

**Amperex**® ELECTRONIC CORPORATION  
230 DUFFY AVENUE, HICKSVILLE, L. I., N. Y.

TUBE TYPE  
**8408**

The Amperex 8408 is an instant heating twin tetrode for use as an rf amplifier, frequency multiplier and modulator. The tube is designed for intermittent or continuous filament operation in transistorized mobile or fixed transmitters. The tube is internally neutralized for frequencies up to 500 Mc.

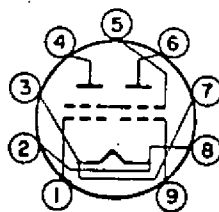
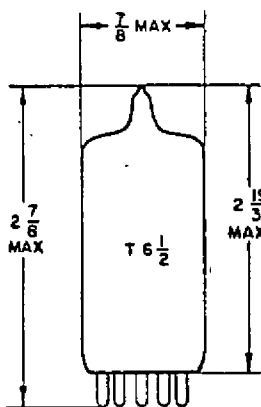
**GENERAL CHARACTERISTICS**

MECHANICAL

Mounting Position <sup>1</sup>	Any
Dimensions	See outline drawing
Filament	Oxide coated
Base	Noval E 9-1
Bulb	T 6-1/2
Maximum Bulb Temperature	225°C
Maximum Seal Temperature	120°C
Cooling <sup>2</sup>	Radiation and Convection

ELECTRICAL

Heating	Direct, parallel supply
Filament Voltage	1.1 volts ± 15% <sup>3</sup>
Filament Current	3 amps
Warm-Up Time (Power Output ≥ 70% max)	0.5 second
Amplification Factor at I <sub>b</sub> = 40 ma	26
Transconductance (I <sub>b</sub> = 40 ma, E <sub>b</sub> = E <sub>g2</sub> = 175V)	7000 μmhos



E 9-1 BASE  
9QV

PIN CONNECTIONS

1. GRID NO. 1, UNIT 2
2. FILAMENT, BEAM SHIELD
3. FILAMENT
4. PLATE, UNIT 2
5. GRID NO. 2, UNIT 1 AND 2
6. PLATE, UNIT 1
7. FILAMENT
8. FILAMENT, BEAM SHIELD
9. GRID NO. 1, UNIT 1



**Amperex**

1. If the tube is mounted horizontally, it is recommended that pin 2 and 7 be placed in a vertical plane.
2. Use of a closed tube shield is not permitted.
3. The filament supply may be DC or 50 to 60 cps AC (sinusoidal or square wave). Sinusoidal supply voltages within the frequency range of 200 to

RF Power Amplifier and Oscillator  
Class C - Telegraphy  
(Key down conditions per tube without modulation)  
Maximum Ratings, Absolute Values

	<u>CCS</u>	<u>CCS</u>
Frequency	200	500 Mc
DC Plate Voltage	300	200 volts
DC Plate Input Power	2x13.5	2x9.0 watts
Plate Dissipation	2x4	2x4 watts
DC Plate Current	2x45	2x45 ma
DC Grid No. 2 Voltage	200	200 volts
Grid No. 2 Dissipation	2.5	2.5 watts
DC Grid No. 1 Voltage	-150	-100 volts
DC Grid No. 1 Current	2x3	2x3 ma
Grid No. 1 Dissipation	2x0.1	2x0.1 watts
Grid No. 1 Resistor	100	100 k ohms

Typical Operation, Two Units in Push-Pull

	<u>CCS</u>	<u>CCS</u>
Frequency	200	500 Mc
DC Plate Voltage	275	175 volts
Grid No. 2 Resistor	8.2	0.1 k ohms
DC Grid No. 1 Voltage	-25	-18 volts
Grid No. 1 Resistor <sup>3</sup>	10	18 k ohms
Peak Grid No. 1 to Grid No. 1 Voltage	90	75 volts
DC Plate Current	2x40	2x40 ma
DC Grid No. 2 Current	13	12 ma
DC Grid No. 1 Current	2x1.25	2x1.2 ma
DC Plate Input Power	2x11	2x7 watts
Plate Dissipation	2x3.5	2x3 watts
Grid No. 2 Dissipation	2.2	2.1 watts
Driving Power	0.7	1.5 watts
Power Output	15	8 watts
Efficiency	68	57 %
Useful Output Power to Load	13	6 watts

Frequency Tripler  
(For Frequencies up to 500 Mc)  
Maximum Ratings, Absolute Values

	<u>CCS</u>
DC Plate Voltage	200 volts
Plate Dissipation	2x4 watts
DC Plate Input Power	2x6.0 watts
DC Plate Current	2x35 ma
DC Grid No. 2 Voltage	200 volts
Grid No. 2 Dissipation	2.5 watts
DC Grid No. 1 Voltage	-150 volts
DC Grid No. 1 Current	2x3 ma
Grid No. 1 Resistor	100 k ohms

Typical Operation, Two Units in Push-Pull  
(For Frequencies up to 167/500 Mc)

	<u>CCS</u>
DC Plate Voltage	175 volts
Grid No. 2 Resistor	100 ohms
Grid No. 1 Resistor <sup>3, 4</sup>	56 k ohms
DC Plate Current	2x30 ma
DC Grid No. 2 Current	9 ma
DC Grid No. 1 Current	2x1.2 ma
DC Plate Input Power	2x5.25 watts
Plate Dissipation	2x3.5 watts
Grid No. 2 Dissipation	1.6 watts
Driving Power	1.5 watts
Power Output	3.5 watts
Efficiency	33 %
Useful Output Power to Load	2.0 watts

3. Each unit.

4. Fixed bias or a combination of fixed bias and grid current biasing is not recommended.