

Amperex

3-1000H HIGH MU POWER TRIODE

The 3-1000H is cooled by radiation from the plate and by circulation of forced air through the base, around the envelope and over the plate seal. Cooling is simplified by using the SK-510 Air-system Socket and SK-516 Air Chimney.



GENERAL CHARACTERISTICS (1)

ELECTRICAL

Filament: Thoriated Tungsten		
Voltage	7.5 +/- 0.37	Volts
Current	21.5	Amps (nominal)
Amplification Factor (Average) (Mu)	24	
Interelectrode Capacitance (Grounded Cathode) (2)		
Input	13.0	pF
Output	0.5	pF
Grid Plate	8.0	pF

(1) Characteristics and operating values are based upon performance tests. These figures may change without notice as the result of additional data or product refinement. Covimag should be consulted before using this information for final equipment design.

(2) Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic Industries Association Standard RS-191.

MECHANICAL

Base	5 Pin Special	
Mounting Position	Vertical, base down or up	
Cooling	Radiation and forced air	
Recommended Heat-Dissipating Plate Connector	HR-8	
Recommended Air-System Socket	SK-510	
Recommended Air-System Chimney	SK-516	
Maximum Operating Temperatures:		
Plate Seal	225°C	
Base Seals	200°C	
Maximum Overall Dimensions:		
Height	7.875 Inches	200 mm
Diameter	5.250 Inches	133 mm
Net Weight	1.2 lb	0,62 kg
Shipping Weight	7.8 lb	3,60 kg

 **Richardson Electronics, Ltd.**

40W267 Keslinger Road
LaFox, IL 60147 USA
(630) 208-2200

MECHANICAL

RF INDUSTRIAL OSCILLATOR Class-C (Filtered DC Power Supply)

3-1000H
HIGH MU
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MAXIMUM RATINGS

DC Plate Voltage	6000	volts
DC Plate Current	700	mA
Grid Dissipation	50	watts
Plate Dissipation	850	watts

TYPICAL OPERATION

DC Plate Voltage	5000	Volts
DC Plate Current	55	Amps
DC Grid Voltage	250	Volts
DC Grid Current	71	mA
Peak Grid Voltage	425	Volts
Plate Input Power	2750	W
Plate Dissipation	650	W
Plate Output Power	2100	W
Approximate Load Impedance	4800	Ohms

Note: "TYPICAL OPERATION" data are obtained by calculation from published characteristic curves. No allowance for circuit losses has been made.

RANGE VALUES FOR EQUIPMENT DESIGN

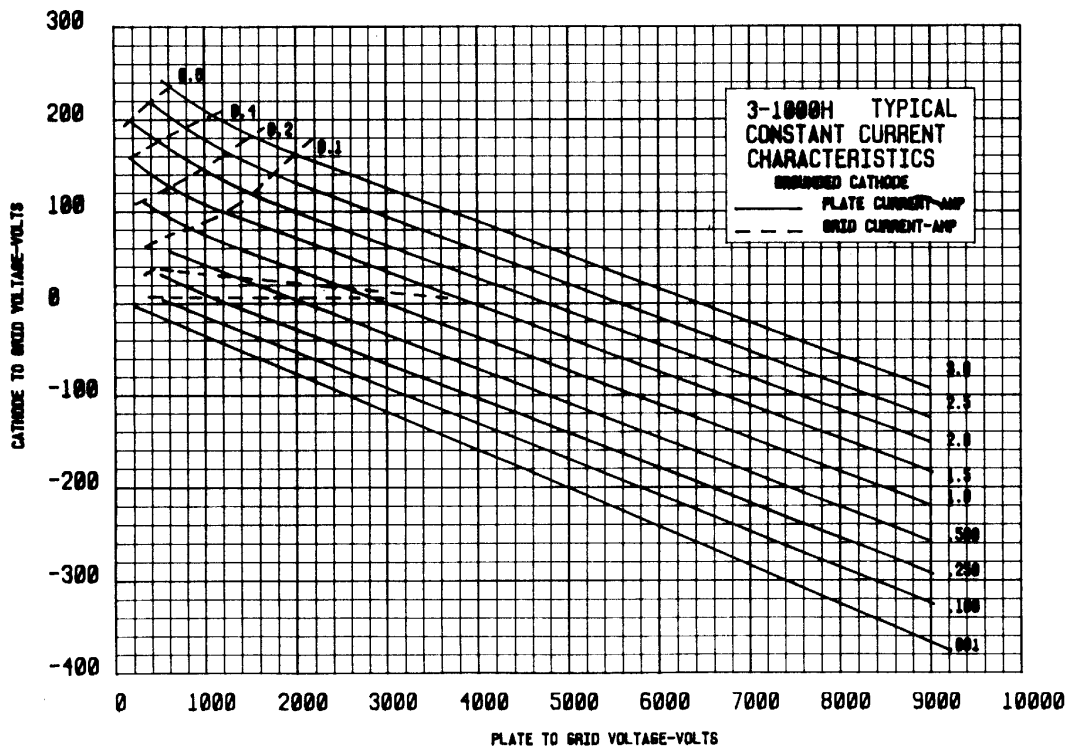
	Min.	Max.
Filament Current at 7.5 volts	20	22.7 A

Interelectrode Capacitance

(Grounded Cathode Connection) (1)

Cin	15.0	19.0	pF
Cout	—	1.0	pF
Cgp	7.0	9.0	pF

(1) Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic Industries Association Standard RS-191.



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APPLICATION

MOUNTING — The 3-1000H must be operated vertically, base up or base down. A flexible connecting strap should be provided between the HR-8 Heat Dissipating Connector on the plate terminal and the external plate circuit. The tube must be protected from severe vibration and shock. The SK-510 socket or equivalent must be employed to prevent excess lateral pressure on base pins and seal of the tube.

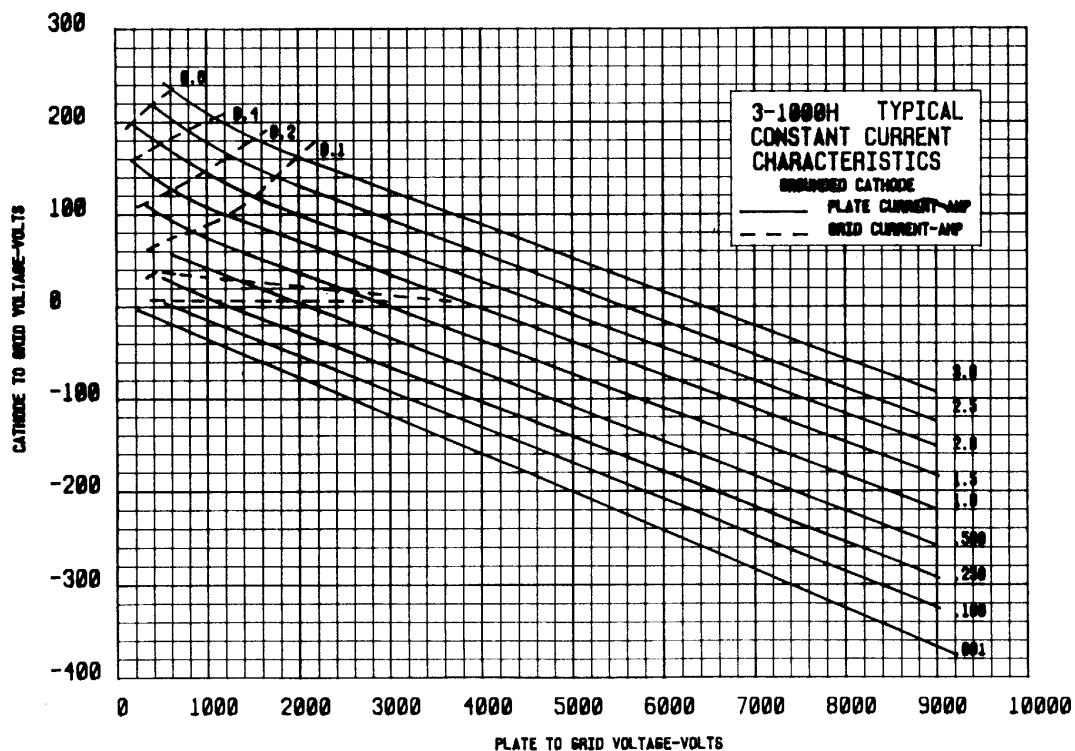
COOLING — Forced-air cooling is required to maintain the base seals at a temperature below 200°C and the plate seal at a temperature below 225°C. When using the SK-510 Air-System Socket and SK-516 Chimney, a minimum air flow rate of 25 cubic feet per minute at a static pressure of approximately 0.43 inch of water, as measured at the socket at sea level, is required to provide adequate cooling at an inlet air temperature of 50°C. Above 30 megahertz, the required air flow is increased to 35 cubic feet per minute at a static pressure of approximately 0.8 inch of water, as measured at the SK-510 socket. Cooling air must be supplied to the tube even when the filament alone is on during standby periods.

When a socket other than the SK-510 is used, provisions must be made for equivalent cooling of the base, the envelope, and the plate seal. In all cases, air flow rates in excess of the minimum requirements, will prolong tube life.

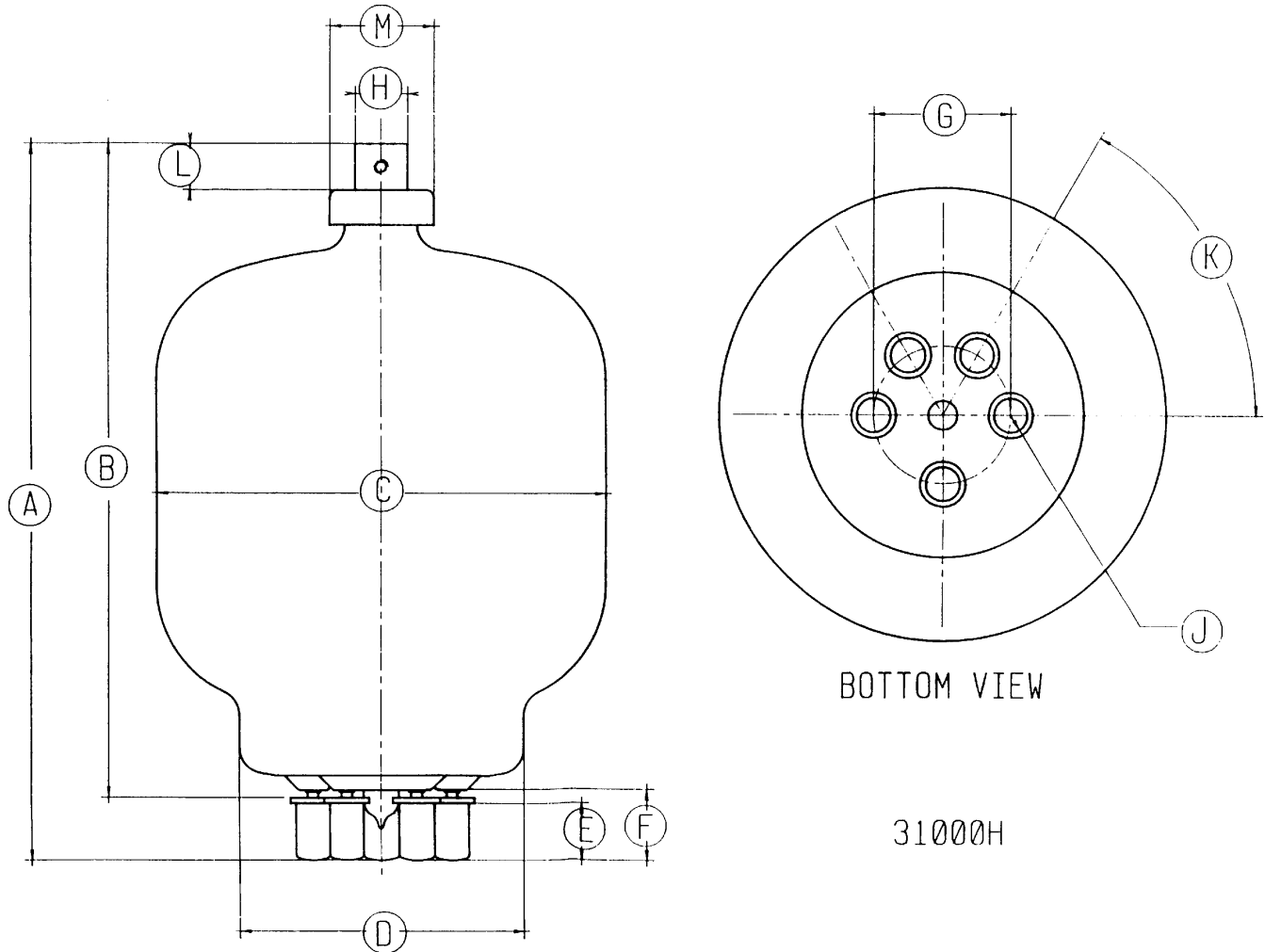
FILAMENT OPERATION — The rated filament voltage for the 3-1000H is 7.5 volts. Filament voltage, as measured at the socket, must be maintained within the range of 7.13 to 7.87 volts to obtain maximum tube life. Operation at reduced voltage decreases emission capability, but increases life expectancy.

HIGH VOLTAGE — Normal operating voltages used with the 3-1000H are deadly ; the equipment must be designed properly and operating precautions must be followed. Design all equipment so that no one can come in contact with high voltages. All equipment must include safety enclosures for high-voltage circuits and terminals, with interlock switches to open primary circuits of the power supply and to discharge high-voltage condensers whenever access doors are opened. Interlock switches must not be bypassed or “cheated” to allow operation with access doors open. Always remember that HIGH VOLTAGE CAN KILL.

INTERELECTRODE CAPACITANCE — The actual internal inter-electrode capacitance of a tube is influenced by many variables in most applications ; such as stray capacitance to the chassis, capacitance added by the socket used, stray capacitance between tube terminals and wiring effects. To control the actual capacitance values within the tube, as the key component involved, the industry and the military services.



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DIMENSIONAL DATA						
DIM	INCHES			MILLIMETERS		
	MIN	MAX	REF	MIN	MAX	REF
A	7.500	7.875	—	190.5	200	—
B	6.812	7.187	—	173	182.5	—
C	—	5.250	—	—	133.3	—
D	3.062	3.187	—	77.77	80.95	—
E	0.531	0.656	—	13.49	16.66	—
F	0.718	0.843	—	18.24	21.41	—
G	—	—	1.500	—	—	38.10
H	0.559	0.573	—	14.20	14.55	—
J	0.371	0.377	—	9.42	9.57	—
K	—	—	60°	—	—	60°
L	0.484	—	—	12.29	—	—
M	—	1.125	—	—	—	28.57

