

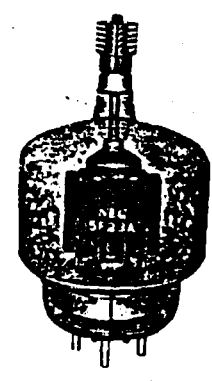
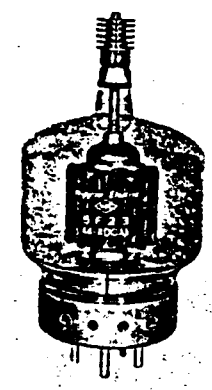
SF23A000



NL5F23/5F23A

Air Cooled Tetrodes

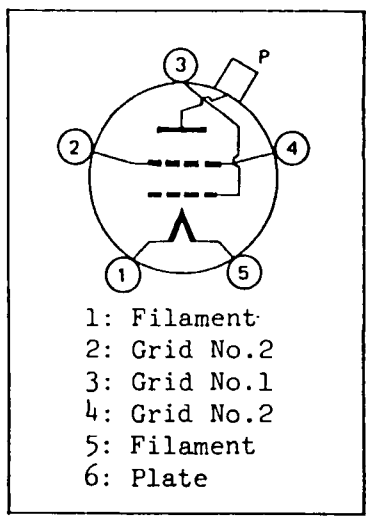
NL 5F23 and 5F23A are compact, ruggedly constructed power tetrodes possessing a maximum plate dissipation rating of 400 watts. They are designed for use as an amplifier, oscillator or modulator. The low grid to plate capacitance of these tetrodes coupled with their low driving power requirement allows considerable simplification of the associated circuit and driver stage. 5F23 and 5F23A are cooled by radiation from the plate and by circulation of forced-air through the base around the envelope, and over the plate seal. Cooling can be greatly simplified by using an NL air-system socket and its accompanying glass chimney. This socket is designed to efficiently maintain the correct balance of cooling air between the component parts of the tube.



Electrical Data:

General Data:

- Filament: Thoriated Tungsten
- Voltage 5.0 volts
- Current 14 amps
- Amplification Factor, Grid No.1 to Grid No.2
(Eb=0 volts, Ec2=500 volts, Ic2=70 mA). . 5.3
- Transconductance 4 millimhos
(Eb=2500 volts, Ec2=500 volts, Ib=100mA)



TERMINAL CONNECTIONS

NATIONAL ELECTRONICS
A Division of Richardson Electronics, Ltd.
LaFox, IL 60147 • (708) 208-2300

**National
NL5F23/5F23A
Air Cooled Tetrode**

Direct Interelectrodes Capacitances:

Grid No.1 to plate	0.17 μF
Input	12.6 μF
Output	4.9 μF
Frequency for Maximum Ratings	110 MHz

Mechanical Data:

Mounting Position: Vertical, base down

Dimensions:

Maximum Overall Length	5F23: 162mm 5F23A: 150mm
Maximum Diameter	92 mm
Net Weight (Approx.)	5F23: 250 g 5F23A: 200 g

Cooling:

Radiation and Forced-air

Minimum air flow	0.4 m ³ /min
Minimum static pressure	4 mm of water
Maximum plate seal temperature	180°C
Maximum bulb temperature	200°C
Maximum stem temperature	170°C

Accessories Required:

Plate connector:	NL VT-409
Socket:	NL M-527

AF Power Amplifier and Modulator—Class B

Maximum Ratings: Absolute Values

DC Plate Voltage	4000 volts
DC Grid No.2 Voltage	600 volts
Max. Signal DC Plate Current	350 mA
Max. Signal Plate Input Power	1100 watts
Plate Dissipation	400 watts
Grid No.2 Dissipation	35 watts
Grid No.1 Dissipation	10 watts

Typical Operation: (values are for two tubes)

DC Plate Voltage	3500 volts
DC Grid No.2 Voltage	500 volts
DC Grid No.1 Voltage	-90 volts
Peak AF Grid No.1 to Grid No.1 Voltage	260 volts
Zero-Signal DC Plate Current	130 mA
Max. Signal DC Plate Current	600 mA
Zero-Signal DC Grid No.2 Current	0 mA
Max. Signal DC Grid No.2 Current (Approx.)	16 mA
Max. Signal DC Grid No.1 Current (Approx.)	9 mA
Effective Load Resistance (Plate to plate)	12200 ohms
Max. Signal Driving Power (Approx.)	1.2 watts
Max. Signal Plate Power Output (Approx.)	1300 watts

**National
NL5F23/5F23A
Air Cooled Tetrode**

RF Power Amplifier and Oscillator—Class C Telegraphy

(Key-down conditions per tube without amplitude modulation)

and

RF Power Amplifier—Class C FM Telephony

Maximum Ratings: Absolute Values

DC Plate Voltage	4000 volts
DC Grid No.2 Voltage	600 volts
DC Grid No.1 Voltage	-500 volts
DC Plate Current	350 mA
DC Grid No.1 Current	20 mA
Plate Input	1400 watts
Plate Dissipation	400 watts
Grid No.2 Dissipation	35 watts
Grid No.1 Dissipation	10 watts

Typical Operation:

DC Plate Voltage	2500	3000	3500 volts
DC Grid No.2 Voltage	500	500	500 volts
DC Grid No.1 Voltage	-150	-180	-200 volts
Peak RF Grid No.1 Voltage.	220	265	280 volts
DC Plate Current	300	330	330 mA
DC Grid No.2 Current	46	50	50 mA
DC Grid No.1 Current (Approx.)	14	19	17 mA
Driving Power (Approx.)	3	5.1	4.3 watts
Plate Power Output (Approx.)	550	750	930 watts

National
NL5F23/5F23A
Air Cooled Tetrode

Plate Modulated RF Power Amplifier—Class C Telephony

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

Maximum Ratings: Absolute Values

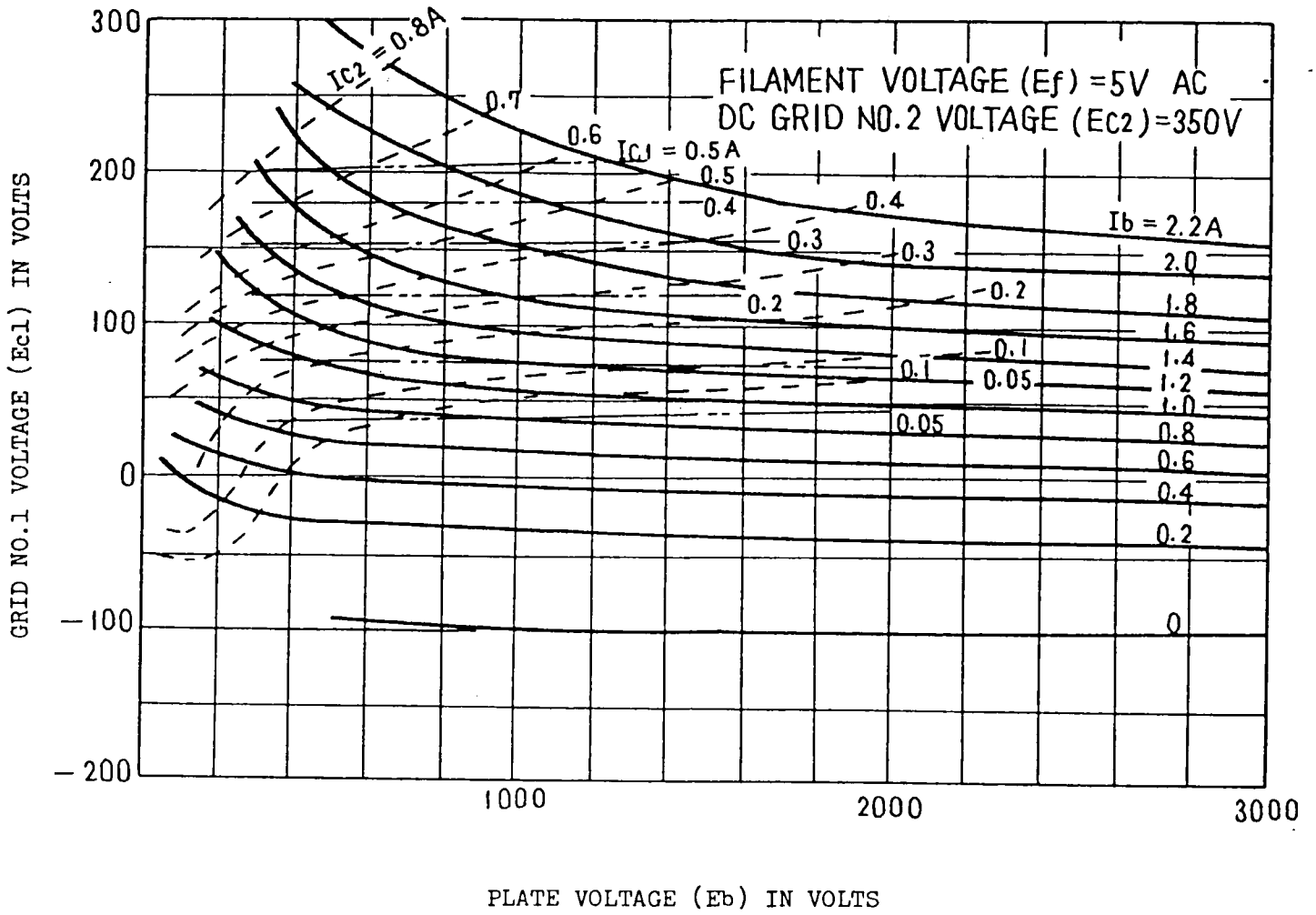
DC Plate Voltage	3200 volts
DC Grid No.2 Voltage	600 volts
DC Grid No.1 Voltage	-500 volts
DC Plate Current	280 mA
DC Grid No.1 Current	20 mA
Plate Input	900 watts
Plate Dissipation	270 watts
Grid No.2 Dissipation	35 watts
Grid No.1 Dissipation	10 watts

Typical Operation:

DC Plate Voltage	2000	2500	3000 volts
DC Grid No.2 Voltage	500	500	500 volts
DC Grid No.1 Voltage	-220	-220	-220 volts
Peak RF Grid No.1 Voltage	295	295	295 volts
DC Plate Current	270	270	270 mA
DC Grid No.2 Current	40	45	50 mA
DC Grid No.1 Current (Approx.)	13	13	13 mA
Driving Power (Approx.)	3.8	3.8	3.8 watts
Plate Power Output (Approx.)	360	500	630 watts

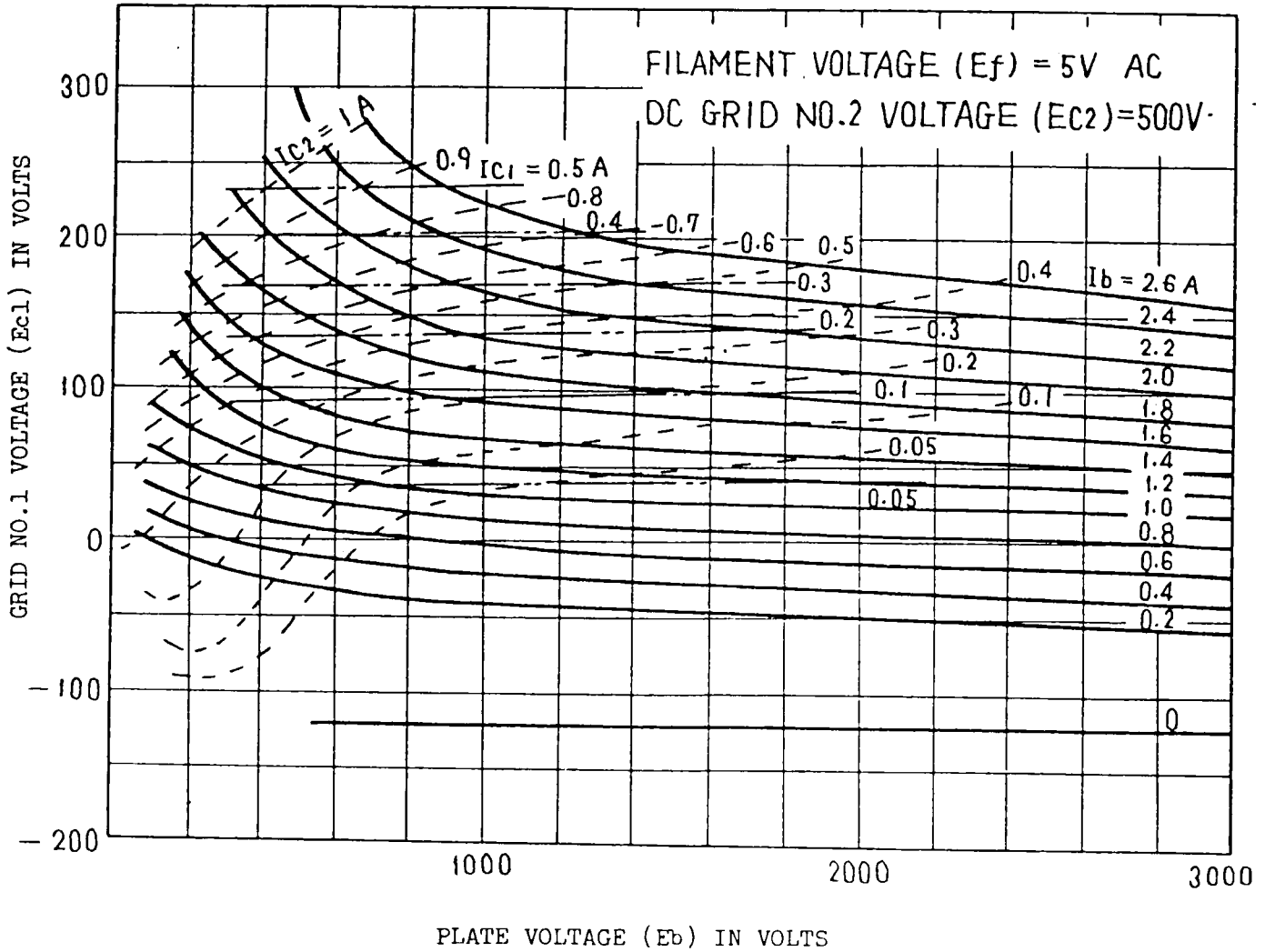
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 NL5F23/5F23A
 Air Cooled Tetrode

NL5F23



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NL 5F23A



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OUTLINE DRAWING

