

EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

TENTATIVE DATA

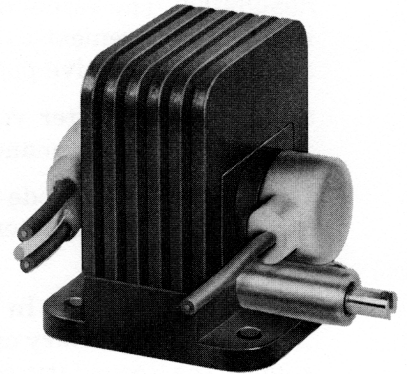
X1117A

X BAND
REFLEX KLYSTRON

TYPICAL PERFORMANCE

ELECTRICAL PERFORMANCE

| | |
|--|----------------------------|
| Frequency range | 11.2 to 11.7 Gc |
| Mechanically tunable | 500 Mc |
| Power output | 100 mW |
| Electronic tuning range (3 db bandwidth) | 40 Mc |
| Resonator voltage | 400 Vdc |
| Cathode current | 40 mA dc |
| Repeller voltage | -150 Vdc |
| Modulation sensitivity | 2.0 Mc/V |
| Heater voltage | 6.3 V (ac or dc) $\pm 5\%$ |
| Heater current | 1.0 A max. |
| Mode | 4 ^{3/4} |
| VSWR of load | 1.2:1 max. |
| Temperature coefficient | ± 150 Kc/ $^{\circ}$ C |
| Warm-up time | 30 sec. |



MAXIMUM RATINGS

| | |
|--|-----------------|
| Resonator voltage | 500 Vdc |
| Cathode current | 60 mA |
| Repeller voltage: | |
| Negative with respect to cathode | -25 to -500 Vdc |

NOTE: Damage to the tube may occur if maximum ratings are exceeded.

MECHANICAL

| | |
|---|--------------------------|
| Operating position | any |
| Electrical connections | flexible leads |
| RF output coupling | WR-75 wave-guide flange |
| Cooling required | conduction or convection |
| Net weight | 6 oz. |
| Shipping weight (approximate) | 4 lbs. |

ENVIRONMENTAL PERFORMANCE

| | |
|-----------------------------|--------------------------|
| Temperature range | -50 to +100 $^{\circ}$ C |
| Altitude | 100,000 ft. max. |
| Vibration | 10G, 20 to 2000 cps. |
| Shock | 40G, 11 ms |

OUTLINE DIMENSIONS

| | |
|------------------|---------|
| Height | 1.8 in. |
| Width | 1.5 in. |
| Length | 2.5 in. |



APPLICATION

NOTE: All voltages referred to cathode.

Cooling: At sea level this tube will not require forced air cooling when operated at its maximum rated dissipation with an ambient temperature less than 125° Centigrade. The waveguide flange connection will normally provide the required heat sink for conduction cooling. If an insulator is used between the tube and waveguide for DC isolation, forced air cooling may be required to maintain the ceramic-to-metal seal temperatures below the maximum rating of 150° Centigrade.

Resonator: The resonator of the X1117A 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 ±5% of the rated value of 6.3 volts if variations in performance are to be minimized and the best tube life obtained.

The heater and cathode of the X1117A 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 Tuning: In the X1117A a fixed-tuned inner cavity is closely coupled through a ceramic window to a secondary cavity outside the vacuum. Mechanical tuning is accomplished by a capacitive slug in the secondary cavity with a tuning rate of approximately 150 megacycles per turn. This design allows repeated tuner cycling without damaging the vacuum seals. The maximum tuner torque is 40 inch-ounces.

A clockwise rotation of the tuner will produce a decrease in frequency.

