

Amperex® Electronic Corporation

PROFESSIONAL TUBE DIVISION

230 Duffy Avenue
Telephone: 516/931-6200

Hicksville, L.I., N.Y. 11802
TWX: 516/433-9045

TUBE TYPE
DX 334

ADVANCE DATA

The Amperex DX334 is a Neutron® 1 featuring an integral water jacket and a maximum anode dissipation of 2000 watts. The Neutron® Tube has no grid and thus eliminates the problems normally encountered with gridded tubes. The tube is designed for use as a medium frequency amplifier or oscillator at frequencies up to 5 MHz. As a Class C amplifier or oscillator the DX334 will produce an anode power output greater than 3 kW with an anode voltage of 5 kV at an input of 4 kW.

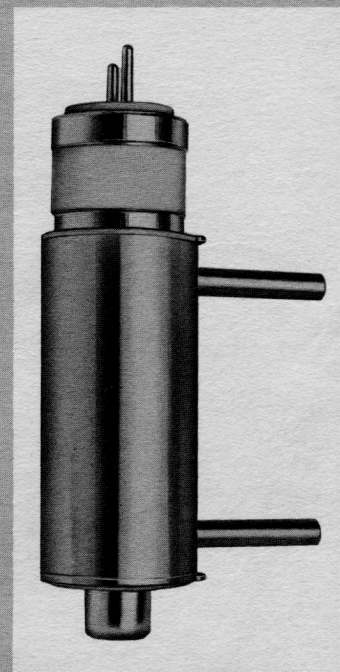
GENERAL CHARACTERISTICS

MECHANICAL

Dimensions	see outline drawing		
Mounting Position	vertical		
Weight			
Tube	1 lb.		
Accessories	5 lbs.		
Accessories			
Magnetic Nest	Amperex type S-332275		
Gate Connector	Amperex type S-332274		
Heater and Cathode Connectors (2 required)	Amperex type S-31888		
Maximum Operating Temperatures			
Water Inlet Temperature	50°C		
Seal Temperatures ²	200° C		
<u>Cooling Characteristics at Anode Dissipation- 2000 watts max.</u>			
Inlet Temperature	20	50	° C
Water Flow ³	1.0	1.5	gpm
Pressure Drop	4.5	9	psi

ELECTRICAL

Cathode	nickel oxide matrix		
Heater Voltage	5 volts		
Heater Current	6.1 amps		
Warm-Up Time	2 minutes		
Magnetic Field	1150 gauss min.		
Amplification Factor at $E_c = 3000V$	25		
Transconductance at $I_c = 500 mA$	4000 μ mhos		
Direct Interelectrode Capacitances			
Anode to Cathode	0.55 pF		
Gate to Cathode	9.1 pF		
Anode to Gate	10.1 pF		



Amperex

Information furnished by Amperex is believed to be accurate and reliable. However, no license for its use is hereby conveyed under any patent and no responsibility is assumed by Amperex for its use; nor for any infringements of patents or other rights of third parties which may result from its use.

R. F. POWER AMPLIFIER AND OSCILLATOR CLASS C - TELEGRAPHY

(Three Phase Full Wave or Single Phase Full Wave Filtered)

MAXIMUM RATINGS - Absolute Values

Frequency	5	MHz
D.C. Anode Voltage	5500	volts
D.C. Anode Current	850	mA
Gate to Cathode Voltage	2000	volts
D.C. Gate-Current	(see note 4)	
D.C. Cathode Current	850	mA
Anode Input Power	4000	watts
Anode Dissipation	2000	watts
Gate Dissipation	25	watts
Gate Bias Resistor	88	k ohms

TYPICAL OPERATION

	<u>Oscillator</u> CCS	<u>Amplifier</u> CCS	
Frequency	3.5	3.5	MHz
D.C. Anode Voltage	5000	5000	volts
D.C. Anode Current	800	800	mA
D.C. Gate Current (loaded)	5	2	mA
D.C. Gate Current (unloaded)	10	-	mA
Anode Load Impedance	3900	3500	ohms
D.C. Anode Input Power	4000	4000	watts
Anode Dissipation	825	890	watts
R. F. Anode Output Power	3175	3110	watts
Peak Anode R. F. Voltage	4650	4600	volts
Anode Efficiency	79	78	%
D.C. Gate Bias Voltage	-400	-400	volts
Gate Dissipation	4.4	1.6	watts
Peak Gate R. F. Voltage	1275	1200	volts
Peak Positive Gate Voltage	875	800	volts
Gate Bias Resistor	80 k ohms	Fixed Bias	
Gate Drive Power	-	*	

CLASS C OSCILLATOR

(Full-Wave Rectified, Unfiltered, Single Phase)

MAXIMUM RATINGS - Absolute Values

	<u>CCS</u>	
Frequency	5	MHz
D.C. Anode Voltage	4500	volts
D.C. Anode Current	725	mA
Gate to Cathode Voltage	2400	volts
D.C. Gate-Current	(see note 4)	
D.C. Cathode Current	730	mA
D.C. Anode Input Power ⁵	3240	watts
RMS Anode Input Power	4000	watts
Collector Dissipation	2000	watts
Gate Dissipation	25	watts
Gate Bias Resistor	88	k ohms

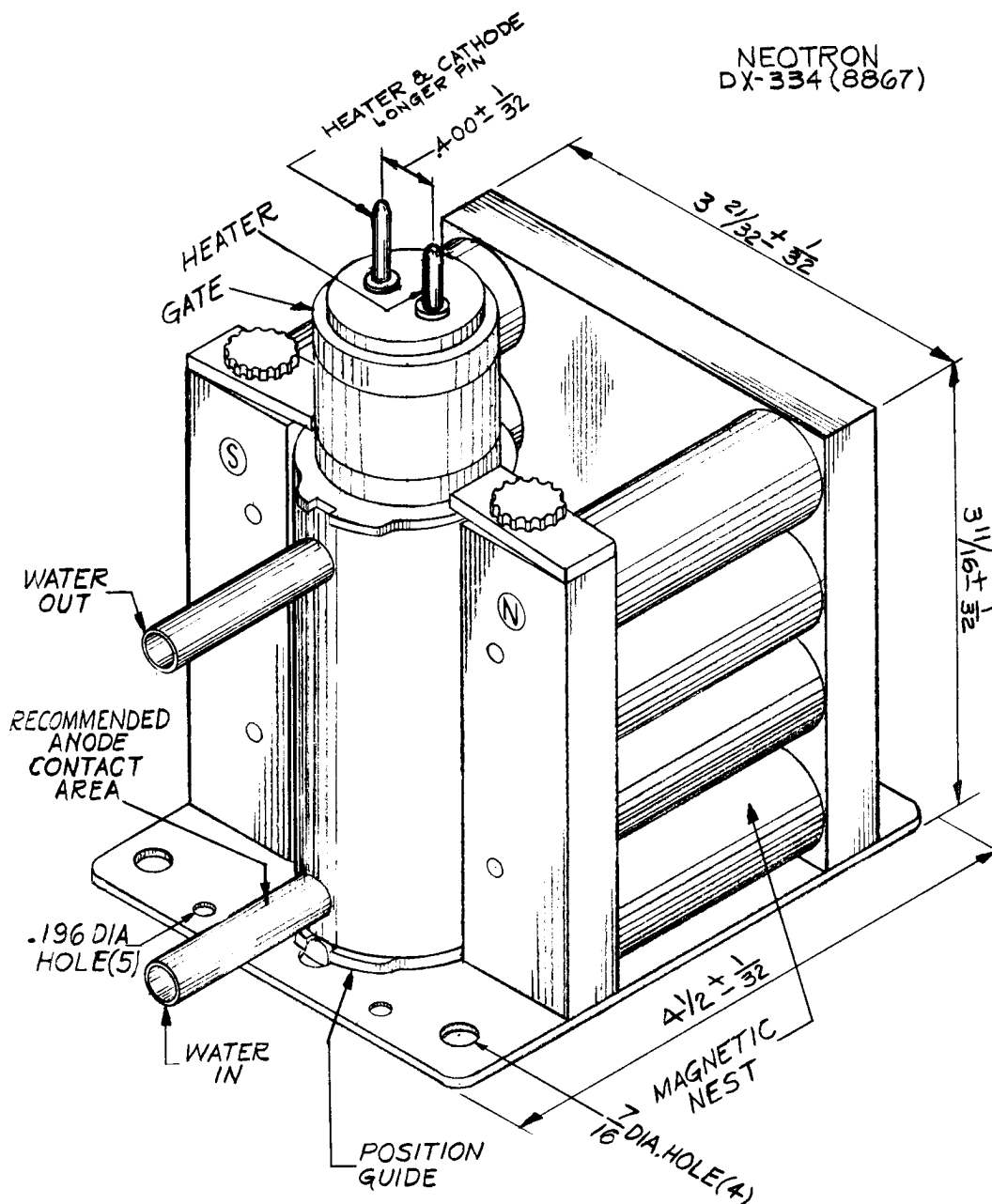
TYPICAL OPERATION

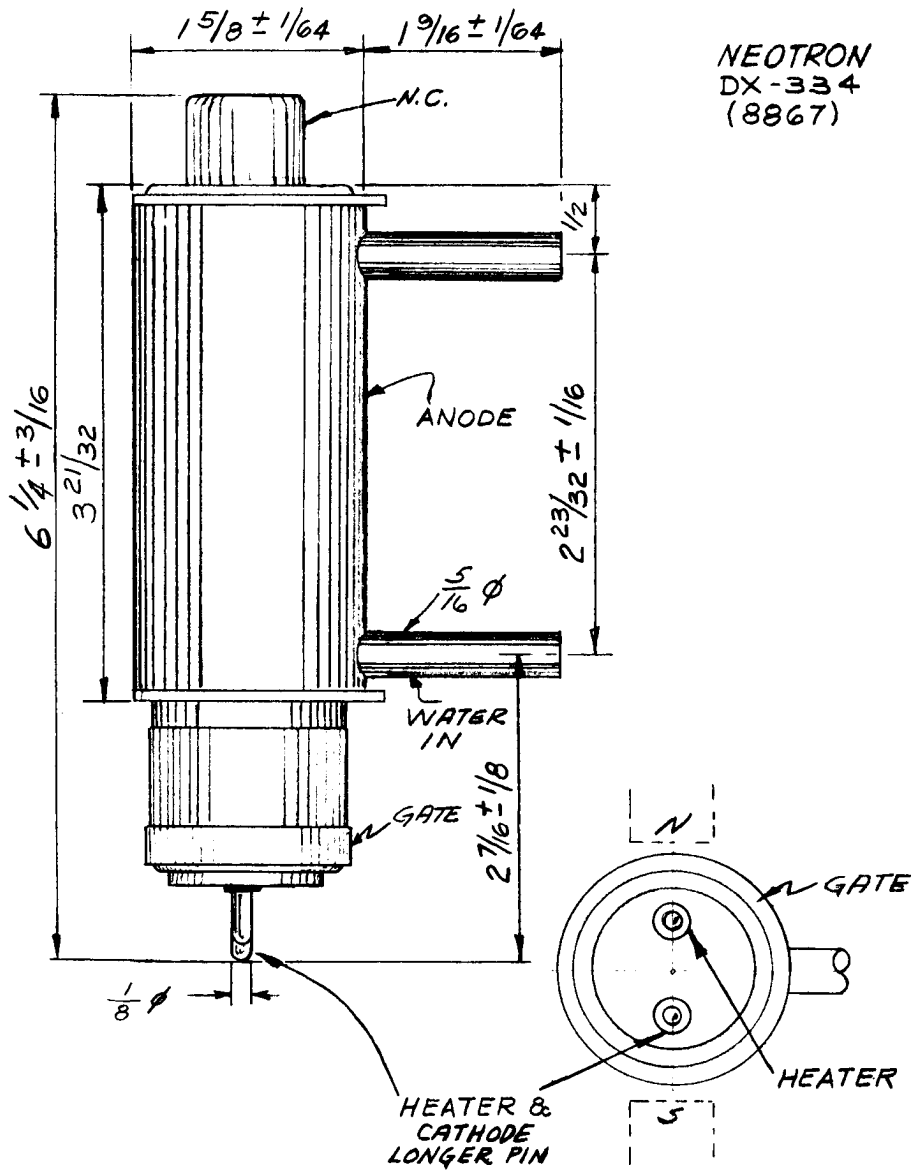
	<u>CCS</u>	
Frequency	5	MHz
D.C. Anode Voltage	4500	volts
D.C. Anode Current	720	mA
D.C. Gate Current (loaded)	4.5	mA
D.C. Gate Current (unloaded)	9	mA
Anode Load Impedance	3900	ohms
D.C. Anode Input Power ⁵	3240	watts
R.M.S. Anode Input Power	4000	watts
Anode Dissipation	900	watts
R. F. Anode Output Power	3100	watts
Peak Anode R. F. Voltage	6580	volts
Anode Efficiency	78	%
D.C. Gate Bias Voltage	360	volts
Gate Dissipation	4.4	watts
Peak Gate R. F. Voltage	1800	volts
Peak Positive Gate Voltage	1240	volts
Gate Bias Resistor	80	k ohms

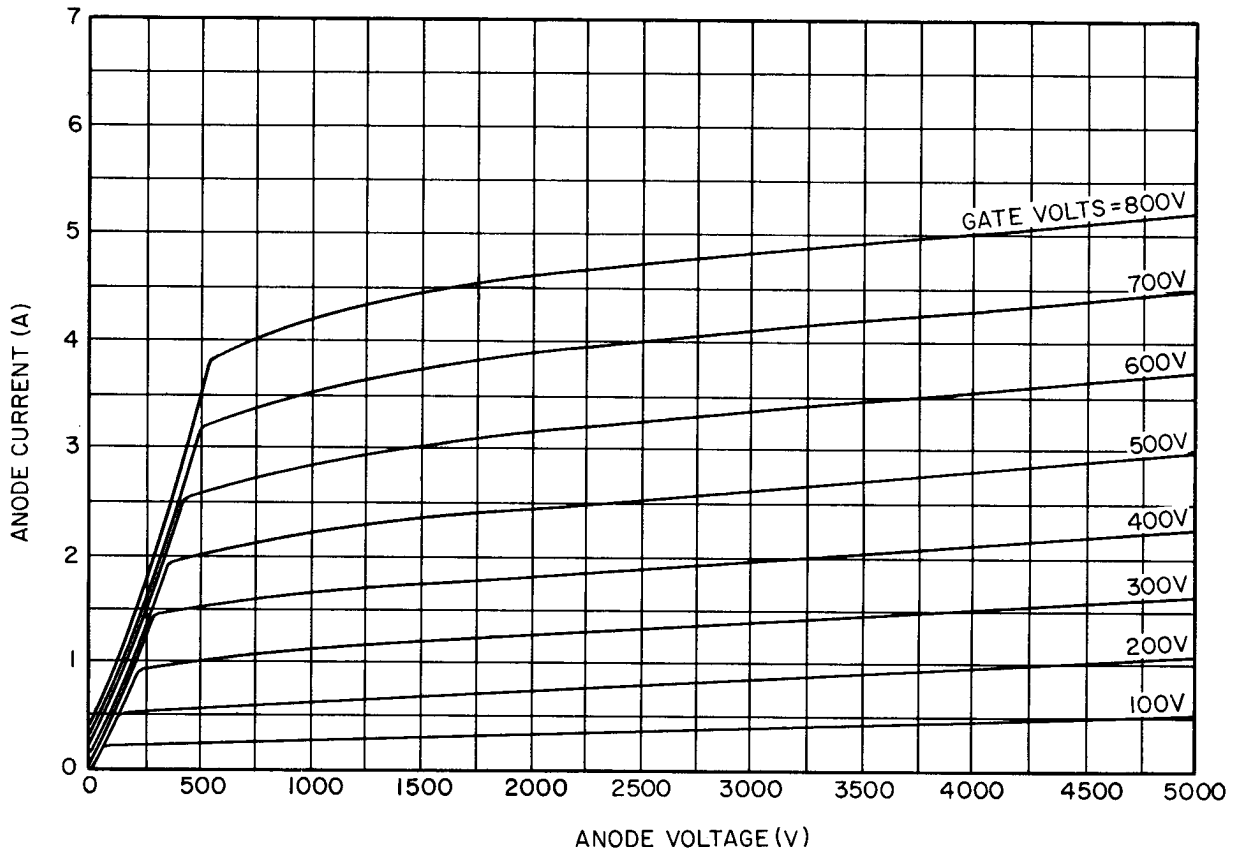
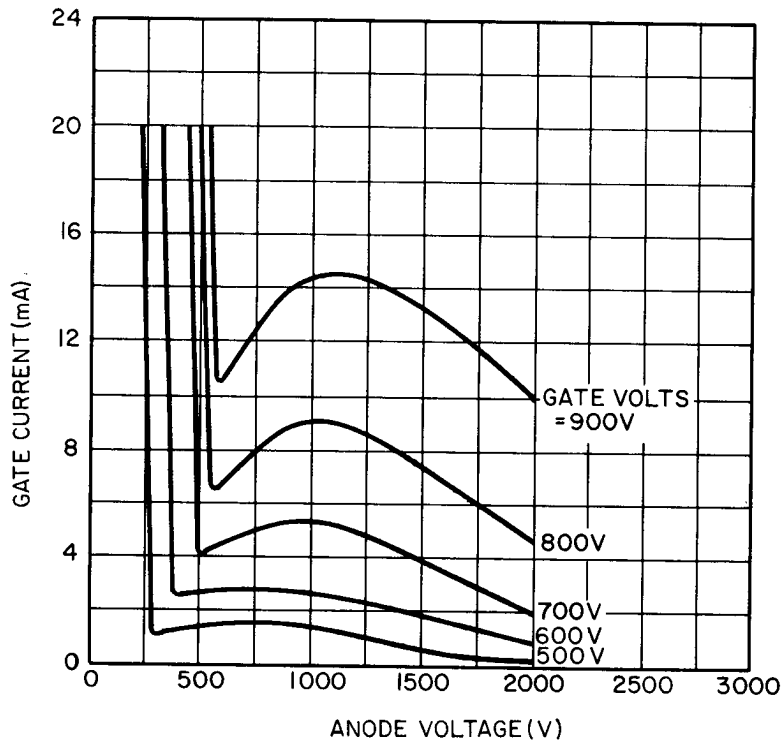
* = To Be Specified

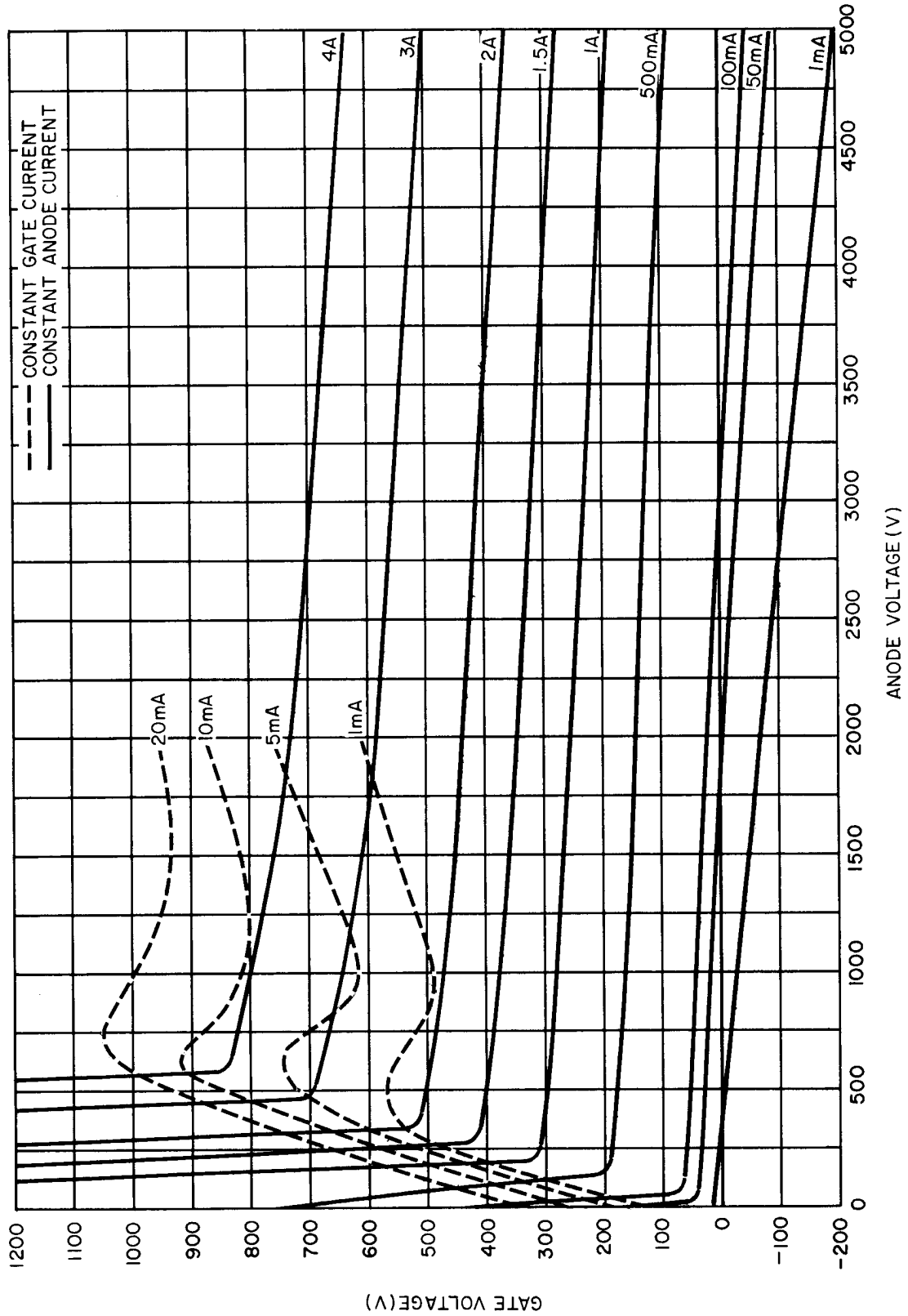
NOTES

- 1 A Neutron® is a Field Effect Tube.
- 2 At higher altitude, higher inlet air temperatures, and higher frequencies, additional cooling must be used in order to stay within maximum seal temperature ratings.
- 3 Water flow must be maintained for at least 1 minute after anode power is removed.
- 4 Limited only by maximum gate dissipation and maximum cathode current.
- 5 Defined as product of average DC Anode Voltage times average DC Anode Current.









DX - 334 CONSTANT CURRENT CURVES