

# Brimar thermionic products<sup>®</sup> EL34

## A.F. OUTPUT PENTODE

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

QUICK REFERENCE DATA		
Anode current	$I_a$	100 mA
Transconductance	$S$	12.5 mA/V
Amplification factor	$\mu_{g_2g_1}$	11
Output power, class B		100 W

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

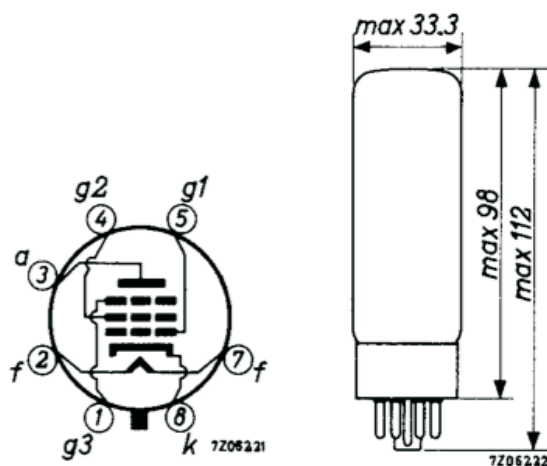
Heater voltage	$V_f$	6.3 V
Heater current	$I_f$	1.5 A

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Octal

Socket: 5903/13



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## CAPACITANCES

Anode to all except grid No.1	$C_{a(g_1)}$	8.4	pF
Grid No.1 to all except anode	$C_{g_1(a)}$	15.2	pF
Anode to grid No.1	$C_{ag_1}$	max. 1.1	pF
Grid No.1 to heater	$C_{g_1f}$	max. 1.0	pF
Cathode to heater	$C_{kf}$	10	pF

## OPERATING CHARACTERISTICS

### Class A

Supply voltage	$V_b$	265	265	V
Anode voltage	$V_a$	250	250	V
Grid No.2 series resistor	$R_{g_2}$	2	0	k $\Omega$
Grid No.3 voltage	$V_{g_3}$	0	0	V
Grid No.1 voltage	$V_{g_1}$	-14.5	-13.5	V
Anode current	$I_a$	70	100	mA
Grid No.2 current	$I_{g_2}$	10	14.9	mA
Transconductance	$S$	11	12.5	mA/V
Amplification factor	$\mu_{g_2g_1}$	11	11	
Internal resistance	$R_i$	20	17	k $\Omega$
Load resistance	$R_{a\sim}$	3.0	2.0	k $\Omega$
Grid No.1 driving voltage	$V_i$	9.3	8.7	V <sub>RMS</sub>
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 <sub>RMS</sub>

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## OPERATING CHARACTERISTICS

### Class B, two tubes in push-pull

Common grid No.2 series resistor (non decoupled)	$R_{g2}$	1000			470			$\Omega$
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	$R_{aa\sim}$	-	3.4	4.0	-	2.8	3.8	$k\Omega$
Supply voltage	$V_b$	425	425	400	375	375	350	V
Anode voltage	$V_a$	420	400	375	370	350	325	V
Anode current	$I_a$	2x30	2x120	2x100	2x35	2x120	2x93	mA
Grid No.2 current	$I_{g2}$	2x4.4	2x25	2x25	2x4.7	2x25	2x25	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			$\Omega$
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	$R_{aa\sim}$	-	4	5	-	11	11	$k\Omega$
Anode supply voltage	$V_{ba}$	500	500	475	800	800	750	V
Anode voltage	$V_a$	495	475	450	795	775	725	V
Grid No.2 supply voltage	$V_{bg2}$	400	400	375	400	400	375	V
Anode current	$I_a$	2x30	2x125	2x102	2x25	2x91	2x84	mA
Grid No.2 current	$I_{g2}$	2x4	2x25	2x25	2x3	2x19	2x19	mA
Output power	$W_o$	0	70	58	0	100	90	W
Distortion	$d_{tot}$	-	5	6	-	5	6	%

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## OPERATING CHARACTERISTICS

Class AB, two tubes in push-pull

Load resistance	$R_{aa\sim}$	3.4	$k\Omega$
Common grid No.2 series resistor (non decoupled)	$R_{g2}$	470	$\Omega$
Common cathode resistor	$R_k$	130	$\Omega$
Grid No.3 voltage	$V_{g3}$	0	
Grid No.1 driving voltage	$V_i$	0	21 $V_{RMS}$
Supply voltage	$V_b$	375	375 V
Anode to earth voltage	$V_a + V_{Rk}$	355	350 V
Anode current	$I_a$	2x75	2x95 mA
Grid No.2 current	$I_{g2}$	2x11.5	2x22.5 mA
Output power	$W_o$	0	35 W
Distortion	$d_{tot}$	-	5 %

## LIMITING VALUES (Design centre rating system)

Anode voltage	$V_{a0}$	max.	2000 V
	$V_a$	max.	800 V
Grid No.2 voltage	$V_{g20}$	max.	800 V
	$V_{g2}$	max.	500 V
Anode dissipation			
	at $V_i = 0$	$W_a$	max. 25 W
	at $V_i > 0$	$W_a$	max. 27.5 W
Grid No.2 dissipation	$W_{g2}$	max.	8 W
Cathode current	$I_k$	max.	150 mA
Grid No.1 resistor			
	for class A and AB	$R_{g1}$	max. 0.7 $M\Omega$
	for class B	$R_{g1}$	max. 0.5 $M\Omega$
Cathode to heater voltage	$V_{kf}$	max.	100 V