EL34 is A.F. Output Pentode suitable for use in power amplification

Quick reference data

- Anode current I_a=100mA
- Transcoductance S=12,5mA/V
- Amplification μ_{g2g1}=11
- Output power, Class B W_O=100W

Heating

Heating is indirect by AC or DC, with parallel supply.

Heater voltage	V_f	6,3	(V)
Heater current	I_f	1,5	(A)

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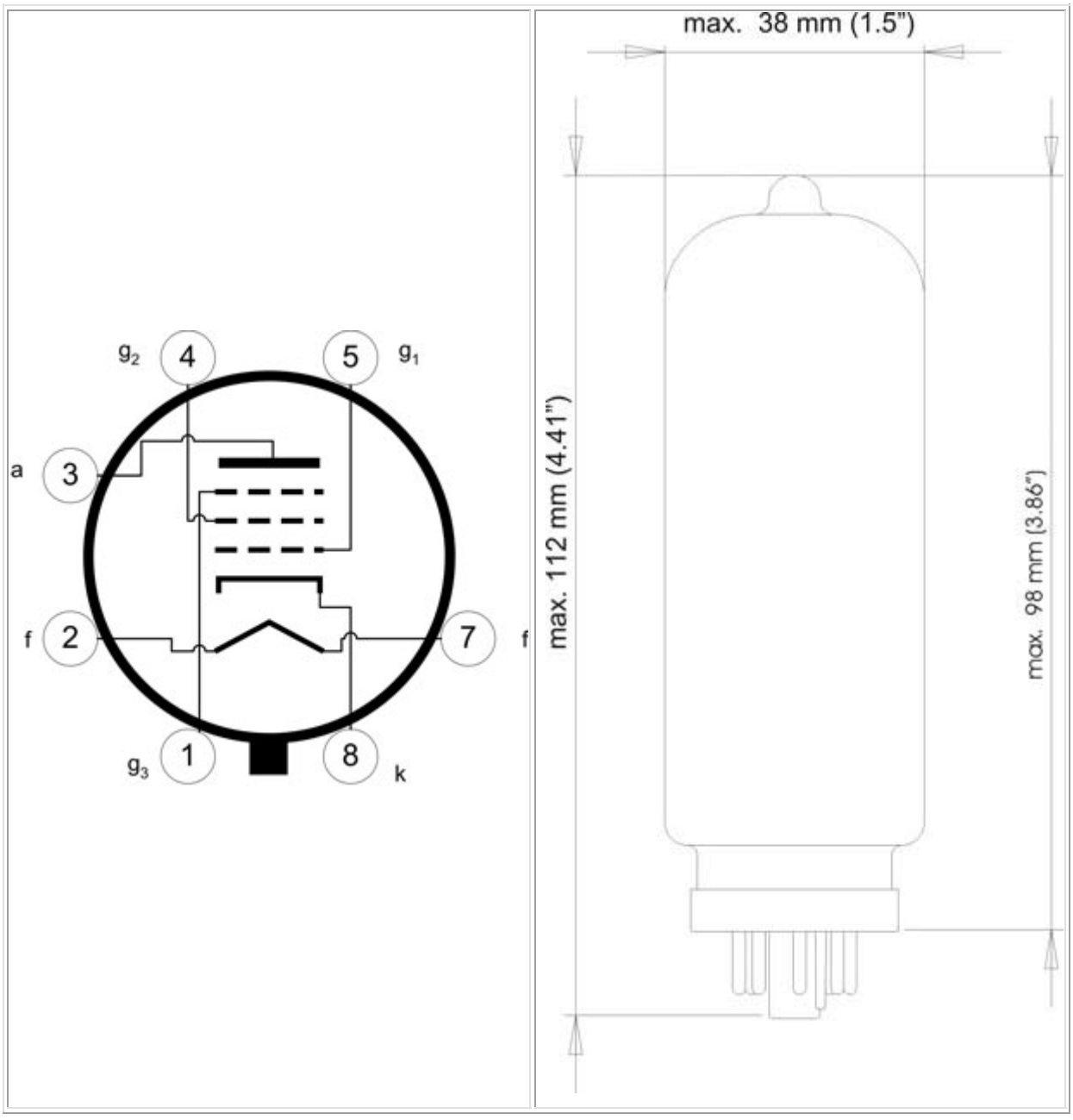
Dimensions and connections

Base: Octal



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Operating characteristics

❖ Class A

Supply voltage	V_b	265	265	(V)
Anode voltage	V_a	250	250	(V)
Grid No. 2 series resistor	R_{g2}	2	0	(kΩ)
Grid No. 3 voltage	V_{g3}	0	0	(V)
Grid No 1 . voltage	V_{g1}	-14,5	-13,5	(V)
Anode current	I_a	70	100	(mA)
Grid No. 2 current	I_{g2}	10	14,9	(mA)
Transconductance	S	11	12,5	(mA/V)
Amplification factor	μ_{g2g1}	11	11	
Internal resistance	R_i	20	17	(kΩ)
Load resistance	R_{aa}	3	2	(kΩ)
Grid No. 1 driving voltage	V_i	9,3	8,7	(V_{RMS})
Output Power	W_O	8	11	(W)
Distortion	d_{tot}	10	10	(%)
Grid No. 1 driving voltage for W_O = 50 mW	V_i	0.65	0,5	(V_{RMS})

❖ Class B, two tubes in push-pull

Common grid No.2 series resistor (non decoupled)	R_{g2}	1000			470			(Ω)
Grid No.1 voltage	V_{g1}	-38			-32			(V)
Grid No. 3 voltage	V_{g3}	0			0			(V)
Grid No. 1 driving voltage	V_i	0	27	27	0	22,7	22,7	(V_{RMS})
Load resistance	R_{aa}		3,4	4		2,8	3,8	(kΩ)
Stupply voltage	V_b	425	425	400	375	375	350	(V)

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Anode voltage	V_a	420	400	375	370	350	325	(V)
Anode current	I_a	2×30	2×120	2×100	2×35	2×120	2×93	(mA)
Grid No. 2 current	I_{g2}	2×4,4	2×25	2×25	2×4.7	2×25	2×25	(mA)
Output power	W_O	0	55	45	0	44	36	(W)
Distortion	d_{tot}		5	6		5	6	(%)

Common grid No.2 series resistor (non decoupled)	R_{g2}	750			750			(Ω)
Grid No.1 voltage	V_{g1}	-36			-39			(V)
Grid No. 3 voltage	V_{g3}	0			0			(V)
Grid No. 1 driving voltage	V_i	0	25,8	25,8	0	23,4	23,4	(V_{RMS})
Load resistance	R_{aa}		4	5		11	11	(kΩ)
Stupply voltage	V_b	500	500	475	800	800	750	(V)
Anode voltage	V_a	495	475	450	795	775	725	(V)
Anode current	I_a	2×30	2×125	2×102	2×25	2×91	2×84	(mA)
Grid No. 2 current	I_{g2}	2×4	2×25	2×25	2×3	2×19	2×19	(mA)
Output power	W_O	0	75	58	0	100	90	(W)
Distortion	d_{tot}		5	6		5	6	(%)

❖ Class AB, two tubes in push-pull

Load resistance	R_{aa}	3,4		(kΩ)
Common grid No.2 series resistor (non decoupled)	R_{g2}	470		(Ω)
Common cathode resistor	R_k	130		(Ω)
Grid No. 3 voltage	V_{g3}	0		(V)
Grid No. 1 driving voltage	V_i	0	21	(V)
Stupply voltage	V_b	375	375	(V)

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Anode to earth voltage	V_a+V_{Rk}	355	350	(V)
Anode current	I_a	2×75	2×95	(mA)
Grid No. 2 current	I_{g2}	2×11.5	2×22.5	(mA)
Output power	W_O	0	35	(W)
Distortion	d_{tot}		5	(%)

Limiting - maximal values (design center rating system)

Anode voltage	V_{ao}	2000	(V)
	V_a	800	
Grid No. 2 voltage	V_{g2o}	800	(V)
	V_{g2}	500	
Anode dissipation	$W_a(V_i=0)$	25	(W)
	$W_a(V_i>0)$	27,5	
Grid No. 2 dissipation	W_{g2}	8	(W)
Cathode current	I_k	150	(mA)
Grid No. 1 resistor	R_{g1}(Class A & AB)	0,7	(MΩ)
	R_{g1}(Class B)	0,5	
Cathode to heater voltage	V_{kf}	100	(V)

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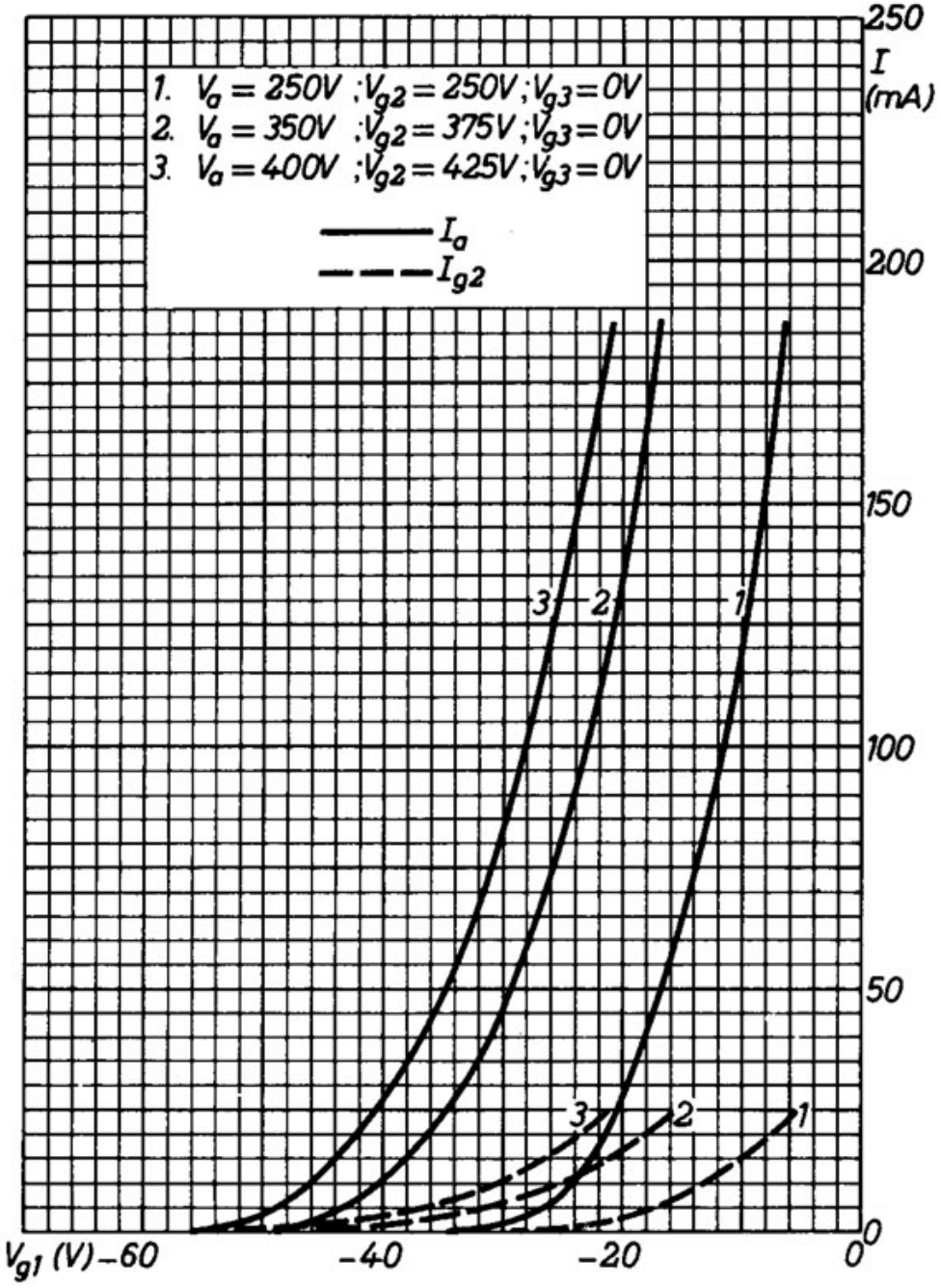

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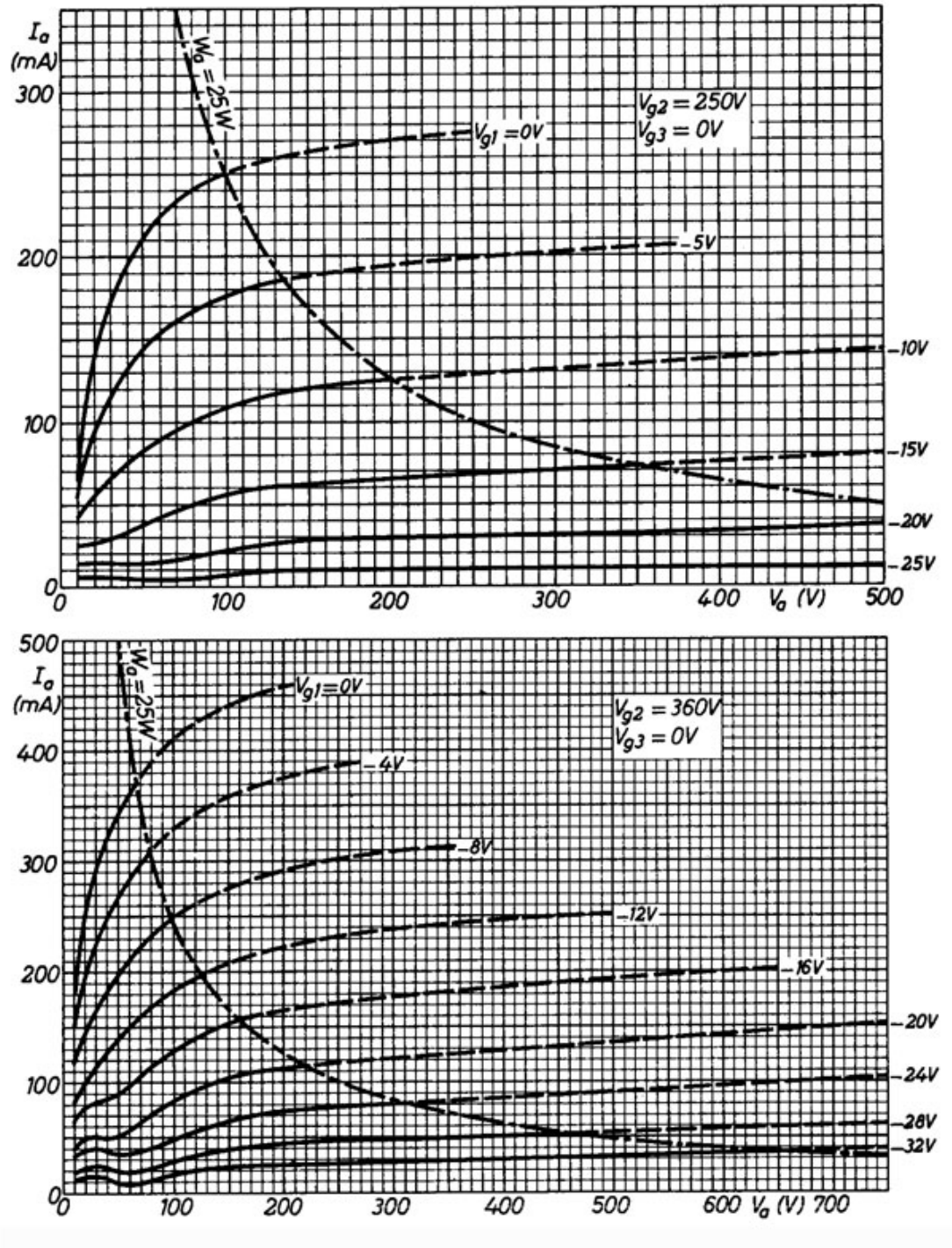

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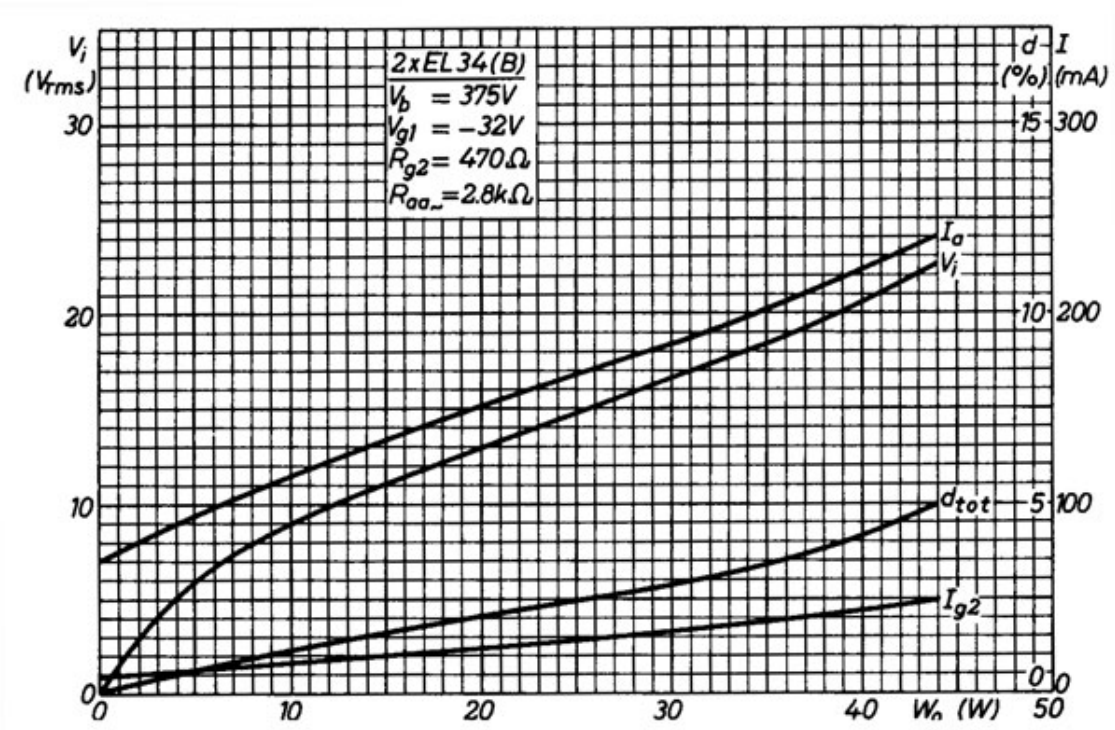

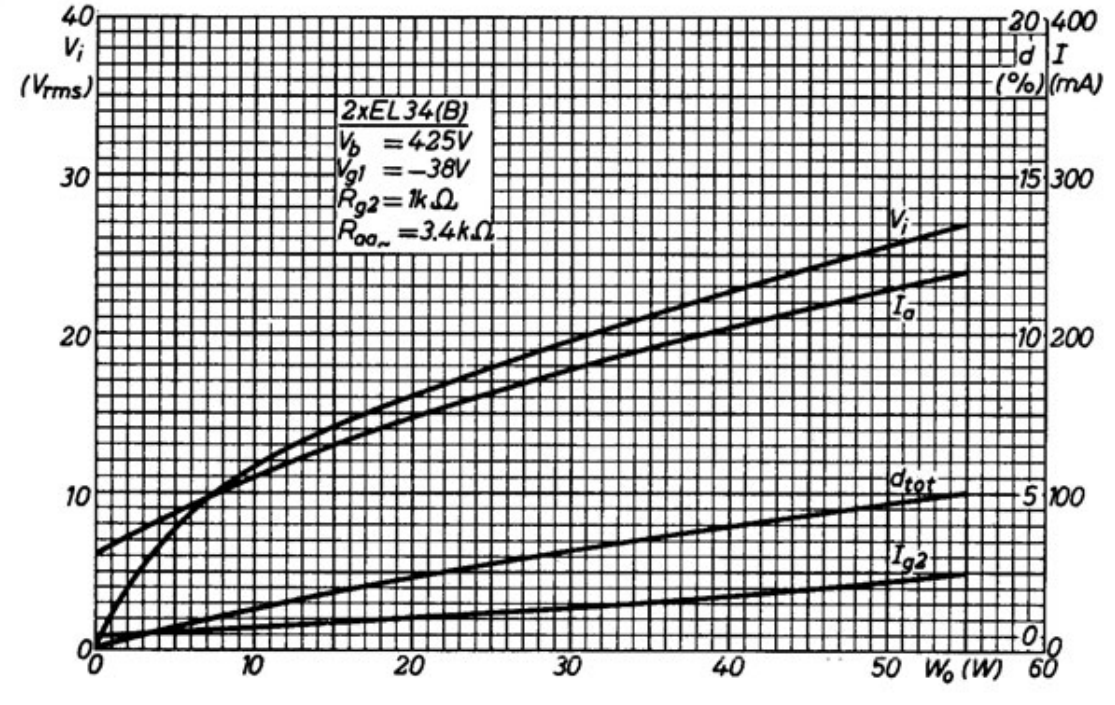

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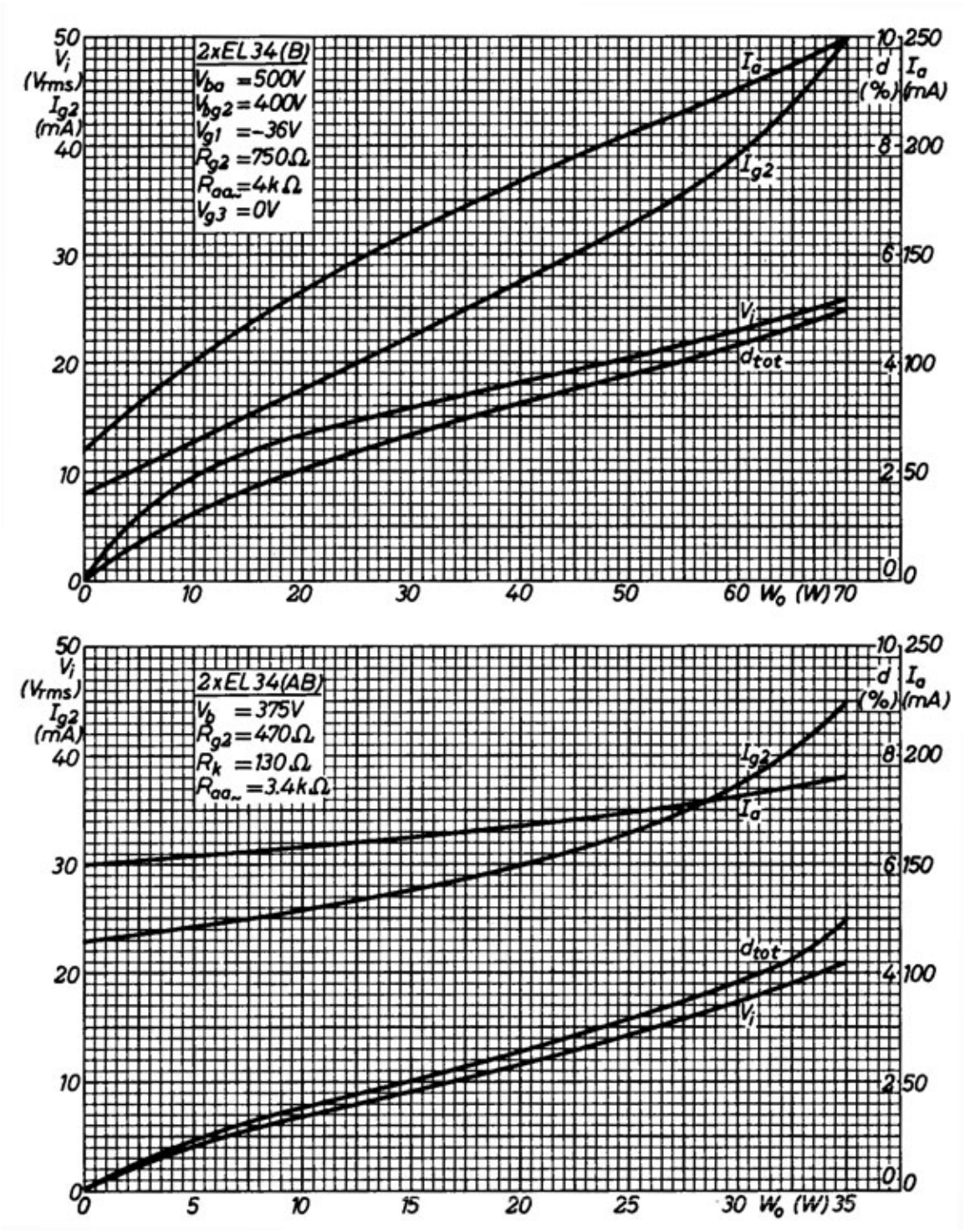

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