



EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

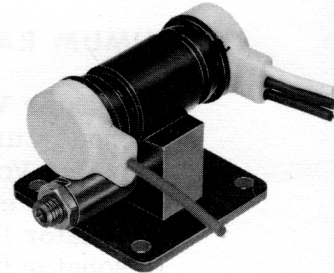
TENTATIVE DATA

1K20XN-A

**X-BAND
REFLEX KLYSTRON**

The Eimac 1K20XN-A is a ceramic and metal reflex klystron which is especially well-suited for parametric amplifier pump applications. This tube is available at any factory pre-set frequency between 8.5 and 11.0 Gc, and the lock-tuner can be trimmed ± 50 Mc. for fine tuning adjustments.

The 1K20XN-A provides a minimum output power of 150 milliwatts and is conservatively warranted for 1,000 hours.



GENERAL CHARACTERISTICS

ELECTRICAL

Cathode:	Unipotential, Oxide Coated		
	Warm-up Time	- - - - -	30 seconds
Heater:	Voltage	- - - - -	6.3 volts
	Current	- - - - -	0.8 ampere
Connections	- - - - -	- - - - -	flexible leads

MECHANICAL

Operating Position	- - - - -	- - - - -	- - - - -	- any
Mounting	- - - - -	- - - - -	UG-39/U	Waveguide flange
RF Output Coupling	- - - - -	- - - - -	RG-52/U	Waveguide
Net Weight	- - - - -	- - - - -	- - - - -	4 ounces
Shipping Weight (approximate)	- - - - -	- - - - -	- - - - -	2 pounds
Maximum Overall Dimensions:				
	Height	- - - - -	- - - - -	1.50 inches
	Width	- - - - -	- - - - -	1.63 inches
	Length	- - - - -	- - - - -	2.50 inches

ENVIRONMENTAL

Maximum Ambient Temperature	- - - - -	- - - - -	- - - - -	150° C
Maximum Altitude	- - - - -	- - - - -	- - - - -	no limit
Maximum Shock* (11 ms duration)	- - - - -	- - - - -	- - - - -	40 g
Maximum Operating Vibration** (20-2,000 cps)	- - - - -	- - - - -	- - - - -	10 g

*Based on a permanent frequency shift after drop of 2 megacycles.

**Based on a maximum peak-to-peak frequency deviation of 200 kilocycles.

TYPICAL OPERATION

Mode	- - - - -	- - - - -	- - - - -	4-3/4
Frequency	- - - - -	- - - - -	- - - - -	10.6 Gc
Resonator Voltage	- - - - -	- - - - -	- - - - -	400 Vdc
Output Power	- - - - -	- - - - -	- - - - -	200 MW
Cathode Current	- - - - -	- - - - -	- - - - -	40 mAdc

TYPICAL OPERATION (continued)

[illegible]

*All voltages referred to cathode.

MAXIMUM RATINGS

[illegible]

APPLICATION

Cooling: At sea level this tube will not require forced air cooling when operated at less than 20 watts resonator dissipation and an ambient temperature of less than 150° C. The waveguide-flange connection will normally provide the required heat sink for conduction cooling. If the tube is operated at a resonator dissipation of greater than 20 watts or if an insulator is used between the tube and waveguide for DC isolation, forced air cooling will be required to maintain the body temperature below the maximum rating of 175° Centigrade.

Resonator: The resonator of the 1K20XN-A is integral with the body of the klystron. For this reason it is often convenient to operate the resonator at chassis potential, with the repeller and cathode at appropriate negative potentials.

Cathode: The heater voltage should be maintained within $\pm 5\%$ of the rated value of 6.3 volts if variations in performance are to be minimized and best tube life obtained.

The heater and cathode of the 1K20XN-A are internally connected. When the resonator of this tube is operated at chassis potential, the heater transformer must be insulated for the cathode-to-resonator voltage.

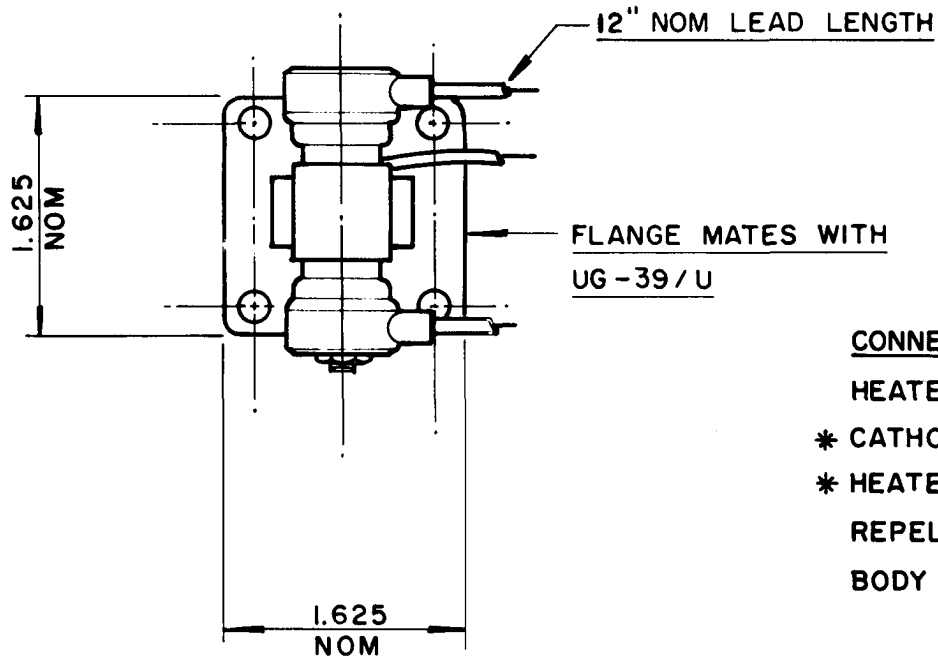
Mechanical Trimming: The 1K20XN-A is fitted with a locking tuner that allows ± 50 mc trimming. The center frequency is factory pre-set to your specification.

Shock and Vibration: This klystron is specifically designed for use in applications encountering vibration and shock extremes. This tube is capable of delivering its rated power output when subjected to vibration levels of 10g (20-2,000 cps) or shock of up to 40g (11 milliseconds duration).

With a vibration level of 10g in any reference plane, the peak-to-peak FM deviation will be less than 200 kilocycles.

Special Applications: For additional information regarding any specific application, write to Microwave Division, Eitel-McCullough, Inc., San Carlos, California, telephone Lytell 1-1451, Cable EIMAC.

1K20XN-A



CONNECTIONS

HEATER - WHITE
 * CATHODE - BLACK
 * HEATER - BLACK
 REPELLER - RED
 BODY - BLACK - WHITE
 * INTERNALLY CONNECTED

