

The 6083/AX-9909 is a five-electrode tube designed for use as a radio-frequency power amplifier, oscillator and audio-frequency amplifier. The anode is capable of dissipating 45 watts, and cooling is accomplished by radiation. The cathode is a coated unipotential cathode. Maximum ratings apply up to 60 megacycles.

GENERAL CHARACTERISTICS

ELECTRICAL

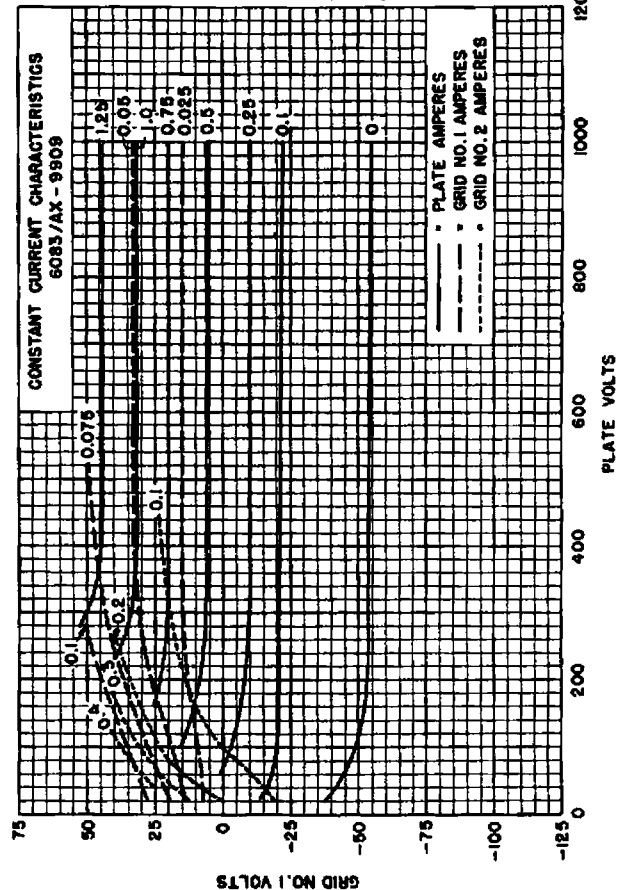
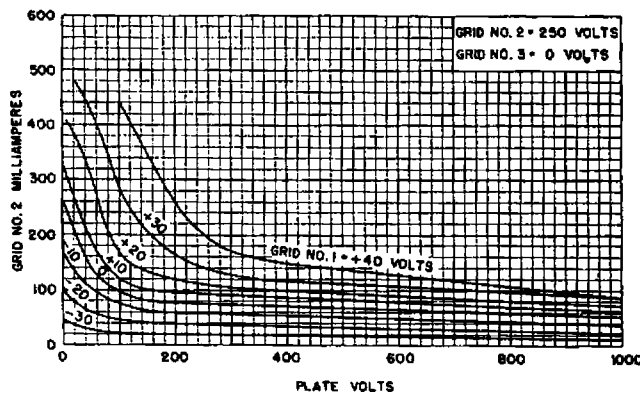
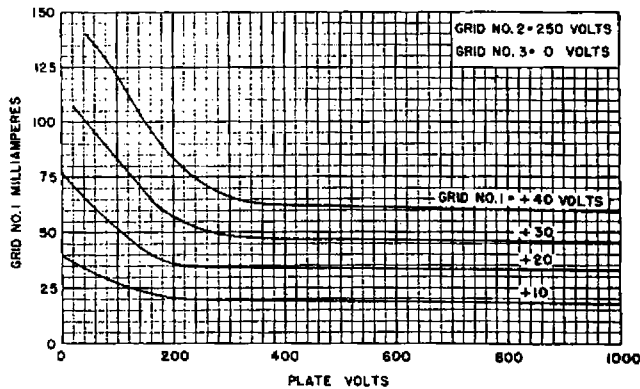
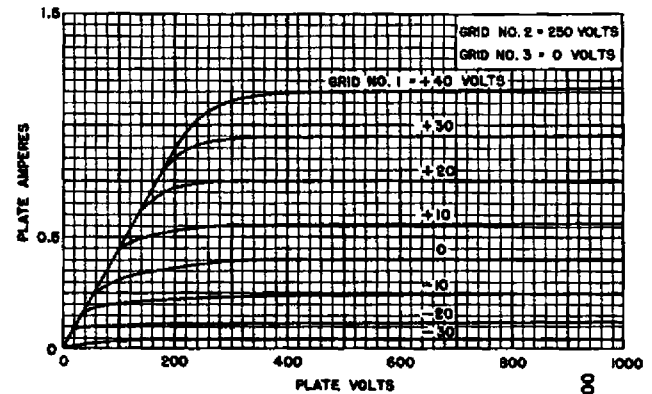
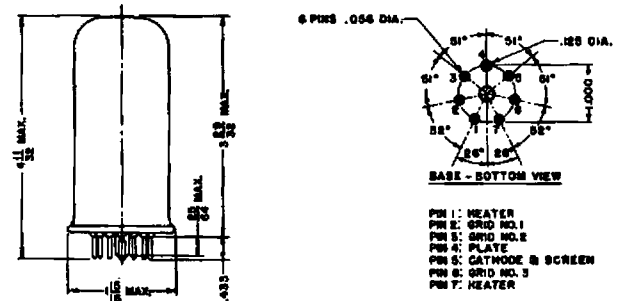
	Min.	Bogey	Max.
Heater Voltage	11.4	12.6	13.8 volts
Heater Current at Bogey Voltage	1.22	1.35	1.48 amperes
Amplification Factor			
G1-G2 Mu at Eb=1000 volts,			
Ec2=300 volts, Ib=40 ma	5.4	6.7	8.0
Peak Cathode Current ¹	—	—	1.5 amperes
Direct Interelectrode Capacitances			
Grid-Plate	—	0.1	0.2 $\mu\mu\text{f}$
Input	21	22.5	24 $\mu\mu\text{f}$
Output	9.8	11	12.2 $\mu\mu\text{f}$

MECHANICAL

Mounting Position	Any
Maximum Glass Temperature at bottom seals	180° C
Net weight, approximate	2.7 ounces

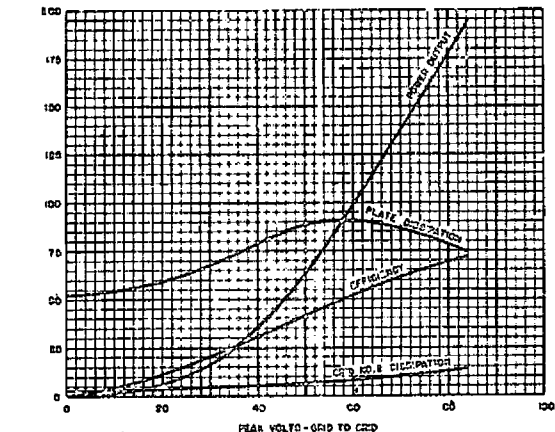
¹Represents maximum usable cathode current (plate current plus current to each grid) for any condition of operation.

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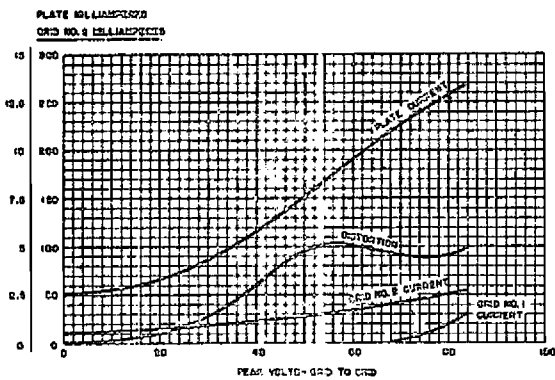


GRID NO. 2 DISSIPATION - WATTS
 PLATE DISSIPATION - WATTS
 POWER OUTPUT - WATTS
 PERCENT EFFICIENCY

CLASS B MODULATOR
 TWO UNITS, PUSH-PULL
 PLATE VOLTAGE = 1000 VOLTS
 GRID NO. 2 VOLTAGE = 250 VOLTS
 GRID NO. 1 VOLTAGE = -34 VOLTS
 GRID NO. 3 VOLTAGE = 0
 RESISTANCE, PLATE TO PLATE = 6000 OHMS

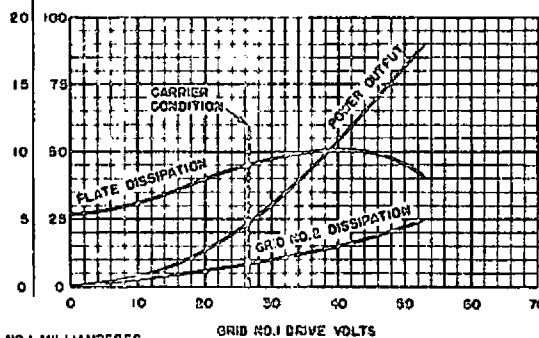


GRID NO. 1 MILLIAMPERES
 PERCENT DISTORTION

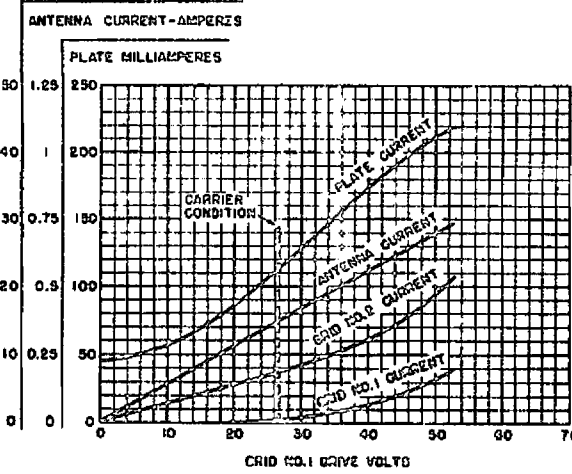


GRID NO. 2 DISSIPATION - WATTS
 PLATE DISSIPATION - WATTS
 POWER OUTPUT - WATTS

CLASS B TELEPHONE
 80 MEGACYCLE MAXIMUM
 PLATE VOLTAGE = 600 VOLTS
 GRID NO. 1 VOLTAGE = -30.9 VOLTS
 GRID NO. 2 VOLTAGE = 250 VOLTS
 GRID NO. 3 VOLTAGE = 0



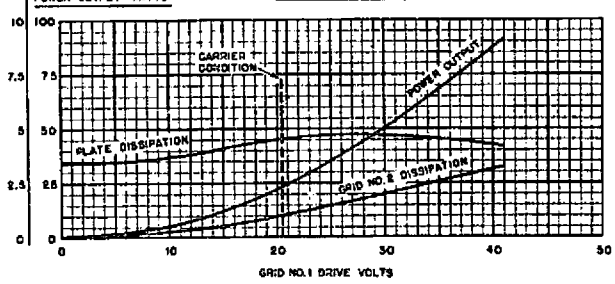
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 GRID NO. 2 MILLIAMPERES



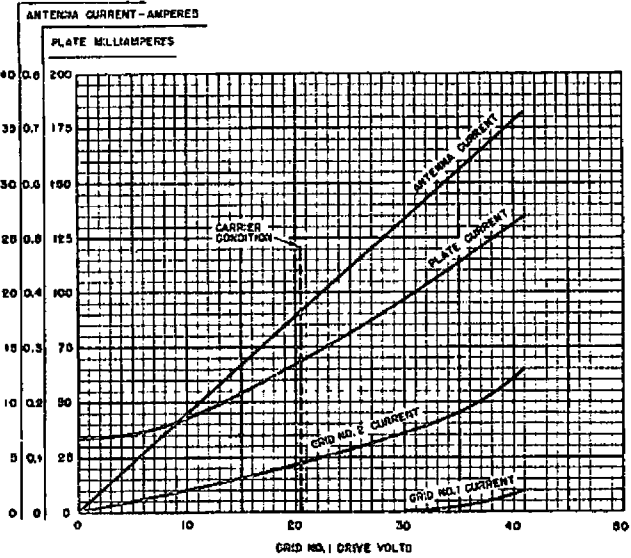
CLASS B TELEPHONE
 80 MEGACYCLE MAXIMUM
 PLATE VOLTAGE = 1000 VOLTS
 GRID NO. 1 VOLTAGE = -34 VOLTS
 GRID NO. 2 VOLTAGE = 250 VOLTS
 GRID NO. 3 VOLTAGE = 0

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GRID NO. 2 DISSIPATION - WATTS
 PLATE DISSIPATION - WATTS
 POWER OUTPUT - WATTS



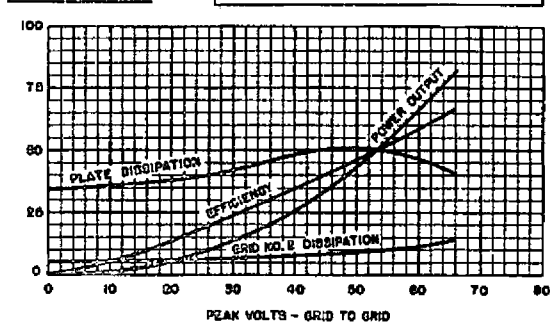
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 GRID NO. 2 MILLIAMPERES



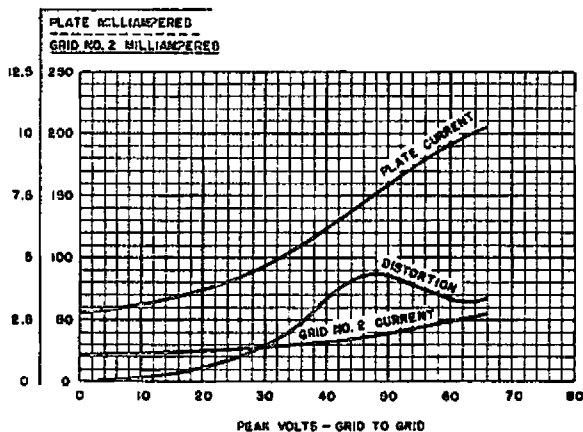
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GRID NO. 2 DISSIPATION - WATTS
 PLATE DISSIPATION - WATTS
 POWER OUTPUT - WATTS
 PERCENT EFFICIENCY

CLASS B MODULATOR
 TWO UNITS, PUSH-PULL
 PLATE VOLTAGE = 600 VOLTS
 GRID NO. 2 VOLTAGE = 250 VOLTS
 GRID NO. 1 VOLTAGE = -33 VOLTS
 GRID NO. 3 VOLTAGE = 0
 RESISTANCE, PLATE TO PLATE = 6320 OHMS



PERCENT DISTORTION



MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. Power Amplifier and Modulator—Class B

Maximum Ratings, Absolute Values	
	CCS
D.C. Plate Voltage	1000 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
Maximum Signal D.C. Plate Current ¹	210 ma max.
Maximum Signal Plate Input ¹	180 watts max.
Maximum Signal Grid No. 2 Input ¹	7 watts max.
Plate Dissipation ¹	45 watts max.

Typical Operation

Unless otherwise specified, values are for two tubes

	CCS	CCS	CCS
D.C. Plate Voltage	600	800	1000 volts
D.C. Grid No. 3 Voltage	0	0	0 volts
D.C. Grid No. 2 Voltage	250	250	250 volts
D.C. Grid No. 1 Voltage	33	33.5	34 volts
Peak A.F. Grid No. 1 to Grid No. 1 Voltage	66	69	84 volts
Zero Signal D.C. Plate Current	2x28	2x28	2x26 ma
Maximum Signal D.C. Plate Current	2x102	2x108	2x134 ma
Zero Signal D.C. Grid No. 2 Current	2x11	2x8	2x5 ma
Max. Signal D.C. Grid No. 2 Current	2x28	2x27	2x28 ma
Effective Load Resistance, Plate to Plate	6320	7560	8800 ohms
Max. Signal Driving Power, approx.	0	0	0.06 watts
Max. Signal Power Output, approx.	82	110	194 watts

R.F. Power Amplifier—Class B

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

Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	1000 volts max.
D.C. Grid No. 3 Voltage	0 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Plate Current	170 ma max.
Plate Input	72 watts max.
Grid No. 3 Input	— watts max.
Grid No. 2 Input	6 watts max.
Plate Dissipation	45 watts max.

Typical Operation

	CCS	CCS	CCS
D.C. Plate Voltage	600	800	1000 volts
D.C. Grid No. 3 Voltage	0	0	0 volts
D.C. Grid No. 2 Voltage	250	250	250 volts
D.C. Grid No. 1 Voltage	30.5	33	34 volts
Peak R.F. Grid No. 1 Voltage	26.5	22.5	20.5 volts

D.C. Plate Current	114	85	68 ma
D.C. Grid No. 2 Current	7.5	6	4.5 ma
D.C. Grid No. 1 Current, approximate	0	0	0 ma
Driving Power, approximate ²	0.08	0.17	0.08 watts
Power Output, approximate	23	23	23 watts

Plate and Screen Grid Modulated

R.F. Power Amplifier — Class C — Telephony

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

Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	800 volts max.
D.C. Grid No. 3 Voltage	0 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Grid No. 1 Voltage	—250 volts max.
D.C. Plate Current	170 ma max.
D.C. Grid No. 1 Current	12 ma max.
Plate Input	136 watts max.
Grid No. 2 Input	6 watts max.
Plate Dissipation	30 watts max.

Typical Operation

	CCS	CCS
D.C. Plate Voltage	600	800 volts
D.C. Grid No. 3 Voltage	0	0 volts
D.C. Grid No. 2 Voltage	250	250 volts
D.C. Grid No. 1 Voltage	—120	—120 volts
Peak R.F. Grid No. 1 Voltage	150	150 volts
D.C. Plate Current	120	120 ma
D.C. Grid No. 2 Current	23	23 ma
D.C. Grid No. 1 Current, approximate	6.5	6.5 ma
Driving Power, approximate	0.9	0.9 watts
Power Output, approximate	51	75 watts

Suppressor-Modulated R.F. Power Amplifier

Class C—Telephony

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

Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	1000 volts max.
D.C. Grid No. 3 Voltage	—150 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Grid No. 1 Voltage	—250 volts max.
D.C. Plate Current	136 ma max.
D.C. Grid No. 1 Current	12 ma max.
Plate Input	72 watts max.
Grid No. 3 Input	0 watts max.
Grid No. 2 Input	6 watts max.
Plate Dissipation	45 watts max.

Typical Operation

	CCS	CCS	CCS
D.C. Plate Voltage	600	800	1000 volts
D.C. Grid No. 3 Voltage	—60	—80	—100 volts
D.C. Grid No. 2 Voltage	150	150	150 volts
D.C. Grid No. 1 Voltage	—100	—100	—100 volts
Peak A.F. Grid No. 3 Voltage	60	80	100 volts
Peak R.F. Grid No. 1 Voltage	150	145	140 volts
D.C. Plate Current	111	98.5	72 ma
D.C. Grid No. 2 Current	26	25	24 ma
D.C. Grid No. 1 Current, approximate	11	11	10 ma
Driving Power, approximate	1.5	1.5	1.3 watts
Power Output, approximate	22	26	27 watts

R.F. Power Amplifier and Oscillator
Class C—TelegraphyKey-down conditions per tube without amplitude modulation³

Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	1000 volts max.
D.C. Grid No. 3 Voltage	0 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Grid No. 1 Voltage	—250 volts max.
D.C. Plate Current	210 ma max.
D.C. Grid No. 1 Current	12 ma max.
Plate Input	210 watts max.
Grid No. 2 Input	7 watts max.
Plate Dissipation	45 watts max.

Typical Operation

	CCS	CCS	CCS
D.C. Plate Voltage	600	800	1000 volts
D.C. Grid No. 3 Voltage	0	0	0 volts
D.C. Grid No. 2 Voltage	250	250	250 volts
D.C. Grid No. 1 Voltage	—100	—110	—120 volts
Peak R.F. Grid No. 1 Voltage	124	134	144 volts
D.C. Plate Current	205	190	177 ma
D.C. Grid No. 2 Current	28	28	28 ma
D.C. Grid No. 1 Current, approximate	7.5	6	5 ma

Driving Power, approximate	0.84	0.70	0.65 watts
Power Output, approximate	78	107	132 watts

Electrical Data and Limits

Maximum ratings apply up to 60 megacycles.

Characteristic	Conditions	Min.	Limits Range	Max.
Grid No. 1 Voltage	E _b =250 V E _{c1} =250 V I _b =850 ma	E _{c1} : —	—	40 volts
Grid No. 2 Current	E _b =250 V E _{c1} =250 V I _b =850 ma	I _{c1} : —	—	200 ma
Grid No. 1 Current	E _b =250 V E _{c1} =250 V I _b =850 ma	I _{c1} : —	—	70 ma
Plate Current	E _b =1000 V E _{c1} =300 V E _{c1} =—55 V	I _b : —	—	5 ma
Plate Current	E _b =1000 V E _{c1} =300 V E _{c1} =—35 V	I _b : 27	50	73 ma
Plate Current	E _b =1000 V E _{c1} =300 V E _{c1} =—25 V	I _b : 84	128	172 ma
Grid No. 2 Current	E _b =1000 V E _{c1} =300 V E _{c1} =—35 V	I _{c1} : —	—	5 ma
Power Output	E _b =1000 V E _{c1} =250 V E _{c1} =—120 V I _b =175 ma f=60 megacycles	Po: 105	—	— watts

¹Averaged over any audio-frequency cycle of sine-wave form.²At crest of audio-frequency cycle with modulation factor of 1.0.³Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.