



varian
palo alto tube division

TECHNICAL DATA

VA-920A

CW KLYSTRON
AMPLIFIER

755-985 MHz
2 kW

DESCRIPTION

The VA-920A four-cavity klystron amplifier is for use in broadband communication systems. This tube delivers a CW output of 1 to 2 kilowatts or more, depending on beam power, at any center frequency over its tunable range of 755 to 985

megahertz. Installation is simple, since the tube is self-aligning in its electromagnet. The VA-920A Electromagnet focuses the beam and the tube is forced-air cooled.

MAXIMUM RATINGS¹

Beam Voltage	10 kVdc
Beam Current	0.8 Adc
Collector Dissipation	6 kW
Body Current	50 mAdc
Reflected Power ²	100 W
Heater Surge Current	32 Aac
Load VSWR	1.5:1

GENERAL CHARACTERISTICS³

ELECTRICAL

Frequency Range	755 to 985 MHz
Power Output	2 kW
Heater Voltage	3.50 ± 0.25 Vac
Heater Current, typical	16 Aac
Heater Warm-up Time, minimum	5 min
Focusing	VA-920A Electromagnet
Electromagnet Voltage, maximum	75 Vdc
Electromagnet Current, maximum	10 Adc

PHYSICAL

Dimensions	See Outline Drawing
Weight, approximate	
Tube	59 lb
Magnet	256 lb
Mounting Position	Vertical, cathode down
Cooling ³	Forced Air
Air Flow	300 ft ³ /min
RF Connectors	See Outline Drawing

TYPICAL OPERATING CONDITIONS³

	755	985	755	985 MHz
Frequency				
Power Output ⁴	1.05	1.2	2.1	2.2 kW
Drive Power	100	100	430	100 mW
Gain	40.2	40.8	36.8	43.4 dB
Bandwidth, 3-dB	7	7	6	6 MHz
Efficiency	31	34.3	37	38.5 %
Beam Voltage	6.5	6.5	8.0	8.0 kVdc
Beam Current	530	530	725	725 mAdc
Body Current	20	25	35	20 mAdc
Load VSWR	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1

VA-920A

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 the ratings will never be exceeded.
2. Maximum reflected power represents a VSWR of about 1.5:1 at 2 kW output.
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 Associates should be consulted before using this information for equipment design.
4. To achieve these output levels, the load VSWR must be no greater than 1.2:1.

OUTLINE DRAWING

