

AMPEREX TRANSMITTING TUBE 849A-849H

R.F. Power Amplifier, Oscillator,

A.F. Power Amplifier, or Modulator

The Amperex 849-A supersedes the 849. It is the older model redesigned along modern engineering principles. In its physical configurations and major electrical characteristics it is identical with the 849. Its performance capabilities are far greater.

GENERAL CHARACTERISTICS

Filament Voltage	11 volts
Filament Current	7.7 amperes
Average Characteristics:	
Amplification Factor	19
Grid to Plate Transconductance @ 200 ma.	7600 micromhos
Direct Interelectrode Capacitances:	
	849A 849H
Grid to Plate	11.5 11.5 $\mu\mu\text{f}$
Grid to Filament	14.0 10.0 $\mu\mu\text{f}$
Plate to Filament	1.8 1.8 $\mu\mu\text{f}$

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. Power Amplifier and Modulator—Class A

	Maximum Rating per Tube	Typical Operation One Tube		
A.C. Filament Voltage	..	11	11	11
D.C. Plate Voltage	4000	2500	3000	4000
D.C. Grid Voltage	..	-100	-130	-185
Peak A.F. Grid Voltage	..	94	124	180
D.C. Plate Current (ma.)	..	135	120	100
Plate Input (watts)	400	338	360	400
Plate Dissipation (watts)	400	338	360	400
Load Resistance (ohms)	..	12000	18000	30000
Power Output (watts)	..	82	105	150
Distortion (% Second Harmonic)	..	3	2.5	4

A.F. Power Amplifier and Modulator—Class B

	Maximum Rating per Tube	Typical Operation Two Tubes		

A.C. Filament Voltage	..	11	11	11
D.C. Plate Voltage	4000	2500	3000	3000
D.C. Grid Voltage	..	-118	-140	-140
Load Resistance (per tube)—(ohms)	..	2000	3200	2000
Effective Load Resistance (plate to plate)—(ohms)	..	8000	12800	8000
Zero Signal Plate Current (ma.)	..	120	100	100
Peak A.F. Grid to Grid Voltage	..	416	480	600
Max. Signal Plate Current* (ma.)	500	585	530	900

A.F. Power Amplifier and Modulator—Class B

(Continued)

	Maximum Rating per Tube	Typical Operation Two Tubes		
Max. Signal Plate Input* (watts)	1350	1460	1590	2700
Plate Dissipation (watts)	500**	620*	490*	800*
Plate Dissipation (watts)	..	..	..	920**
Max. Signal Driving Power*** (Approx.)—(watts)	..	6	12	40
Minimum Grid Input Resistance (Approx.)—(ohms)	..	1600	500	250
Max. Signal Power Output (watts)	..	840	1100	1900

*Average over an audio-frequency cycle of sine-waveform under maximum-signal conditions.

**Average over an audio-frequency cycle of sine-waveform under approximately 70% of maximum drive conditions.

***Based upon peak power demand from driver.

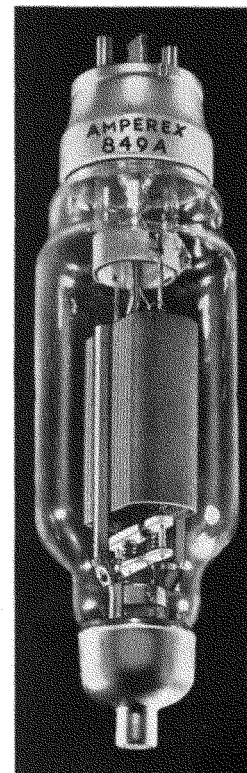
****Low distortion operating condition recommended for plate modulating the final stage of 1 KW Broadcast Transmitters. This operating condition makes possible exceptionally low distortion because of the relatively high value of the minimum input resistance to the grids of the tubes, coupled with a low driving power requirement and a practically straight line plate transfer characteristic.

R.F. Power Amplifier—Class B—Telephony

Carrier conditions for use with a maximum modulation factor of 1.0

	Maximum Rating per Tube	Typical Operation One Tube		
A.C. Filament Voltage	..	11	11	11
D.C. Plate Voltage	3500	2000	2500	3000
D.C. Grid Voltage	..	-80	-110	-140
Peak R.F. Grid Voltage	..	110	135	160
D.C. Plate Current (ma.)	350	187	216	250
Plate Input (watts)	750	374	540	750
Plate Dissipation (watts)	500	242	350	480
Plate Load Resistance (ohms)	..	3100	3300	3380
D.C. Grid Current (Approx.)—(ma.)	..	3	2	1.5
Driving Power (Approx.)*—(watts)	..	9	12	18
Plate Power Output (watts)	..	132	190	270
Frequency Limit for Above Operation:				
849A (mc.)	3.0	15	10	3.0
849H (mc.)	10.0	40	30	20.0
F.C.C. Broadcast Rating (for final stage use)—(watts)	250	125	..	250

*At crest of audio frequency cycle with modulation factor of 1.0.



AMPEREX

849A-H

849A-849H—AMPEREX TRANSMITTING TUBE



Plate Modulated R.F. Power Amplifier Class C—Telephony

Carrier conditions for use with modulation factor of 1.0

	Maximum Rating per Tube	Typical Operation One Tube	
A.C. Filament Voltage	—	11	11
D.C. Plate Voltage	3000	2500	2500
D.C. Grid Voltage	—500	—300	—300
Peak R.F. Grid Voltage	—	475	520
D.C. Plate Current (ma.)	500	335	500
Plate Input (watts)	1250	838	1250
Plate Load Resistance (ohms)	—	3700	2450
D.C. Grid Current (Approx.) (ma.)	100	48	70
Driving Power (Approx.) (watts)	—	22	35
Plate Dissipation (watts)	400	158	290
Plate Power Output (watts)	—	680	960
Frequency Limit for Above Operation (mc.): 849A	3.0	7.5	6
849H	10.0	20	15
F.C.C. Broadcast Rating (for final stage use) (watts)	750	500	750

Grid Modulated R.F. Power Amplifier—Class C

Carrier conditions for use with a maximum modulation factor of 1.0

	Maximum Rating per Tube	Typical Operation One Tube
A.C. Filament Voltage	—	11
D.C. Plate Voltage	3500	3000
D.C. Grid Voltage (Total) (Fixed Bias)	500	—425
Grid Resistor (ohms)	—	2200
Peak R.F. Grid	—	500
Peak A.F. Grid	—	225
D.C. Plate Current (ma.)	350	250
Plate Input (watts)	750	750
Plate Load Resistance (ohms)	—	2750
Plate Dissipation (watts)	500	450
D.C. Grid Current (Approx.) (ma.)	—	4.5
R.F. Grid Driving Power (watts)*	—	25
Plate Power Output (watts)	—	300
Frequency Limit for Above Operation (mc.): 849A	3	3
849H	10	20
F.C.C. Broadcast Rating (for final stage use with 33% efficiency) (watts)	250	250

*At positive crest of Audio Frequency cycle of sine-wave form.

R.F. Power Amplifier and Oscillator Class C—Telegraphy

Key-down conditions without modulation

	Maximum Rating per Tube	Typical Operation One Tube	
A.C. Filament Voltage	—	11	11
D.C. Plate Voltage	3500	2500	3000
D.C. Grid Voltage	—500	—300	—300
Peak R.F. Grid Voltage	—	520	500
D.C. Plate Current (ma.)	500	500	500
Plate Input (watts)	1750	1250	1500
D.C. Grid Current (Approx.) (ma.)	100	70	50
Plate Load Resistance (ohms)	—	2450	2750
Plate Dissipation (watts)	500	290	320
Driving Power (Approx.) (watts)	—	35	25
Plate Power Output (watts)	—	960	1180
Frequency Limit for Above Operation (mc.): 849A	5	10	7.5
849H	20	40	30

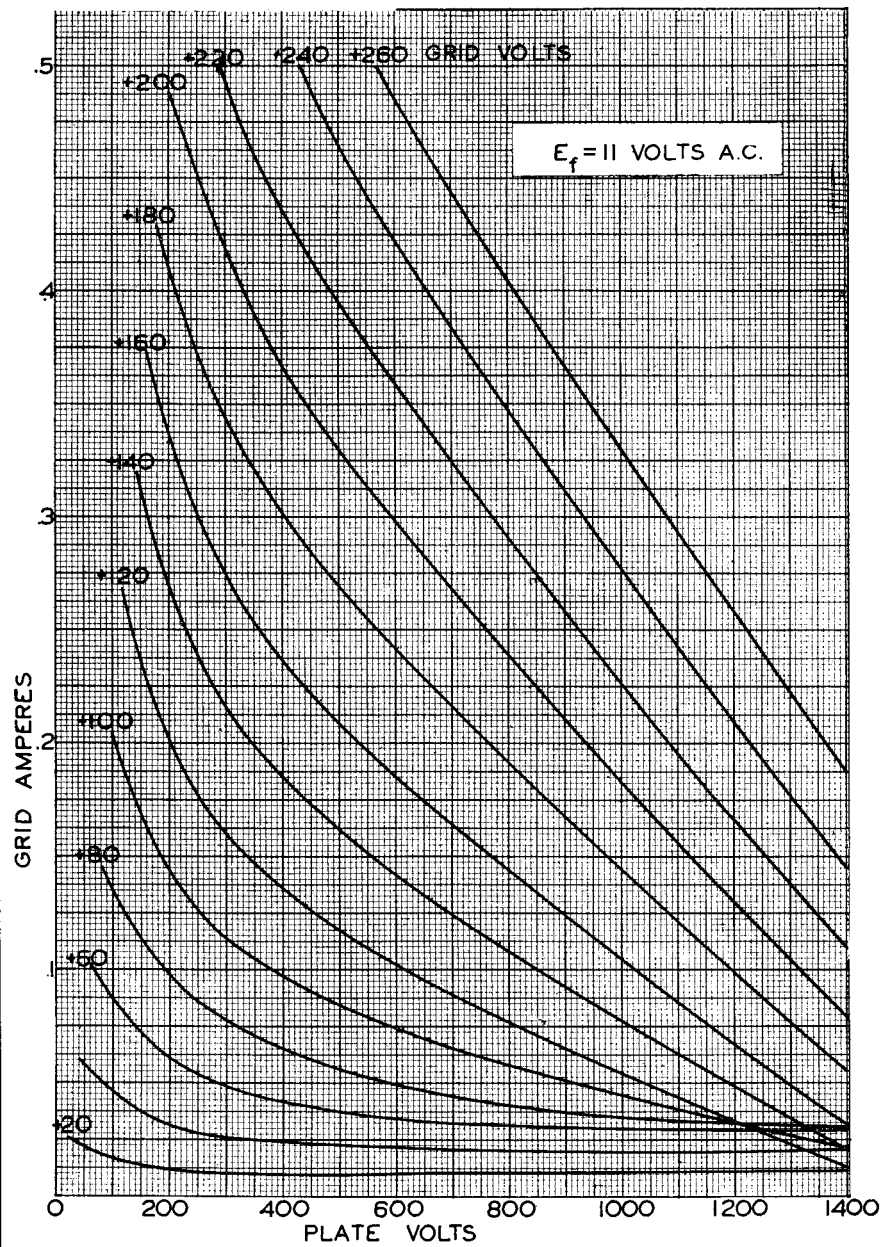
AMPEREX 849-H

The Amperex 849-H is identical in all but its interelectrode capacitances with the 849-A. The only other point of difference is the grid connection which terminates in an arm extending from the side of the glass envelope. It is designed for more efficient operation at high frequencies and may be operated at full ratings up to 30 megacycles in many classes of service.

849A-H

Technical drawing of a 6X4 vacuum tube. The drawing shows the tube's profile with various dimensions and labels. Key features include:

- FILAMENT:** Located at the top, with a diameter of $3 \frac{7}{8} \pm \frac{1}{8}$ inches.
- GRID 849-A:** Located below the filament, with a diameter of $3 \frac{1}{16}$ inches.
- GRID FOR 849-H:** Indicated by dotted lines, with a diameter of $\frac{1}{8}$ inch.
- PLATE:** Located at the bottom, with a diameter of 800^{th} inch.
- Dimensions:**
 - Top section: $3 \frac{7}{8} \pm \frac{1}{8}$ inches.
 - Grid 849-A: $3 \frac{1}{16}$ inches.
 - Grid for 849-H: $\frac{1}{8}$ inch.
 - Plate: 800^{th} inch.
 - Bottom section: 813^{th} inch.
 - Overall height: $1 \frac{1}{4} \pm \frac{1}{8}$ inches.
 - Internal diameter: $4 \frac{1}{16}$ MAX.



849-A-H-AMPEREX TRANSMITTING TUBE

849-A TRANSFER CHARACTERISTICS A F POWER AMPLIFIER AND MODULATOR CLASS-B

