

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

TUBE TYPE
8348

The Amperex 8348 is an instant heating push-pull tetrode incorporating the Amperex "Harp Cathode". The 8348 is designed for intermittent or continuous filament service in transistorized mobile equipment for output stages, or as a multiplier or modulator. The tube is internally neutralized for frequencies up to 200 Mc.

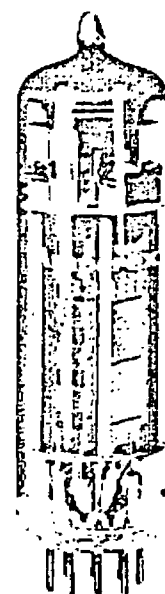
GENERAL CHARACTERISTICS

MECHANICAL

Mounting Position	Vertical ¹
Dimensions	See outline drawing
Base	Noval E 9-1
Bulb	T 6-1/2
Maximum Bulb Temperature	225°C
Maximum Pin Temperature	120°C
Cooling	Radiation and Convection ²
Net Weight	0.56 ounces

ELECTRICAL

Heating	Direct, parallel supply
Filament Voltage	1.6 ± 15% volts ³
Filament Current	2.5 amps
Warm-up Time (power output ≥ 70% max.)	0.5 sec.
Direct Interelectrode Capacitances	
Plate to Grid No. 1 (each section)	0.1 pf
Output (each section)	3.2 pf
Input (each section)	8.5 pf
Plate (Section 1) to Grid No. 1 (Section 2)	0.1 pf
Plate (Section 2) to Grid No. 1 (Section 1)	0.1 pf
Grid No. 1 (Section 1) to Grid No. 1 (Section 2)	2.4 pf
Plate (Section 1) to Plate (Section 2)	0.075 pf
Amplification Factor (Grid No. 1, Grid No. 2) at I _b = 30 ma	7.5
Transconductance at I _b = 30 ma	3300 μmhos



- ¹ If tube is mounted with main axis deviating from the vertical, pins 2 and 7 should be placed in a vertical plane.
- ² Use of a closed tube shield is not recommended.
- ³ The filament supply may be DC or 60 to 65 cps AC (sinusoidal or square wave). Sinusoidal supply voltages within the frequency range of 200 to 2000 cps should not be used.

Amperex

Maximum Ratings (Two Units, Push-Pull)
Class C Telegraphy

	<u>CCS</u>	<u>ICAS</u>
Frequency	200	200 Mc
Plate Voltage	300	300 volts
Grid No. 2 Voltage	200	200 volts
Grid No. 1 Voltage	-150	-150 volts
Plate Current	2x45	2x55 ma
Grid No. 1 Current	2x3	2x4 ma
Plate Input Power	2x11.25	2x15 watts
Plate Dissipation	2x5	2x7 watts
Grid No. 2 Dissipation	2x1	2x1 watts
Grid No. 1 Dissipation	2x0.2	2x0.2 watts
Cathode Current	2x50	2x65 ma
Peak Cathode Current	2x225	2x300 ma
Grid No. 1 Resistor	100	100 k ohms

Maximum Ratings (Two Units, Push-Pull)
Class C Tripler

	<u>CCS</u>	<u>ICAS</u>
Frequency	200	200 Mc
Plate Voltage	300	300 volts
Grid No. 2 Voltage	200	200 volts
Grid No. 1 Voltage	-150	-150 volts
Plate Current	2x30	2x42 ma
Grid No. 1 Current	2x2	2x3 ma
Plate Input Power	2x7.5	2x10 watts
Plate Dissipation	2x5	2x7 watts
Grid No. 2 Dissipation	2	2 watts
Grid No. 1 Dissipation	2x0.2	2x0.2 watts
Cathode Current	2x35	2x45 ma
Peak Cathode Current	2x225	2x300 ma
Grid No. 1 Resistor	100	100 k ohms

Typical Operation
HF Class C Telegraphy or FM Telephony
Two Systems in Push-Pull
(For Frequencies up to 200 Mc)

	<u>CCS</u>	<u>CCS</u>	<u>CCS</u>	<u>ICAS</u>
DC Plate Voltage (each section)	300	250	200	300 volts
DC Grid No. 2 Voltage	300	250	200	200 volts
Grid No. 2 Resistor	56	47	22	-- k ohms
Grid No. 1 Bias	-40	--	--	-45 volts
Grid No. 1 Resistor (common)	--	18	15	-- k ohms
Grid No. 1 to Grid No. 1 Driving Voltage	110	110	115	130 volts
Plate Current	2x37.5	2x33.5	2x35	2x50 ma
Grid No. 2 Current	2.3	1.8	2.2	5.5 ma
Grid No. 1 Current	2x0.9	2.2	2.7	3.0 ma
Plate Input Power	2x11.25	2x8.4	2x7.0	2x15.0 watts
Plate Dissipation (each section)	4	2.9	2.8	6.0 watts
Grid No. 2 Dissipation	0.4	0.8	0.88	0.6 watts
Output Power to Load	12	9.0	7.4	17.0 watts
Efficiency	65	65	60	62 %

Typical Operation
 HF Class C Frequency Tripler
 Two Systems in Push-Pull
 (Frequencies up to 67/200 Mc)

	CCS	CCS	CCS	ICAS	
DC Plate Voltage (each section)	300	250	200	300	volts
DC Grid No. 2 Voltage	300	250	250	150	volts
Grid No. 2 Resistor	72	47	15	--	k ohms
Grid No. 1 Bias	-100	--	--	-100	volts
Grid No. 1 Resistor (common)	--	47	33	--	k ohms
Grid No. 1 to Grid No. 1 Driving Voltage	230	230	230	240	volts
Plate Current (each section)	24	25	28.5	32.5	ma
Grid No. 2 Current	2	1.9	3	3.5	ma
Grid No. 1 Current	2x1	2	3.2	2x1.9	ma
Plate Input Power	2x7.2	2x6.25	2x5.7	2x9.75	watts
Plate Dissipation (each section)	4	3.75	3.8	1.95	watts
Grid No. 2 Dissipation	0.3	0.31	0.46	0.53	watts
Output Power to Load	3.5	3.0	2.8	7.8	watts
Efficiency	45	40	33.5	40	%

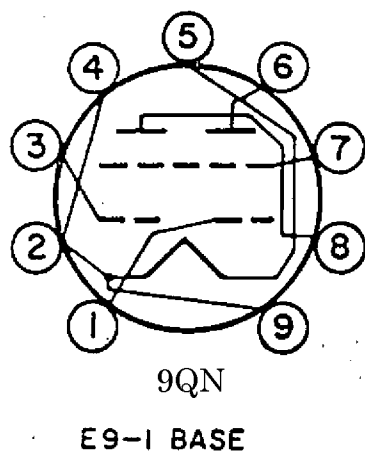
Maximum Ratings and Typical Operating Conditions
 HF Class C (Plate and Screen Grid Modulation)
 Two Systems in Push-Pull

Maximum Ratings

Frequency	200 Mc
Plate Voltage	240 volts
Plate Dissipation	2x3.3 watts
Plate Input Power	2x7.5 watts
Plate Current	2x37.5 ma
DC Grid No. 2 Voltage	200 volts
Grid No. 2 Dissipation	1.3 watts
Negative Grid No. 1 Voltage	150 volts
Grid No. 1 Dissipation	2x0.2 watts
Grid No. 1 Current	2x3 ma
Cathode Current	2x40 ma
Peak Cathode Current	2x180 ma

Typical Operating Conditions

Frequency	200 Mc
Plate Voltage	200 volts
Grid No. 2 Voltage	See Figure 1
Grid No. 1 Resistor (common)	33 k ohms
Plate Current	2x33.5 ma
Grid No. 2 Current	2.6 ma
Grid No. 1 Current	1.5 ma
Plate Input Power	2x6.7 watts
Plate Dissipation	2x2.65 watts
Grid No. 2 Dissipation	0.46 watts
Driver Power Output	1.0 watts
Output Power	8.0 watts
Efficiency	60 %
Output Power to Load	7.0 watts
Modulation Factor	100 %
Modulation Power	6.7 watts



PIN CONNECTIONS

1. GRID 1, UNIT 1
2. INTERNAL SHIELD, FILAMENT 1
3. GRID 1, UNIT 2
4. FILAMENT 1
5. FILAMENT
6. PLATE, UNIT 1
7. GRID 2, UNIT 1 & UNIT 2
8. PLATE, UNIT 2
9. FILAMENT 1

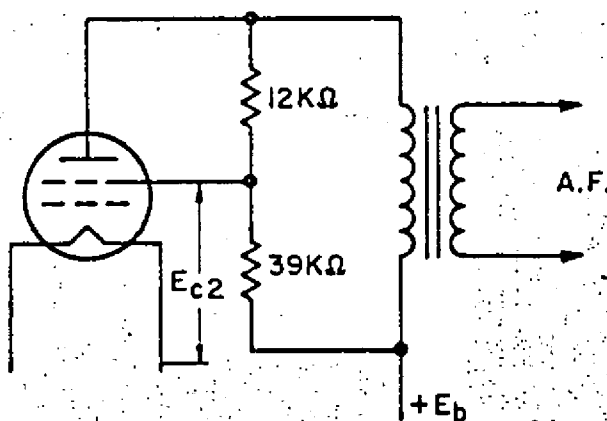
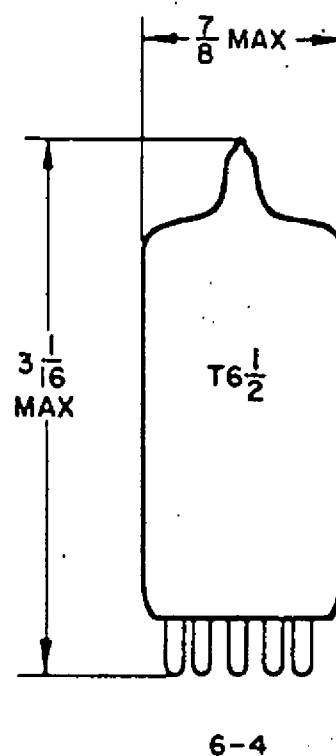


Figure 1.