



Amperex® ELECTRONIC CORPORATION

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AMPEREX TUBE TYPE 7459

TENTATIVE DATA

The 7459 is a forced-air-cooled triode designed for use in broadcast FM and TV communication transmitters. Its construction and characteristics are similar to the Amperex tube type 5924A. However, the 7459 features an exclusive specially processed grid which makes possible its high grid current rating and extremely stable characteristics.

The maximum ratings of this tube apply up to 110 megacycles.¹

GENERAL CHARACTERISTICS

ELECTRICAL

Filament	thoriated tungsten
Voltage	12.6 volts
Current ²	30 amps
Amplification Factor	32
($I_b = 1$ amp; $E_b = 6000$ volts)	
Transconductance	
($I_b = 1$ amp; $E_b = 6000$ volts)	15,000 micromhos
Direct Interelectrode Capacitances	
Grid to Plate	11 $\mu\mu f$
Grid to Filament	16 $\mu\mu f$
Plate to Filament	0.3 $\mu\mu f$

MECHANICAL

Maximum Overall Dimensions	
Length	11 inches
Diameter	4 5/8 inches
Mounting Position	vertical, anode up or down
Max Temperature of Filament Seals	210°C
Max Temperature of Grid and Anode Seals	180°C
Cooling	forced air

COOLING CHARACTERISTICS

Plate Dissipation (kilowatts)	Altitude (feet)	Inlet Air Temperature (°C)	Min. Air Flow (cu. ft/minute)	Inlet Air Pressure (inlet water)
2	0	35	75	0.26
	0	45	90	0.35
	5000	35	90	0.33
	10,000	25	97	0.33
4	0	35	230	1.75
	0	45	270	2.30
	5000	35	270	2.20
	10,000	25	310	2.90

¹ For use and ratings at frequencies up to 220 Mc/s, consult the Amperex Applications Engineering Laboratory.

² The filament center tap pin must not be used for filament current supply.

7459

MAXIMUM RATING AND TYPICAL OPERATING CONDITIONS

AF Power Amplifier and Modulator - Class B

Maximum Ratings, Absolute Values (per tube)

	CCS
D-C Plate Voltage	6500 volts
D-C Plate Current	1.6 amps
Plate Input	10,000 watts
Plate Dissipation	4000 watts
Grid Resistor	15,000 ohms

Typical Operation (two tubes)

	CCS	CCS	CCS
D-C Plate Voltage	5000	5000	4000 volts
D-C Grid Voltage	-145	-145	-120 volts
Peak AF Grid to Grid Voltage	840	690	900 volts
Zero Signal D-C Plate Current	2 x 0.15	2 x 0.15	2 x 0.1 amps
Max Signal D-C Plate Current	2 x 1.25	2 x 1.1	2 x 1.25 amps
Effective Load Resistance, Plate to Plate	4800	5500	3800 ohms
Max Signal Drive Power (approx)	2 x 130	2 x 65	2 x 140 watts
Max Signal Power Output (approx)	9000	8000	7100 watts

Plate Modulated RF Power Amplifier

Class C - Telephony

(Carrier Conditions Per Tube with a Maximum Modulation Factor of 1.0)

Maximum Ratings, Absolute Values (per tube)

	CCS
Frequency	30 Mc/s
D-C Plate Voltage	5.5 kilovolts
D-C Grid Voltage	-1100 volts
D-C Plate Current	1.7 amps
D-C Grid Current	0.6 amps
Plate Input	7000 watts
Plate Dissipation	3000 watts

Typical Operation

	CCS	CCS
D-C Plate Voltage	5000	4000 volts
D-C Grid Voltage ³	-400	-300 volts
Peak RF Grid Voltage	765	680 volts
D-C Plate Current	1.5	1.6 amps
D-C Grid Current	0.55	0.6 amps
Driving Power	375	367 watts
Power Output	6000	5000 watts

³ Grid Bias partially obtained by the grid resistor.

RF Power Amplifier and Oscillator - Class C - Telegraphy - FM
(Key-down conditions per tube without amplitude modulation)

Maximum Ratings, Absolute Values (per tube)

	CCS
D-C Plate Voltage ⁴	6500 volts
D-C Grid Voltage	-1100 volts
D-C Plate Current ⁴	1.5 amps
D-C Grid Current	0.35 amps
Plate Input ⁴	9000 watts
Plate Dissipation	4000 watts

Typical Operation, Grounded Filament Circuit

	CCS	CCS	CCS
Frequency ⁵	75	75	75 Mc/s
D-C Plate Voltage	6000	5000	4000 volts
D-C Grid Voltage	-400	-300	-200 volts
Peak RF Grid Voltage	740	640	500 volts
D-C Plate Current	1.5	1.5	1.37 amps
D-C Grid Current (approx)	0.31	0.33	0.35 amps
Driving Power	210	190	160 watts
Power Output (approx)	6900	5600	4000 watts

Typical Operation, Grounded Grid Circuit (two tubes)

Frequency ⁵	75	110	110	220 Mc/s
D-C Plate Voltage	6000	5000	4000	4000 volts
D-C Grid Voltage	400	300	200	200 volts
Peak RF Grid Voltage	740	640	500	450 volts
D-C Plate Current	3	3	2.75	2.5 amps
D-C Grid Current (approx)	0.62	0.66	0.70	0.40 amps
Driving Power	2240	1840	1350	760 watts
Power Output ⁶ (approx)	15,600	12,100	8600	5600 watts

⁴ Maximum Ratings per tube

	Up to 75 Mc	Up to 110 Mc	Up to 220 Mc	
D-C Plate Voltage	6000	5000	4000	volts
D-C Plate Current	1.5	1.5	1.5	amps
Plate Input	9000	7500	5000	watts

⁵ When using the tube above 110 megacycles, particular attention must be given to a careful design of installation. Otherwise the tube may be damaged. Therefore, guarantee for tubes operating above 110 Mc can only be given after approval of the prototype circuit by Amperex.

⁶ Power transferred from driving stage included.

Technical drawing of a circular component, likely a valve or plug, showing dimensions and labels:

- FCT**: Label pointing to the outer circular face.
- $1 \frac{3}{8} \pm \frac{1}{16}$ DIA**: Dimension indicating the diameter of the outer circle.
- $\frac{11}{32}$** : Dimension indicating the thickness of the component.
- GRID**: Label pointing to the grid pattern on the inner circular face.
- .210**: Dimension indicating the distance from the center to the edge of the grid.
- .182**: Dimension indicating the distance from the center to the edge of the outer circle.
- 120°**: Dimension indicating the angle between the grid and the outer edge.







