

A.F. OUTPUT PENTODE

Pentode intended for use as A.F. power amplifier.

QUICK REFERENCE DATA		
Anode current	I_a	48 mA
Transconductance	S	11.3 mA/V
Amplification factor	$\mu_{g_2g_1}$	19
Output power	W_o	6.0 W

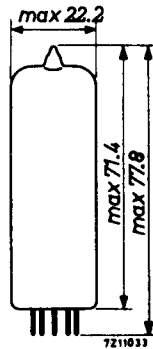
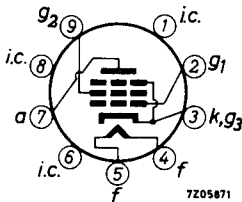
HEATING: Indirect by A.C. or D.C.; parallel supply

Heater voltage	V_f	6.3 V
Heater current	I_f	760 mA

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



CAPACITANCES

Anode to all except grid No.1	$C_a(g_1)$	6.5 pF
Grid No.1 to all except anode	$C_{g_1(a)}$	10.8 pF
Anode to grid No.1	C_{ag_1}	max. 0.5 pF
Grid No.1 to heater	C_{g_1f}	max. 0.25 pF

OPERATING CHARACTERISTICS

Class A

Anode voltage	V_a		250			V
Grid No.2 voltage	V_{g2}		250			V
Grid No.1 voltage	V_{g1}		-7.3			V
Cathode resistor	R_k		135			Ω
Load resistance	$R_{a\sim}$		5.2			k Ω
Grid No.1 driving voltage	V_i	0	0.3	3.4	4.3	4.7 ²⁾ V _{RMS}
Anode current	I_a	48	-	-	49.5	49.2 mA
Grid No.2 current	I_{g2}	5.5	-	-	10.8	11.6 mA
Transconductance	S	11.3	-	-	-	- mA/V
Amplification factor	μ_{g2g1}	19	-	-	-	-
Internal resistance	R_i	38	-	-	-	- k Ω
Output power	W_o ¹⁾	0	0.05	4.5	5.7	6.0 W
Distortion, total	d_{tot} ¹⁾	-	-	6.8	10	- %
second harmonic	d_2 ¹⁾	-	-	3.0	2.0	- %
third harmonic	d_3 ¹⁾	-	-	5.8	9.5	- %
Anode voltage	V_a		250			V
Grid No.2 voltage	V_{g2}		250			V
Grid No.1 voltage	V_{g1}		-7.3			V
Cathode resistor	R_k		135			Ω
Load resistance	$R_{a\sim}$		4.5			k Ω
Grid No.1 driving voltage	V_i	0	0.3	3.5	4.4	4.8 ²⁾ V _{RMS}
Anode current	I_a	48	-	-	50.6	50.5 mA
Grid No.2 current	I_{g2}	5.5	-	-	10	11 mA
Transconductance	S	11.3	-	-	-	- mA/V
Amplification factor	μ_{g2g1}	19	-	-	-	-
Internal resistance	R_i	38	-	-	-	- k Ω
Output power	W_o ¹⁾	0	0.05	4.5	5.7	6.0 W
Distortion, total	d_{tot} ¹⁾	-	-	7.5	10	- %
second harmonic	d_2 ¹⁾	-	-	5.7	5.0	- %
third harmonic	d_3 ¹⁾	-	-	4.5	8	- %

¹⁾ Measured with fixed bias

²⁾ At $I_{g1} = +0.3 \mu A$

OPERATING CHARACTERISTICS (continued)

Class A (continued)

Anode voltage	V_a	250			V
Grid No.2 voltage	V_{g2}	250			V
Grid No.1 voltage	V_{g1}	-8.4			V
Cathode resistor	R_k	210			Ω
Load resistance	$R_{a\sim}$	7			$k\Omega$
Grid No.1 driving voltage	V_i	0	0.3	3.5	5.5 ²⁾ V_{RMS}
Anode current	I_a	36	-	36.8	36 mA
Grid No.2 current	I_{g2}	4.1	-	8.5	14.6 mA
Transconductance	S	10	-	-	- mA/V
Amplification factor	μ_{g2g1}	19	-	-	-
Internal resistance	R_i	40	-	-	- $k\Omega$
Output power	W_o ¹⁾	0	0.05	4.2	5.6 W
Distortion, total	dt_{tot} ¹⁾	-	-	10	- %
second harmonic	d_2 ¹⁾	-	-	1.7	- %
third harmonic	d_3 ¹⁾	-	-	8.7	- %
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Anode voltage	V_a	250			V
Grid No.2 voltage	V_{g2}	210			V
Grid No.1 voltage	V_{g1}	-6.4			V
Cathode resistor	R_k	160			Ω
Load resistance	$R_{a\sim}$	7			$k\Omega$
Grid No.1 driving voltage	V_i	0	0.3	3.4	3.8 ²⁾ V_{RMS}
Anode current	I_a	36	-	36.6	36.5 mA
Grid No.2 current	I_{g2}	3.9	-	7.3	8.0 mA
Transconductance	S	10.4	-	-	- mA/V
Amplification factor	μ_{g2g1}	19	-	-	-
Internal resistance	R_i	40	-	-	- $k\Omega$
Output power	W_o ¹⁾	0	0.05	4.3	4.7 W
Distortion, total	dt_{tot} ¹⁾	-	-	10	- %
second harmonic	d_2 ¹⁾	-	-	1.8	- %
third harmonic	d_3 ¹⁾	-	-	9.3	- %

1) Measured with fixed bias

2) At $I_{g1} = +0.3 \mu A$

OPERATING CHARACTERISTICS (continued)

Class B, two tubes in push-pull

Anode voltage	V_a	250	300	V		
Grid No.2 voltage	V_{g_2}	250	300	V		
Grid No.1 voltage	V_{g_1}	-11.6	-14.7	V		
Load resistance	$R_{aa\sim}$	8	8	k Ω		
Grid No.1 driving voltage	V_i	0	8	0	10	V_{RMS}
Anode current	I_a	2x10	2x37.5	2x7.5	2x46	mA
Grid No.2 current	I_{g_2}	2x1.1	2x7.5	2x0.8	2x11	mA
Output power	W_o	0	11	0	17	W
Distortion	d_{tot}	-	3	-	4	%

Class AB, two tubes in push-pull

Anode voltage	V_a	250	300	V		
Grid No.2 voltage	V_{g_2}	250	300	V		
Common cathode resistor	R_k	130	130	Ω		
Load resistance	$R_{aa\sim}$	8	8	k Ω		
Grid No.1 driving voltage	V_i	0	8	0	10	V_{RMS}
Anode current	I_a	2x31	2x37.5	2x36	2x46	mA
Grid No.2 current	I_{g_2}	2x3.5	2x7.5	2x4	2x11	mA
Output power	W_o	0	11	0	17	W
Distortion	d_{tot}	-	3	-	4	%

OPERATING CHARACTERISTICS IN TRIODE CONNECTION

(g₂ connected to a)Class A

Anode voltage	V_a	250			V
Cathode resistor	R_k	270			Ω
Load resistance	$R_{a\sim}$	3.5			k Ω
Grid No.1 driving voltage	V_i	0	1.0	6.7	V _{RMS}
Anode current	I_a	34	-	36	mA
Output power	W_o	-	0.05	1.95	W
Distortion	d_{tot}	-	-	9	%

Class AB, two tubes in push-pull

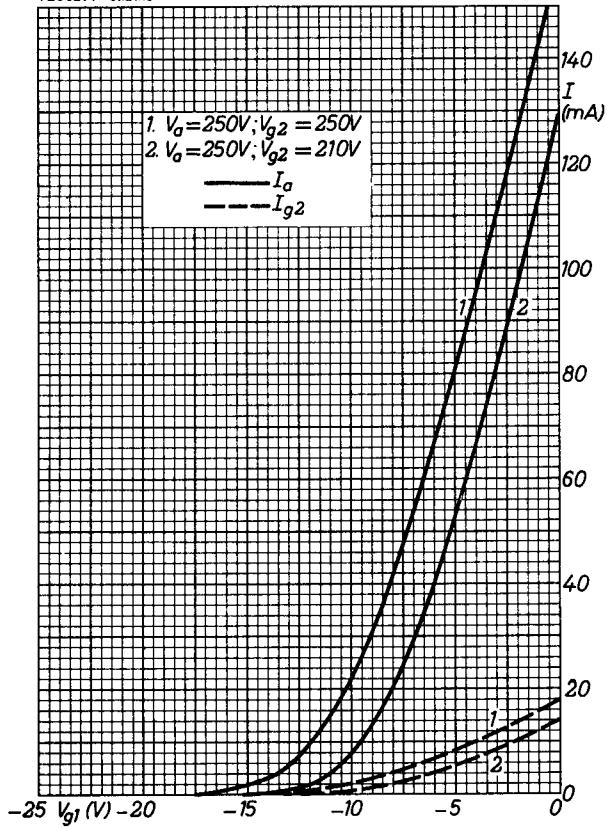
Anode voltage	V_a	250	300			V
Common cathode resistor	R_k	270	270			Ω
Load resistance	$R_{aa\sim}$	10				k Ω
Grid No.1 driving voltage	V_i	0	8.3	0	10	V _{RMS}
Anode current	I_a	2x20	2x21.7	2x24	2x26	mA
Output power	W_o	0	3.4	0	5.2	W
Distortion	d_{tot}	-	2.5	-	2.5	%
Grid No.1 driving voltage for $W_o = 50$ mW	V_i	0.95		0.9		V _{RMS}

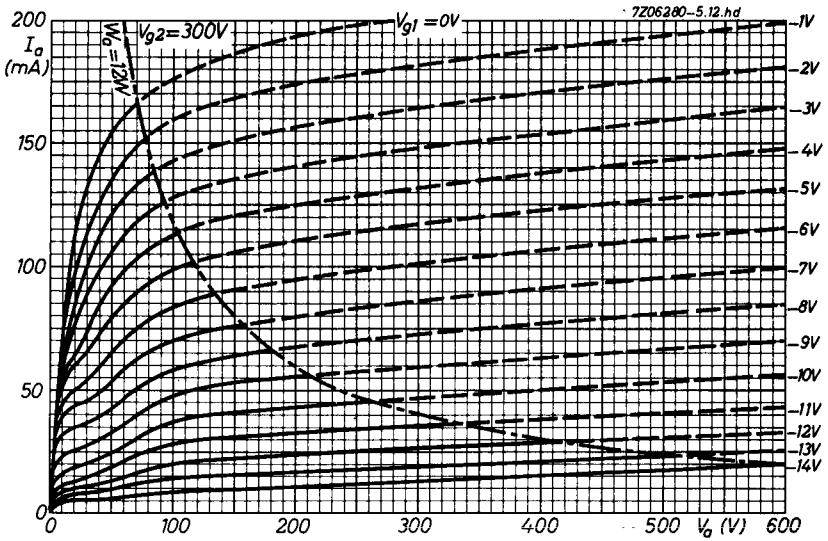
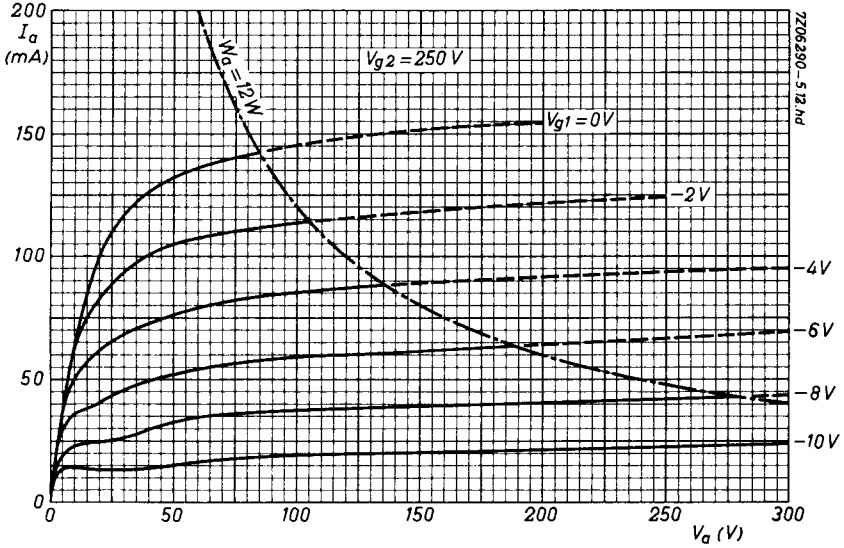
LIMITING VALUES (Design centre rating system)

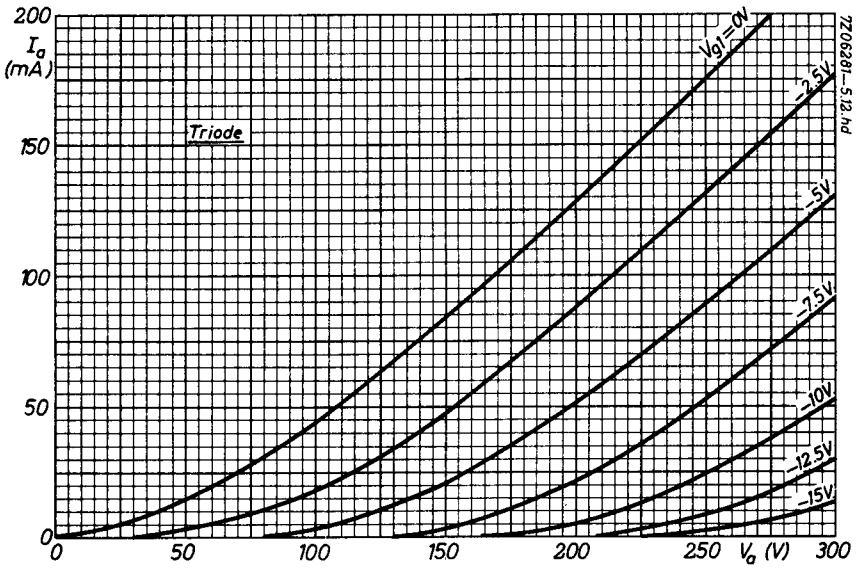
Anode voltage	V_{a_0}	max.	550 V
	V_a	max.	300 V ¹⁾
Anode dissipation	W_a	max.	12 W ¹⁾
Grid No.2 voltage	$V_{g_{2o}}$	max.	550 V
	V_{g_2}	max.	300 V ¹⁾
Grid No.2 dissipation	W_{g_2}	max.	2 W
	$W_{g_{2p}}$	max.	4 W
Grid No.1 voltage	$-V_{g_1}$	max.	100 V
Cathode current	I_k	max.	65 mA
Grid No.1 resistor			
for automatic bias	R_{g_1}	max.	1 M Ω
for fixed bias	R_{g_1}	max.	0.3 M Ω
Cathode to heater voltage	V_{kf}	max.	100 V

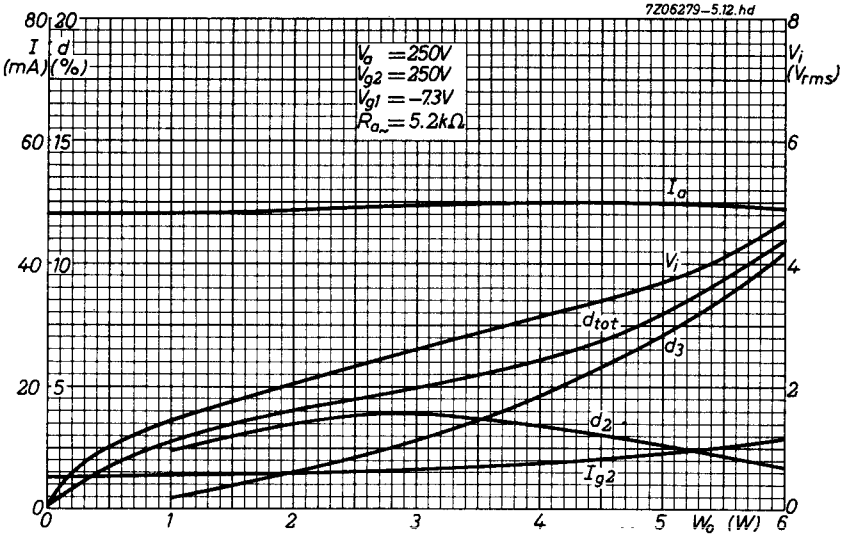
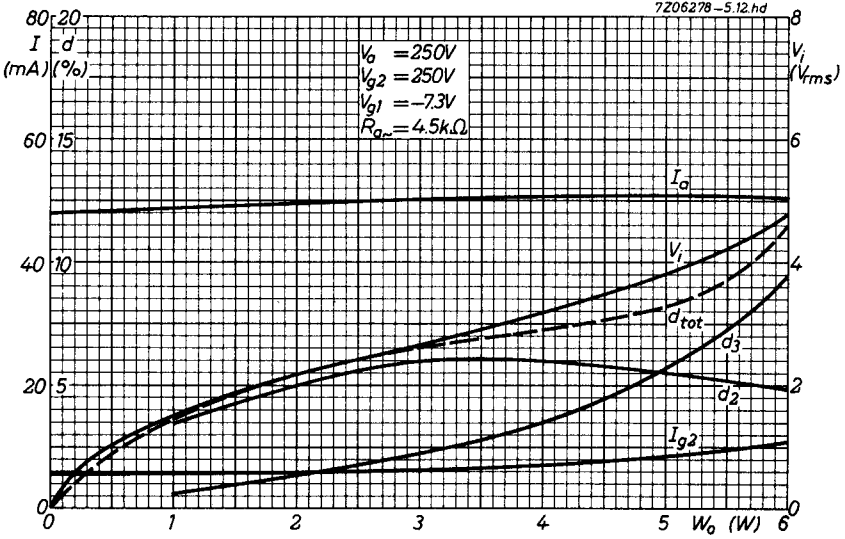
¹⁾ When the heater and positive voltages are obtained from a storage battery by means of a vibrator, the max. values of V_a and V_{g_2} are 250 V and that of W_a is 9 W.

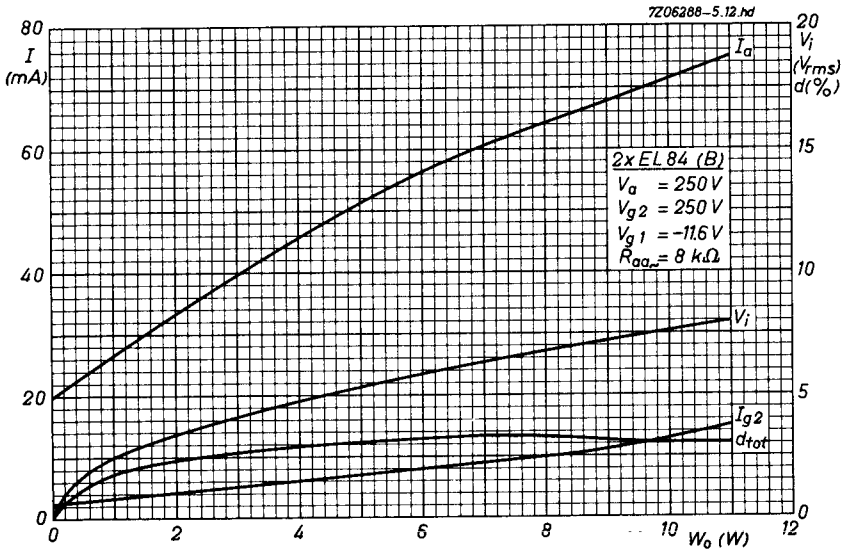
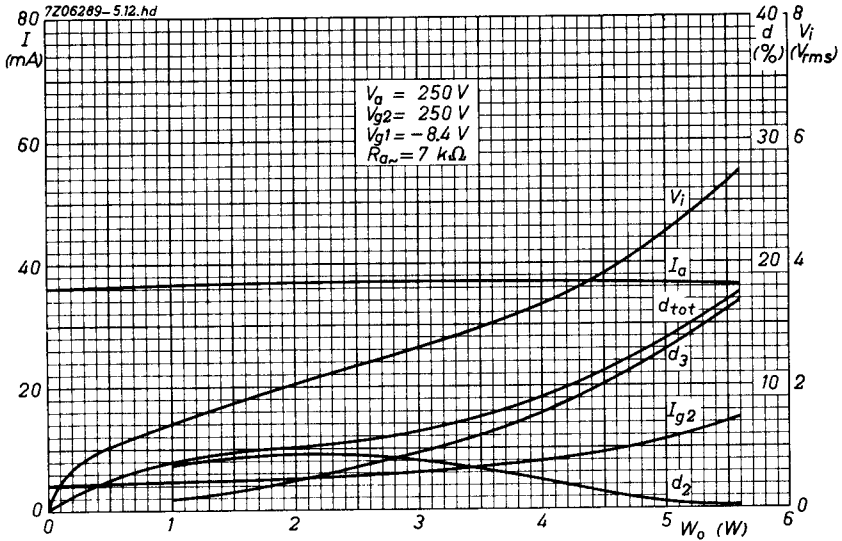
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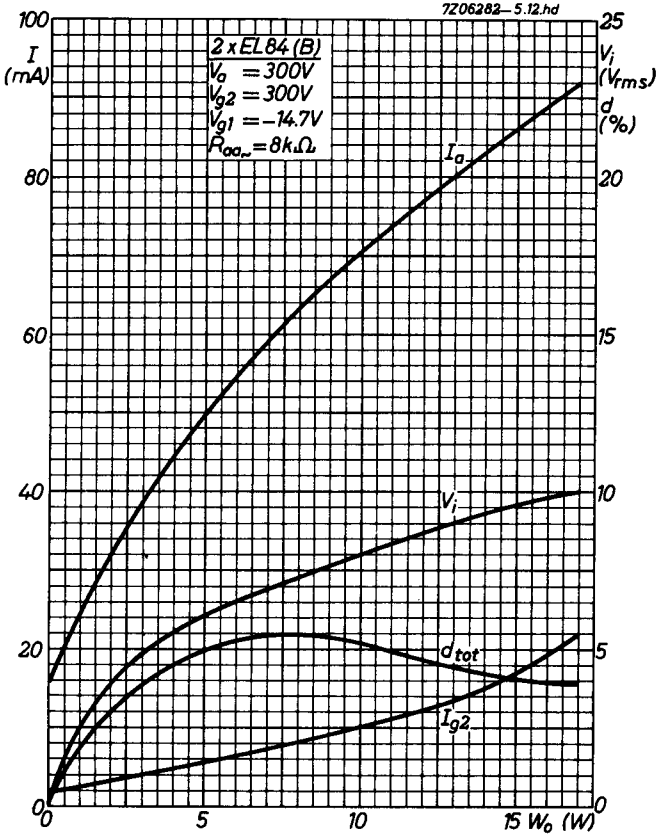


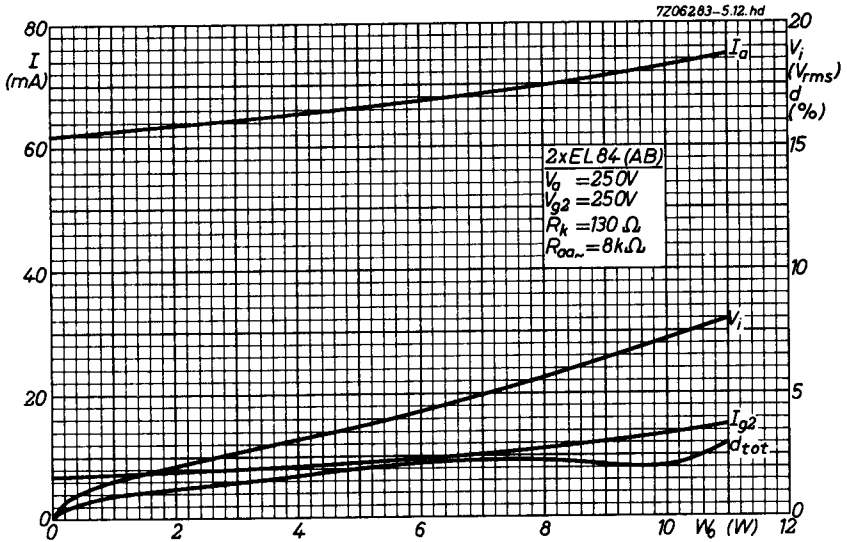


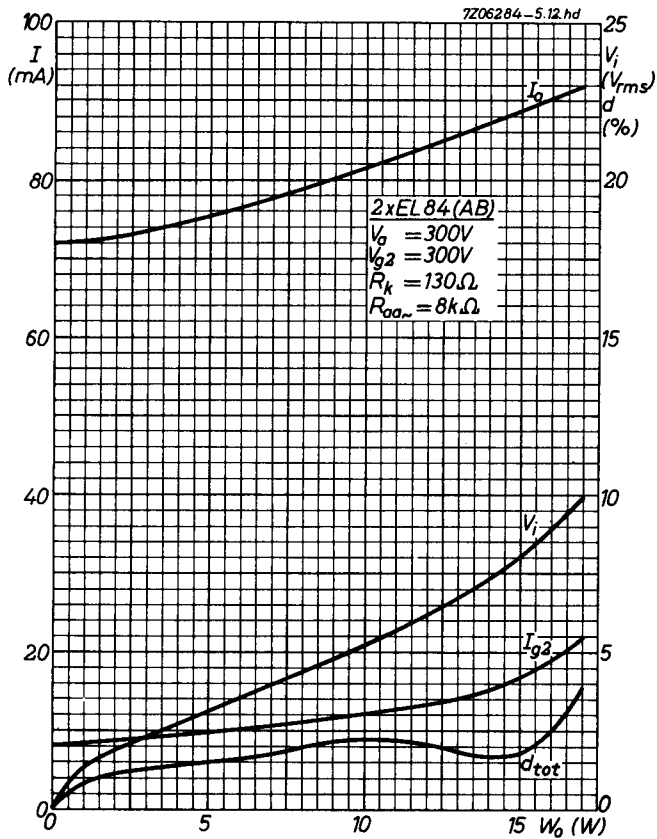












PHILIPS

Data handbook



Electronic
components
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