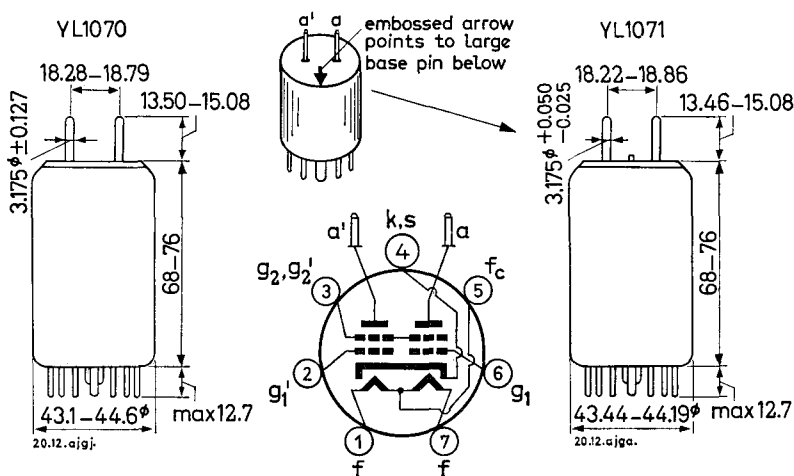
7Z2 2883

TYPICAL CHARACTERISTICS (each section)

Anode voltage	V_a	=	600	V
Grid No.2 voltage	V_{g_2}	=	250	V
Anode current	I_a	=	40	mA
Amplification factor of grid No.2 with respect to grid No.1	$\mu_{g_2g_1}$	=	7	

MECHANICAL DATA

Dimensions in mm



Base:	Septar
Accessories:	Anode connector clip 40681
	Socket 40202
Mounting position:	Vertical with base up or down Horizontal with anode pins in a horizontal plane
Net weight:	70 g

COOLING: Radiation and convection

When the tube is used at maximum permissible values it may be necessary to direct an air flow of approx. $0.6 \text{ m}^3/\text{min}$ to the bulb and to the anode seals. The YL1071 has a calibrated bulb held to close tolerances. This permits an accurate fit into heatsink cooling equipment. 7Z2 2884

TEMPERATURE LIMITS (Absolute limits)

Temperature of bulb and all seals max. 250 °C

R.F. CLASS C TELEGRAPHY AND F.M. TELEPHONY

LIMITING VALUES (Absolute limits) (each section)

Frequency	f	up to 60	up to 175	Mc/s
Anode voltage	V_a	= max. 850	max. 750	V
Anode input power	W_{ia}	= max. 90	max. 75	V
Anode dissipation	W_a	= max. 30	max. 30	W
Anode current	I_a	= max. 110	max. 110	mA
Grid No.2 voltage	V_{g2}	= max. 300	max. 300	V
Grid No.2 dissipation	W_{g2}	= max. 7	max. 7	W
Negative grid No.1 voltage	$-V_{g1}$	= max. 175	max. 175	V
Grid No.1 current	I_{g1}	= max. 5	max. 5	mA
Cathode to heater voltage	V_{kf}	= max. 100	max. 100	V

R. F. CLASS AB1 LINEAR S. S. B. AMPLIFIER suppressed carrier

LIMITING VALUES (Absolute limits) (each section)

Frequency	f	up to	60	Mc/s
		C.C.S.	I.C.A.S.	
Anode voltage	V_a	= max.	1000	max. 1000 V
Anode input power	W_{ia}	= max.	100	max. 110 W
Anode dissipation	W_a	= max.	30	max. 34 W
Anode current	I_a	= max.	110	max. 110 mA
Grid No.2 voltage	V_{g2}	= max.	360	max. 360 V
Grid No.2 dissipation	W_{g2}	= max.	3.5	max. 4 W
Negative grid No.1 voltage	$-V_{g1}$	= max.	175	max. 175 V
Grid No.1 current	I_{g1}	= max.	5	max. 5 mA
Cathode to heater voltage	V_{kf}	= max.	100	max. 100 V

7Z2 2885

OPERATING CONDITIONS (two sections in parallel)

Table A

		C.C.S.		
Frequency	f	=	7	Mc/s
Anode voltage	V_a	=	1000	V
Grid No.2 voltage	V_{g_2}	=	250	V
Grid No.1 voltage	V_{g_1}	=	-34	V ¹⁾
Load resistance	$R_{a\sim}$	=	3100	Ω
			zero signal	single tone
				two tone
Peak grid No.1 driving voltage	$V_{g_{1\sim p}}$	=	0	34 V
Anode current	$I_{a+a'}$	=	50	195 mA
Grid No.2 current	$I_{g_2+g_2'}$	=	1.2	26 mA
Grid No.1 current	$I_{g_1+g_1'}$	=	0	0.01 mA
Anode input power	$W_{ia+a'}$	=	50	195 W
Anode dissipation	$W_{a+a'}$	=	50	54 W
Output power	W_o	=	-	141 ²⁾ W
Intermodulation distortion				
of the third order	d_{i_3}	=	-	< -30 dB ³⁾
of the fifth order	d_{i_5}	=	-	< -45 dB ³⁾

¹⁾ Adjust to obtain the stated zero signal anode current.

²⁾ Peak envelope power value.

³⁾ Distortion level, referred to the amplitude of either of the tones, at full drive; also highest distortion encountered at any driving level up to full drive.

OPERATING CONDITIONS (two sections in parallel) (continued)

Table B

Frequency	f	=	7	Mc/s	
Anode voltage	V_a	=	800	V	
Grid No.2 voltage	V_{g_2}	=	250	V	
Grid No.1 voltage	V_{g_1}	=	-34	V ¹⁾	
Load resistance	R_a	=	2300	Ω	
			zero signal	single tone	two tone
Peak grid No.1 driving voltage	$V_{g_{1\sim p}}$	=	0	34	34 V
Anode current	$I_{a+a'}$	=	50	197	130 mA
Grid No.2 current	$I_{g_2+g_2'}$	=	1.2	26	12.5 mA
Grid No.1 current	$I_{g_1+g_1'}$	=	0	0.01	0 mA
Anode input power	$W_{ia+a'}$	=	40	158	104 W
Anode dissipation	$W_{a+a'}$	=	40	46	43 W
Output power	W_o	=	-	112	112 ²⁾ W
Intermodulation distortion					
of the third order	d_{i_3}	=	-	-	< -30 dB ³⁾
of the fifth order	d_{i_5}	=	-	-	< -45 dB ³⁾

¹⁾ Adjust to obtain the stated zero signal anode current.

²⁾ Peak envelope power value

³⁾ Distortion level, referred to the amplitude of either of the tones, at full drive;
also highest distortion encountered at any driving level up to full drive.

OPERATING CONDITIONS (two sections in parallel) (continued)

Table C		C.C.S.			
Frequency	f	=	7	Mc/s	
Anode voltage	V _a	=	600	V	
Grid No.2 voltage	V _{g2}	=	250	V	
Grid No.1 voltage	V _{g1}	=	-32.5	V ¹⁾	
Load resistance	R _a	=	1410	Ω	
			zero single two signal tone tone		
Peak grid No.1 driving voltage	V _{g1~p}	=	0	32.5	32.5 V
Anode current	I _{a+a'}	=	60	212	144 mA
Grid No.2 current	I _{g2+g2'}	=	1.9	25	13.5 mA
Grid No.1 current	I _{g1+g1'}	=	0	0.01	0 mA
Anode input power	W _{1a+a'}	=	36	127	86 W
Anode dissipation	W _{a+a'}	=	36	88	48 W
Output power	W _o	=	-	76	76 ²⁾ W
Intermodulation distortion					
of the third order	d _{i3}	=	-	-	< -30 dB ³⁾
of the fifth order	d _{i5}	=	-	-	< -45 dB ³⁾

¹⁾ Adjust to obtain the stated zero signal anode current.

²⁾ Peak envelope power value.

³⁾ Distortion level, referred to the amplitude of either of the tones, at full drive; also highest distortion encountered at any driving level up to full drive.

7Z2 2888

OPERATING CONDITIONS (two sections in parallel) (continued)

Table D

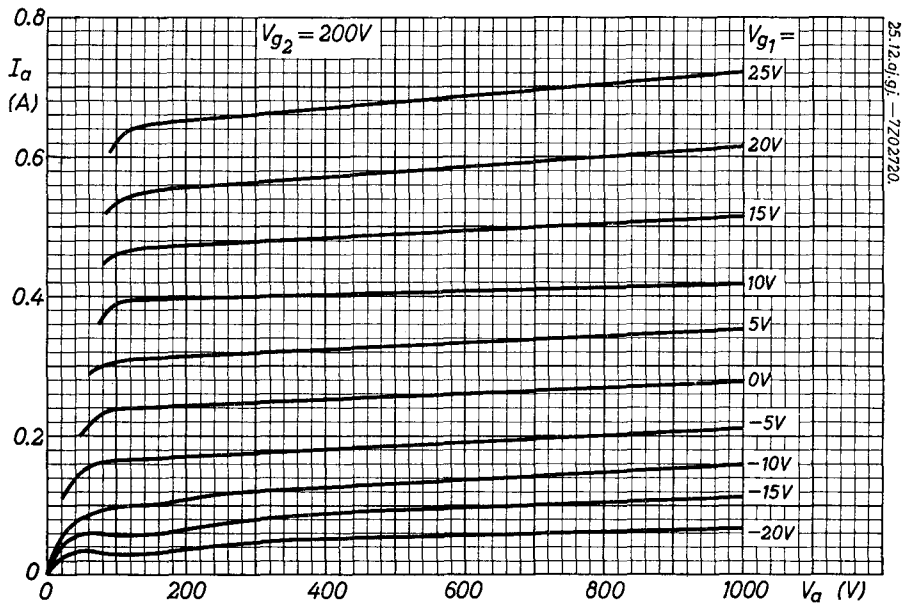
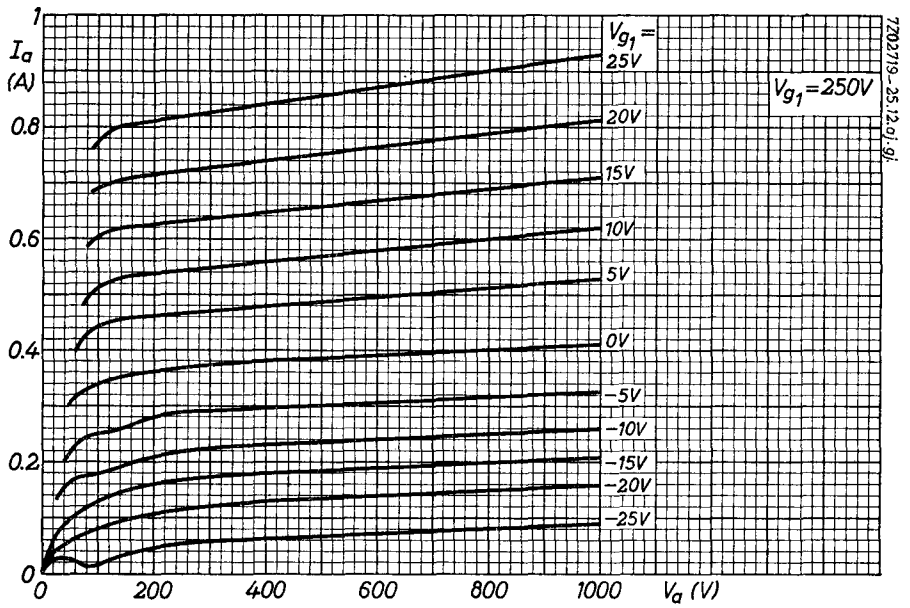
I.C.A.S.

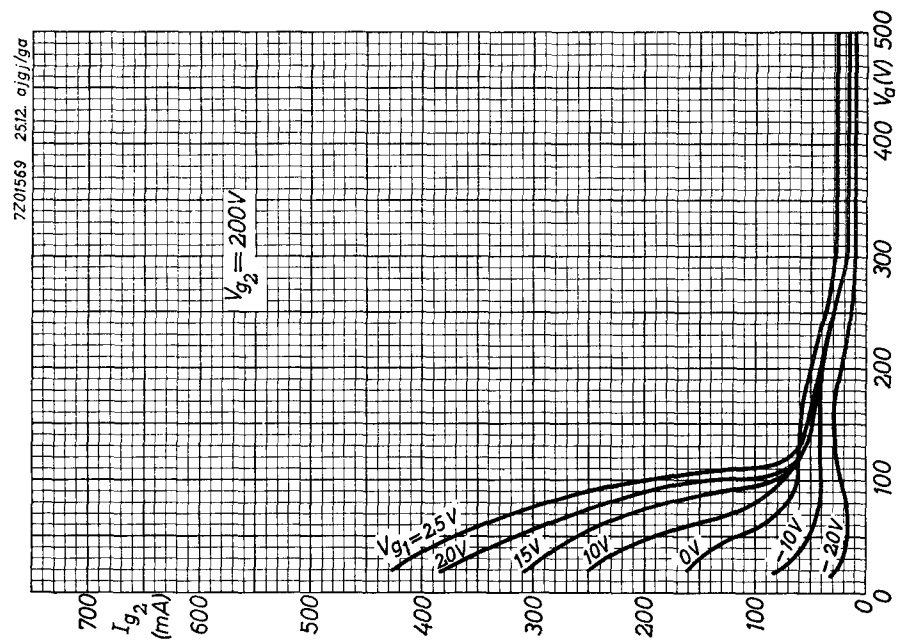
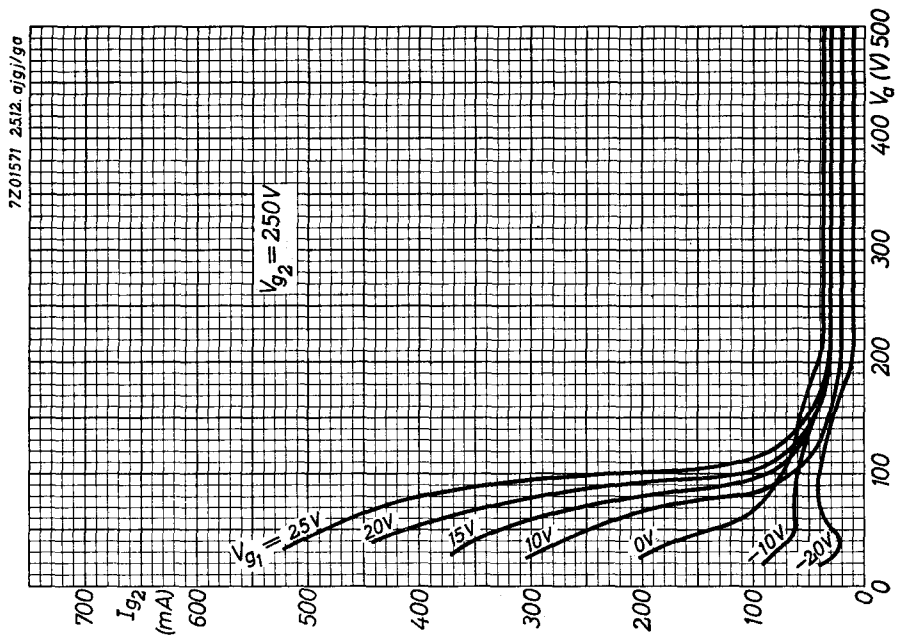
Frequency	f	=	7	Mc/s
Anode voltage	V_a	=	1000	V
Grid No.2 voltage	V_{g_2}	=	250	V
Grid No.1 voltage	V_{g_1}	=	-36	V ¹⁾
Load resistance	R_a	=	3000	Ω
			zero signal	single tone
				two tone
Peak grid No.1 driving voltage	$V_{g_{1\sim p}}$	=	0	36 V
Anode current	$I_{a+a'}$	=	55	216 144 mA
Grid No.2 current	$I_{g_2+g_2'}$	=	1	25 13 mA
Grid No.1 current	$I_{g_1+g_1'}$	=	0	0.05 0.02 mA
Anode input power	$W_{ia+a'}$	=	55	216 144 W
Anode dissipation	$W_{a+a'}$	=	55	58 65 W
Output power	W_o	=	-	158 158 ²⁾ W
Intermodulation distortion				
of the third order	d_{i_3}	=	-	- < -30 dB ³⁾
of the fifth order	d_{i_5}	=	-	- < -45 dB ³⁾

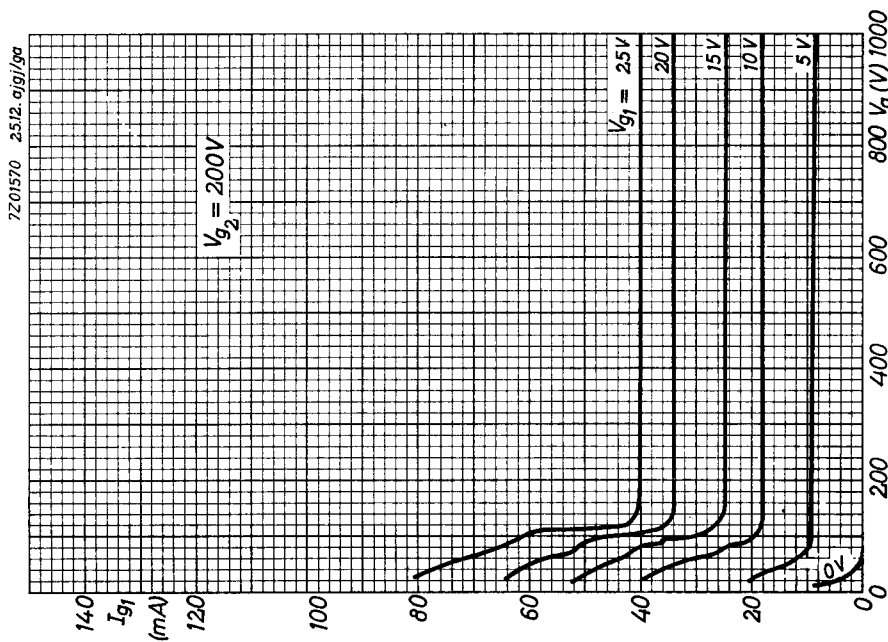
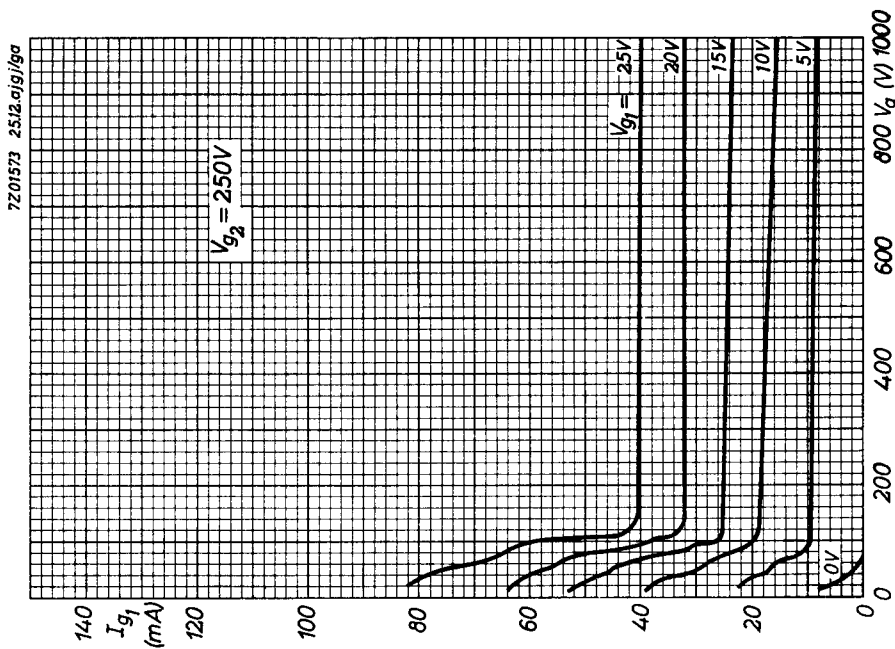
¹⁾ Adjust to obtain the stated zero signal anode current.

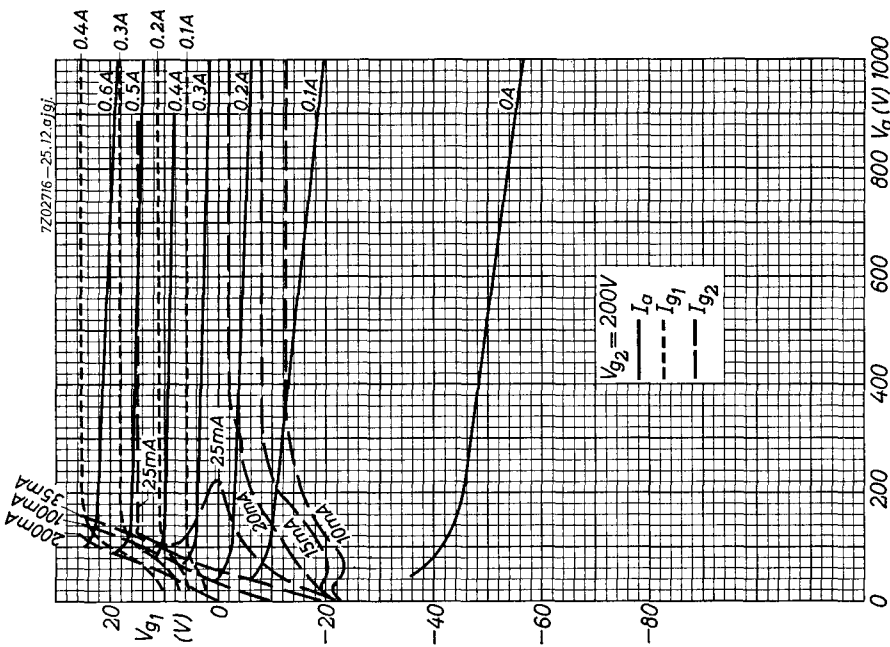
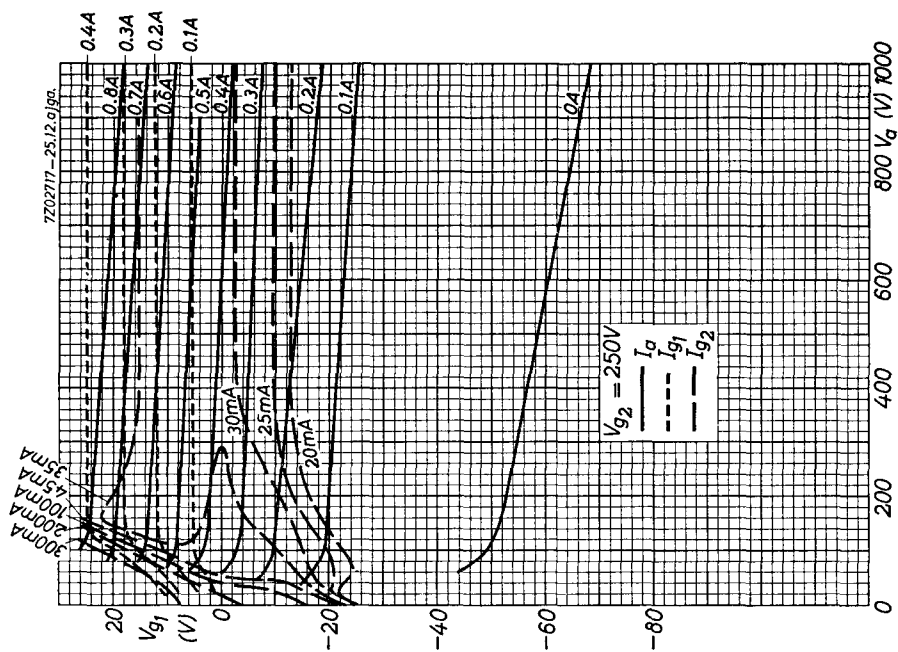
²⁾ Peak envelope power value.

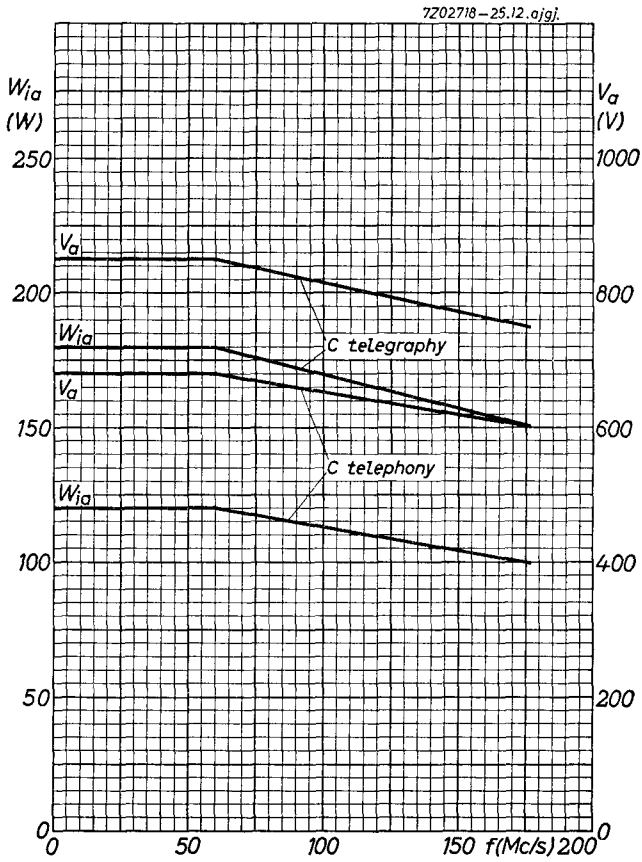
³⁾ Distortion level, referred to the amplitude of either of the tones, at full drive; also highest distortion encountered at any driving level up to full drive.











PHILIPS

Data handbook



**Electronic
components
and materials**

YL1070 YL1071

page	sheet	date
1	1	1965.01.01
2	2	1965.01.01
3	3	1965.01.01
4	4	1965.01.01
5	5	1965.01.01
6	6	1965.01.01
7	7	1965.01.01
8	A	1965.01.01
9	B	1965.01.01
10	C	1965.01.01
11	D	1965.01.01
12	E	1965.01.01
13	FP	2001.04.21