



EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

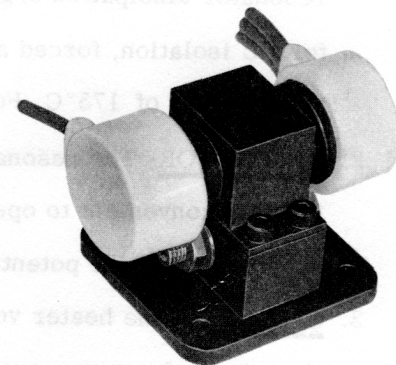
X-1120

REFLEX KLYSTRON
OPERATING-FREQUENCY
12.5 to 15Gc
TRIMMABLE ± 50 Mc
MINIMUM OUTPUT POWER
200 mW

TYPICAL PERFORMANCE

ELECTRICAL

Frequency Range	12.5 to 15 Gc (preset)
Resonator Voltage ²	400 V
Output Power	225 mW
Cathode Current	.38 mAdc
Repeller Voltage	-300 v
3db Bandwidth	.35 Mc
Modulation Sensitivity	0.7 Mc/V
Temperature Coefficient	± 100 Kc/ $^{\circ}$ C
Heater Voltage (AC) ¹	6.3 v
Heater Current (AC)	1.25 A
VSWR	1.2:1 max
Mode	3-3/4



KU-BAND

MECHANICAL

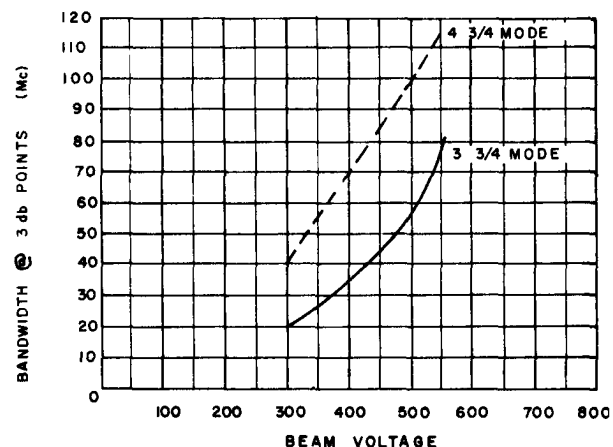
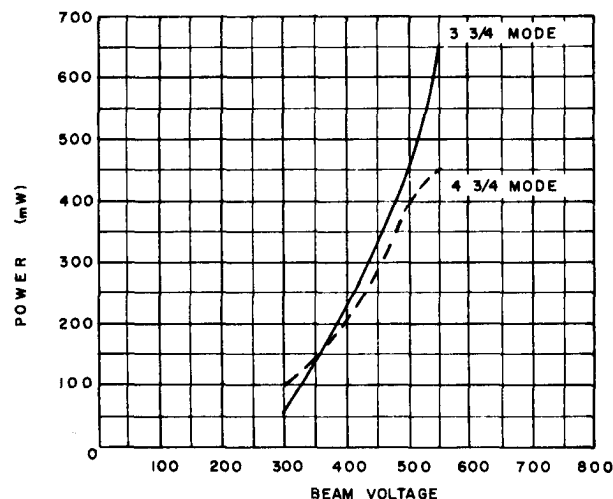
Operating Position	Any
Mounting	Waveguide Flange
RF Output Coupling	RG/91U Waveguide
Net Weight	.6 ounces
Cooling ¹	(See note 1)

ENVIRONMENTAL

Maximum Ambient Temperature	150 $^{\circ}$ C
Maximum Altitude	NO LIMIT
Maximum Shock (11ms duration) ⁴	40g
Maximum Operating Vibration ⁵ (20-2000cps)	.10g

OUTLINE DIMENSIONS

Height	1.400 inches
Width	1.312 inches
Length	2.100 inches





APPLICATION NOTES

1. **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°C. For maximum tube life, the operating temperature should be less than 100°C.
2. **RESONATOR:** The resonator of the X 1120 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.
3. **CATHODE:** The heater voltage should be maintained with $\pm 5\%$ 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 X 1120 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.

4. **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 - 2000 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 100 kilocycles.

