CERAMIC VELOCITRON* TUBES

8336/ZV 1010X 950 to 2,800 mc
8337/ZV 1021X 1,000 to 4,000 mc
8335/ZV 1009X 1,700 to 5,000 mc

200 mw minimum output.
Master Oscillator & Driver Tube.

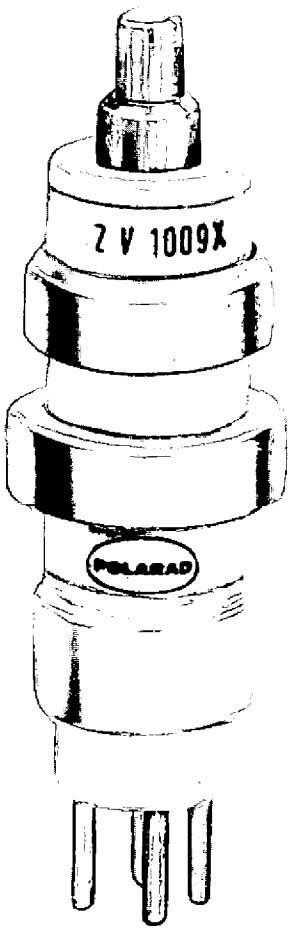
Extremely rugged. Maximum heat, shock and vibration resistance.

POLARAD
PROVEN RELIABILITY

APPLICATIONS

An integrated family of rugged higher power Velocitron*† reflex klystrons for cw, FM or pulse operation in an external cavity.

- *In microwave signal generators:* Output power is adequate for generators providing more than 20 dbm output. Velocitrons permit FM, pulse and cw signal generation.
- *In microwave signal sources:* Suitable for use as a low power transmitter in antenna radiation patterns, standing wave and impedance measurements.
- *In microwave transmitters:* Provides low incidental FM in panoramic displays due to their low microphonics and high frequency stability. Provides sufficient master oscillator power for 100 w to 10 kw output systems.
- *In microwave receivers:* Ideal for local oscillator operation in receivers with AFC because of their frequency control characteristics.
- Reduces 3 stage system to 2 stages.



Velocitron*† Type ZV1009X

FEATURES

- Maximum shock and vibration resistance achieved by all-ceramic construction.
- Maximum heat resistance. Guaranteed for operation up to 250°C seal temperature. No cooling necessary.
- Interchangeable. All three klystrons use same power supplies and mechanical fittings.
- Virtually non-microphonic characteristics provided by rugged internal construction.
- Can be operated cw, pulsed and FM.
- Low distortion FM.
- Breakage in handling minimized.

*Trade Mark Registered
†Manufactured under Western Electric Patents

POLARAD ELECTRONICS CORPORATION 43-20 34th St., Long Island City 1, N. Y.
Tel. EXeter 2-4600

from JEDEC release #3848, Aug. 20, 1962

SPECIFICATIONS

MECHANICAL DATA

Base ..... A4-76, Peewee 4 Pin.

Cap ..... C1-3, skirted miniature.

Cooling ..... Convection and conduction. Contact rings make direct peripheral contact with metallic parts of the external cavity.

Mounting Position ..... Any.

CONNECTIONS:

Pin 1 ..... Control Electrode
Pin 2 ..... Heater
Pin 3 ..... Cathode
Pin 4 ..... Heater
Lower Contact Ring ..... 1st Resonator Grid
Upper Contact Ring ..... 2nd Resonator Grid
Cap ..... Reflector

ELECTRICAL DATA

HEATER CHARACTERISTICS:

Heater Voltage, AC or DC..... 6.3 ±0.5 volts.
Heater Current ..... 1.1 amp

RATINGS (Absolute Values):

Resonator Voltage ..... 500 volts dc max.
Resonator Current ..... 60 ma dc max.

Reflector Voltage ..... —700 volts dc max. to 0 volts dc min.
Control Electrode Voltage ..... +20 to —150 volts dc max.
Control Electrode Current ..... 12 ma dc max.
Heater-Cathode Voltage ..... ±45 volts dc max.
Power Input ..... 30 watts max.
Seal Temperature ..... 250 degrees C max.

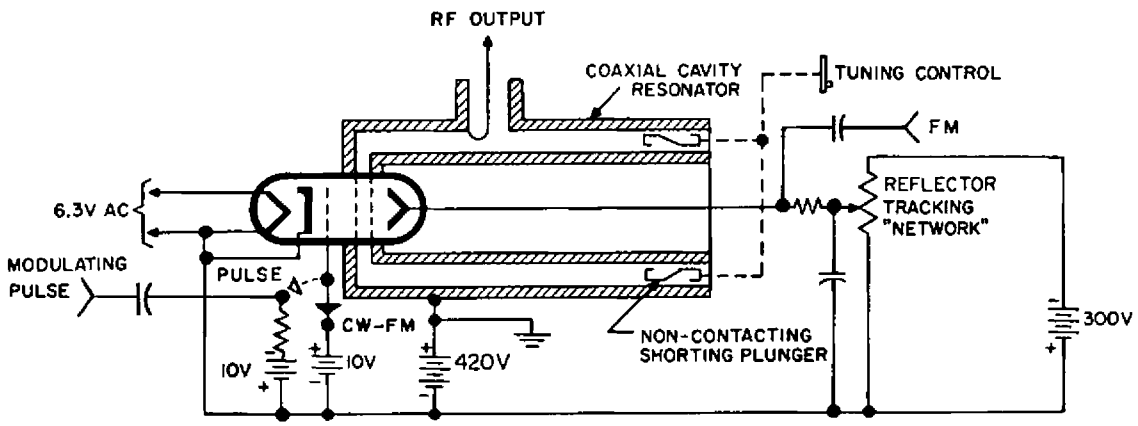


Figure 1. CW, FM or Pulse-Modulated Oscillator Circuit, Using a Velocitron Ceramic Reflex Klystron

TYPICAL OPERATION AS A CW OSCILLATOR

	ZV 1021X	ZV 1010X	ZV 1009X
Reflector Mode	1¾	1¾	2¾
Cavity Mode	¼	¼	¾
Frequency	2500 mc	1500 mc	3200 mc
Resonator Voltage	420 volts	420 volts	420 volts
Cathode Current	45 ma	45 ma	45 ma
Reflector Voltage (Approx.)	—400 volts	—200 volts	—120 volts
Control Electrode Voltage (Full Power Output)	+10 volts	+10 volts	+10 volts
Power Output Cutoff Voltage	+3 volts	+3 volts	+3 volts
Electronic Tuning Range (Between Half Power Points)	6 mc	6 mc	6 mc

TYPICAL OPERATION AS A PULSE-MODULATED OSCILLATOR:

The tubes can be pulse modulated over most of the cw frequency range. The general conditions are the same as for cw operation except as shown below.

Control Electrode Voltage..—10 volts
Pulse Modulation Voltage....+20 volts
Pulse Repetition Rate ..... limited only by capabilities of external modulator.
Minimum Pulse Duration .... 0.5 microsecond
Rise Time ..... 0.1 microsecond
Decay Time ..... 0.1 microsecond

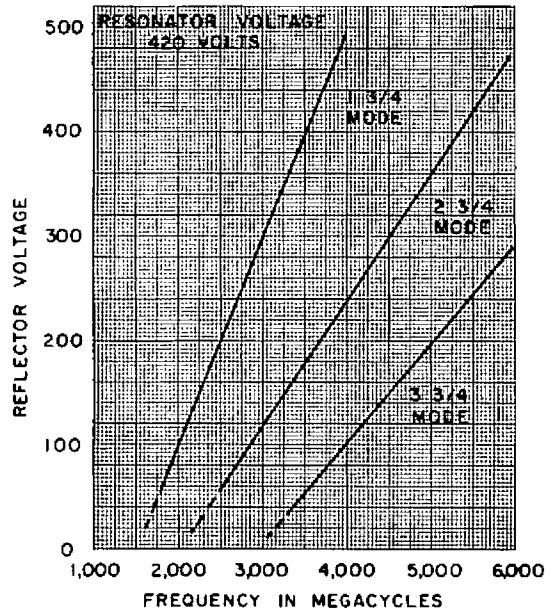


Figure 2. Typical Reflector Voltage vs. Frequency
Model ZV 1009X

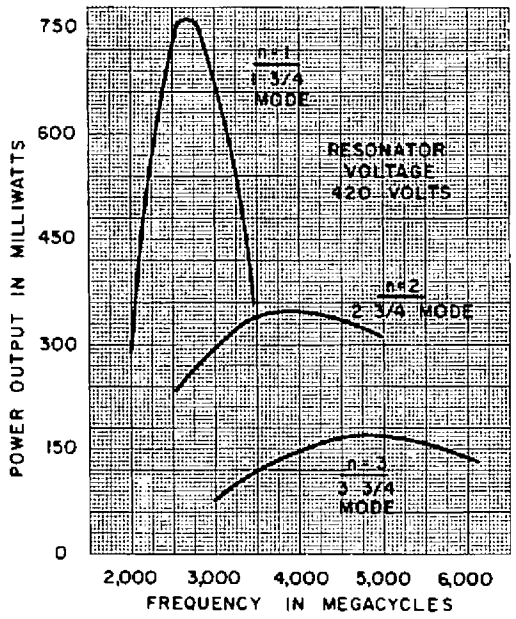


Figure 3. Typical Curve of Power Characteristics
Model ZV 1009X

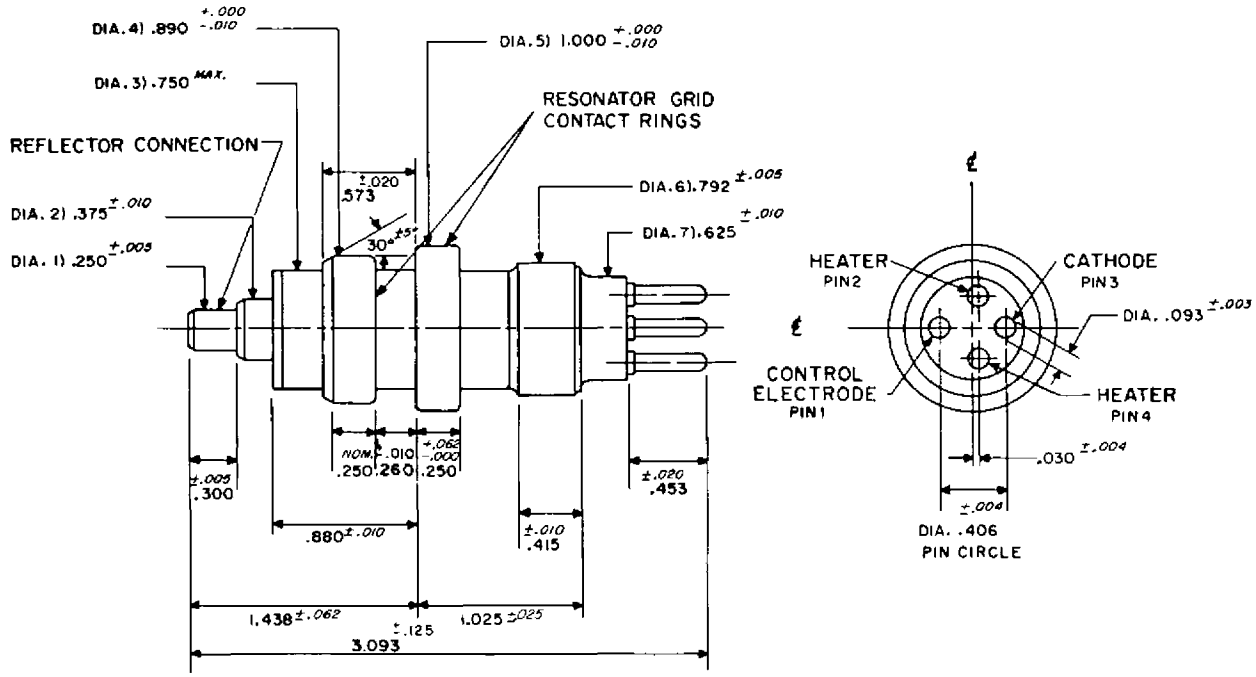


Figure 4. Outline Drawing

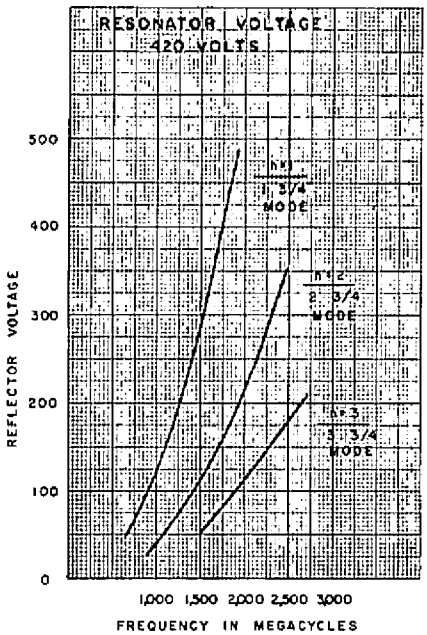


Figure 5. Typical Reflector Voltage vs. Frequency
Model ZV 1010X

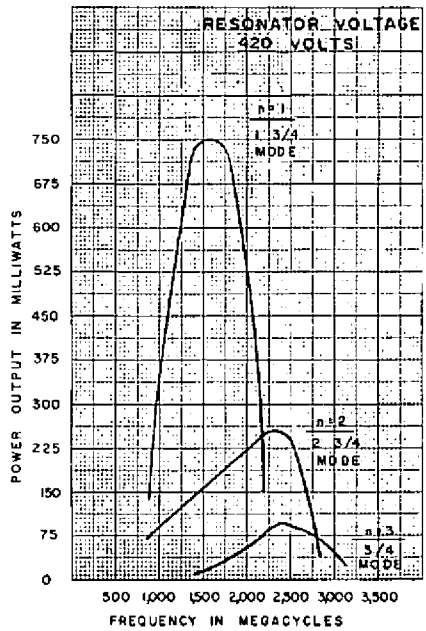


Figure 6. Typical Curve of Power Characteristics
Model ZV 1010X

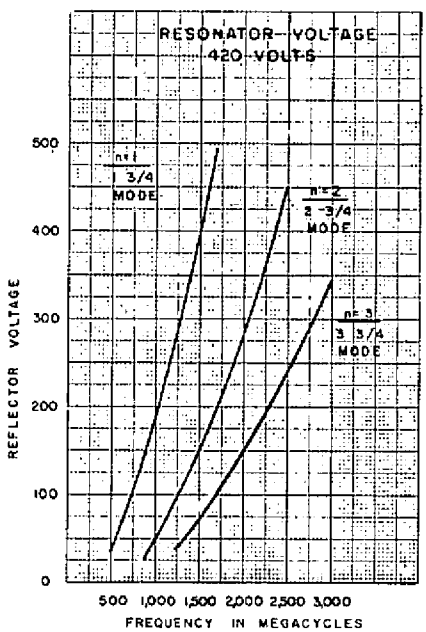


Figure 7. Typical Reflector Voltage vs. Frequency
Model ZV 1021X

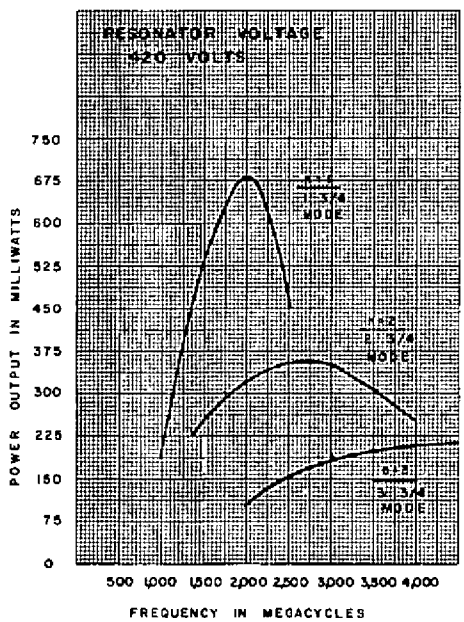


Figure 8. Typical Curve of Power Characteristics
Model ZV 1021X

POLARAD ELECTRONICS CORPORATION 43-20 34th St., Long Island City 1, N. Y.

Tel. EXeter 2-4500