



varian
palo alto tube division

TECHNICAL DATA

VA-920B

CW KLYSTRON AMPLIFIER

800-900 MHz
1 kW

DESCRIPTION

The VA-920B four-cavity klystron amplifier is for use as a translator in television transmitters operating between 800 and 900 megahertz. It delivers a peak-of-sync output of at least 1 kilowatt over its 100-megahertz tunable frequency range. Gain of 36 dB or more permits optimum performance with a drive of less than 1 watt. Installation is simple, since the tube is self-aligning in its electromagnet. The VA-1920 electromagnet focuses the beam and the tube is forced-air cooled by a single blower.

MAXIMUM RATINGS¹

Beam Voltage	9.0 kVdc
Beam Current	825 mA _{dc}
Collector Dissipation	7 kW
Body Current ²	150 mA _{dc}
Heater Surge Current	35 A _{ac}
Load VSWR	1.5:1

GENERAL CHARACTERISTICS³

ELECTRICAL

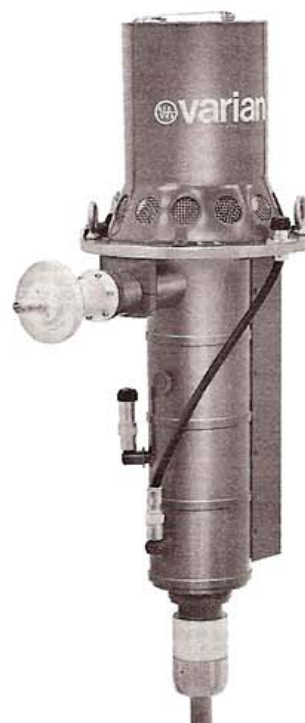
Frequency Range	800 - 900 MHz
Power Output, peak-of-sync	1 kW
Heater Voltage	3.5 ± 0.2 Vac
Heater Current, typical	16 A _{ac}
Heater Warm-up Time, min	5 min
Focusing	VA-1920 Electromagnet
Electromagnet Voltage, typical	60 Vdc
Electromagnet Current, typical ...	10 A _{dc}

PHYSICAL

Dimensions	See Outline Drawing
Weight, approximate	
Tube	60 lb
Magnet	256 lb
Mounting Position	Vertical, cathode down
Cooling	Forced Air
Air Flow	300 ft ³ /min
Pressure Drop	4 in-H ₂ O
R-F Connectors	See Outline Drawing

TYPICAL OPERATING CONDITIONS³

Frequency	800	800	885	885 MHz
Power Output	2.6	1.0	2.4	1.0 kW
Drive Power	470	60	260	44 mW
Gain	37.3	42.2	39.7	43.6 dB
Bandwidth, 1-dB, peak-of-sync	---	6	---	6 MHz
Efficiency	42.5	16.4	39.5	16.4 %
Beam Voltage	8.1	8.1	8.1	8.1 kV
Beam Current	750	750	750	750 mA _{dc}
Body Current ²	30	10	30	10 mA
Load VSWR	1.1:1	1.1:1	1.1:1	1.1:1



VA-920B

NOTES:

1. Ratings should not be exceeded under continuous or transient conditions. A single rating may be the limitation and simultaneous operation at more than one rating may damage the tube. Equipment design should limit voltage and environmental variations so that ratings will never be exceeded.
2. Protection should be provided to remove the beam

voltage within 100 milliseconds if the body current exceeds the maximum specified.

3. General characteristics and operating values are based on performance tests. These figures may change without notice as a result of additional data or product refinement. Varian Palo Alto Tube Division should be consulted before using this information for equipment design.

OUTLINE DRAWING

