

CERAMIC VELOCITRON* TUBES

7506/ZV1012	500 to 3,000 mc
7505/ZV1010	700 to 3,000 mc
7049/ZV1009	1,500 to 6,000 mc

Extremely rugged. Maximum heat, shock and vibration resistance.



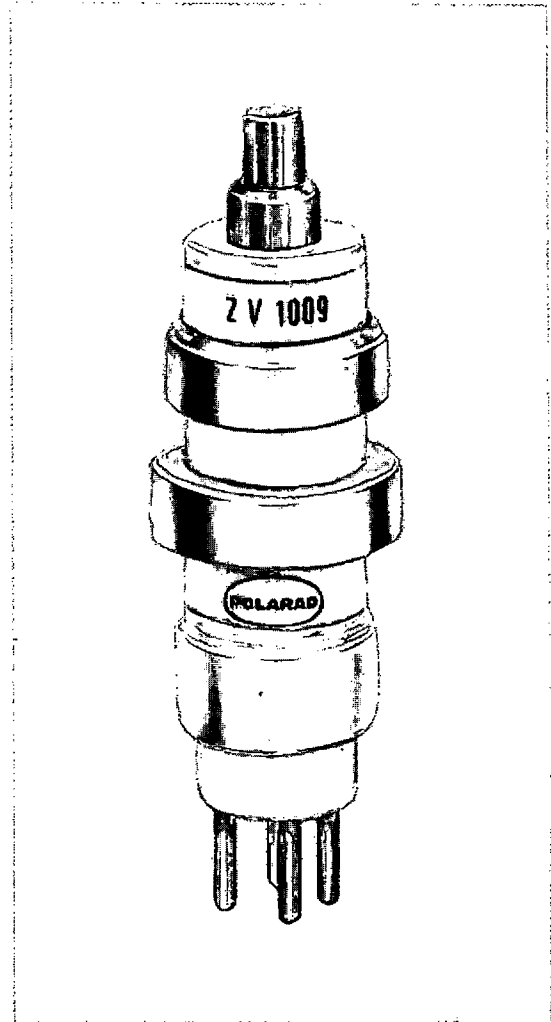
APPLICATIONS

An integrated family of rugged 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 0 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 spectrum analyzers:* Provides low incidental fm in panoramic displays due to their low microphonics and high frequency stability.
- *In microwave receivers:* Ideal for local oscillator operation in receivers with AFC because of their frequency control characteristics.

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.
- 7505/ZV1010 replaces commercial klystrons 5837 and 6BM6; 7049/ZV1009 replaces 5836 and 6BL6.



Velocitron*† Type 7049/ZV1009

*Trade Mark Registered
†Manufactured under Western Electric Patents

SPECIFICATIONS

MECHANICAL DATA

BaseA4-76, Peewee 4 Pin.
 CapC1-3, skirted miniature.
 CoolingConvection and conduction.
 Contact rings make direct peripheral contact with metallic parts of the external cavity.
 Mounting PositionAny.

CONNECTIONS:

Pin 1Control Electrode
 Pin 2Heater
 Pin 3Cathode
 Pin 4Heater
 Lower Contact Ring1st Resonator Grid
 Upper Contact Ring2nd Resonator Grid
 CapReflector

ELECTRICAL DATA

HEATER CHARACTERISTICS:

Heater Voltage, AC or DC 6.3 ± 0.5 volts.
 Heater Current680 ma.

RATINGS (Absolute Values):

Resonator Voltage350 volts dc max.
 Resonator Current35 ma dc max.

Reflector Voltage-700 volts dc max. to -35 volts dc min.
 Control Electrode Voltage+20 to -150 volts dc max.
 Control Electrode Current12 ma dc max.
 Heater-Cathode Voltage ± 45 volts dc max.
 Power Input12 watts max.
 Seal Temperature250 degrees C max.

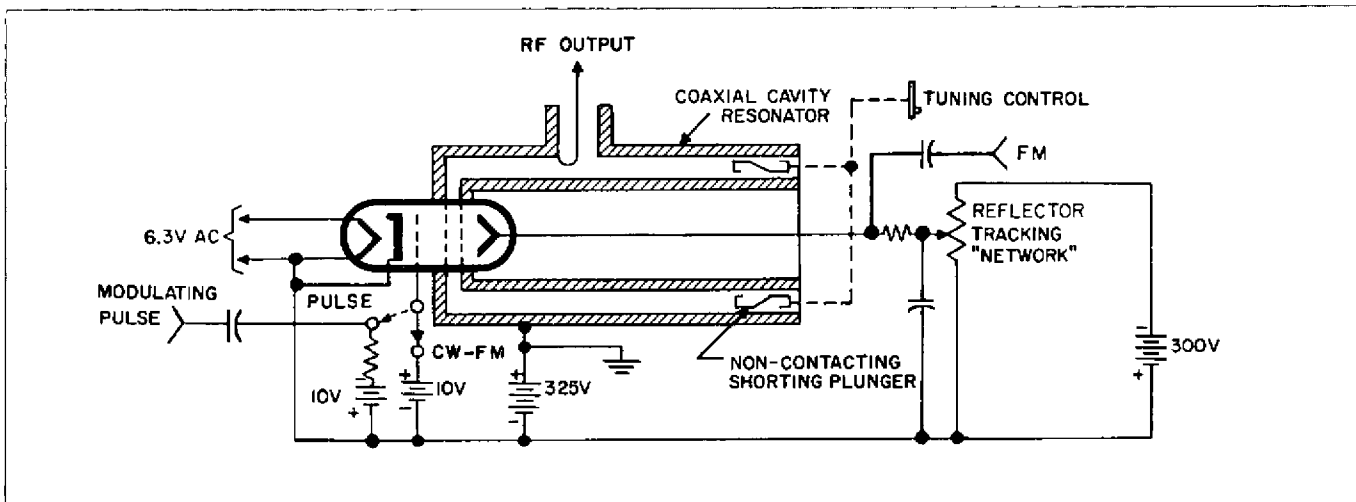


Figure 1. CW, FM or Pulse-Modulated Oscillator Circuit, Using a Velocitron Ceramic Reflex Klystron

TYPICAL OPERATION AS A CW OSCILLATOR

	7506/ZV1012	7505/ZV1010	7049/ZV1009
Reflector Mode	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2 $\frac{3}{4}$
Cavity Mode	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{4}$
Frequency	750 mc	1500 mc	3200 mc
Resonator Voltage	325 volts	325 volts	325 volts
Cathode Current	28 ma	28 ma	28 ma
Reflector Voltage (Approx.)	-110 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)	3 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 Duration0.5 microsecond
 Rise Time0.1 microsecond
 Decay Time0.1 microsecond

Note: Specifications subject to change without notice.

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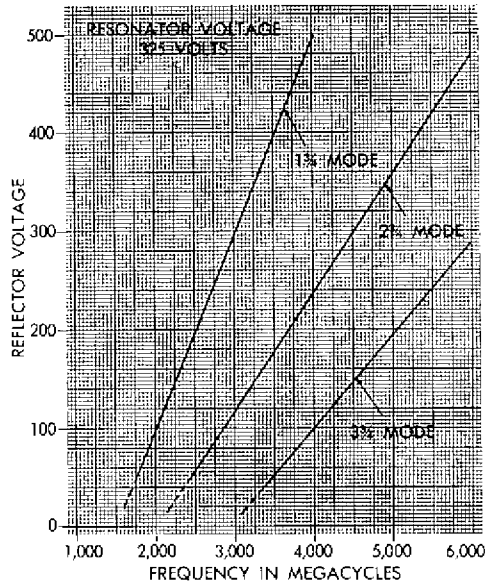


Figure 2. Typical Reflector Voltage vs. Frequency
Type 7049/ZV1009

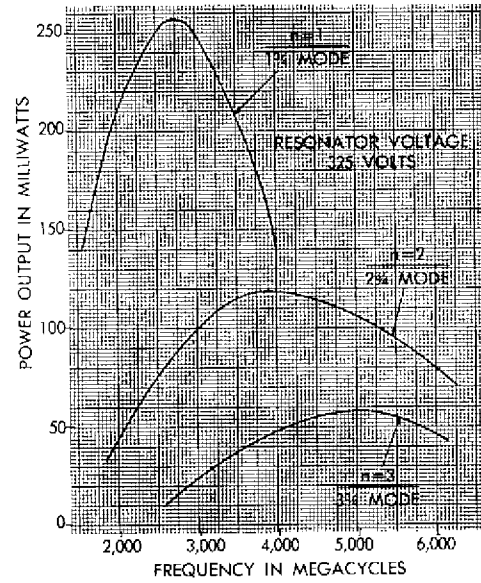


Figure 3. Typical Curve of Power Characteristics
Type 7049/ZV1009

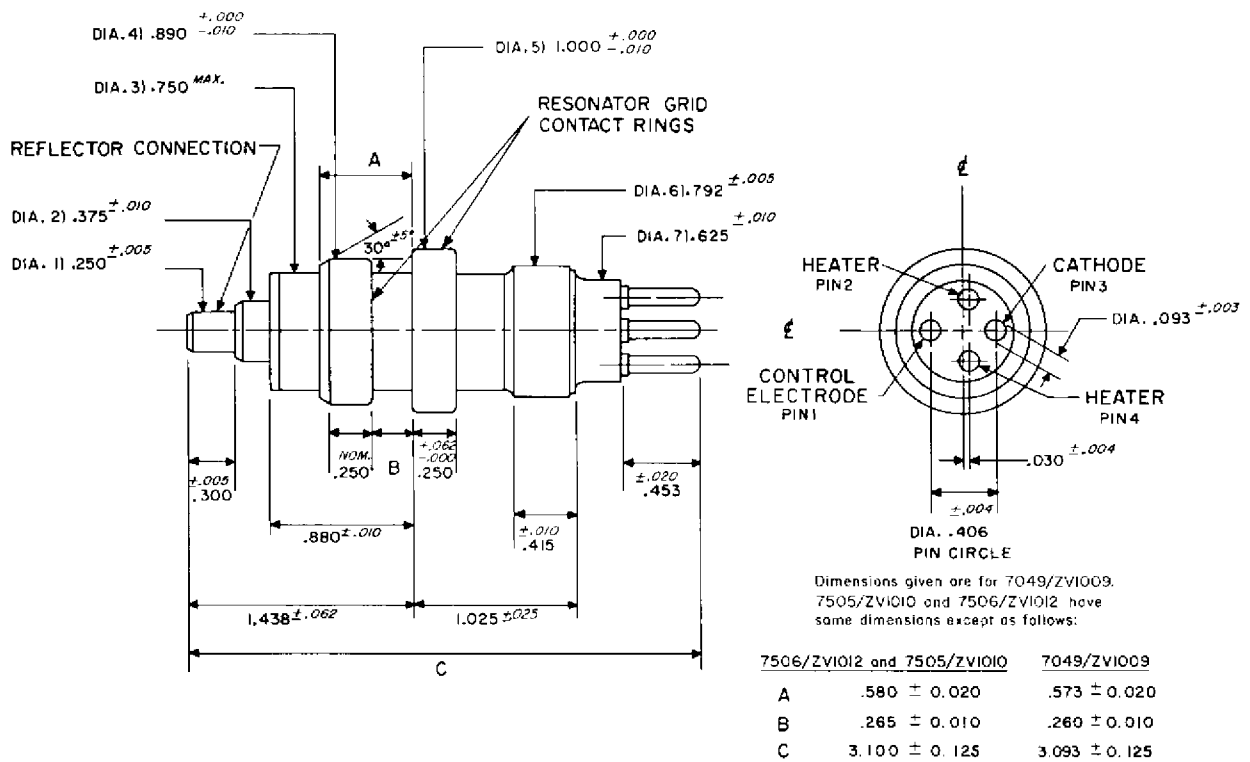


Figure 4. Outline Drawing

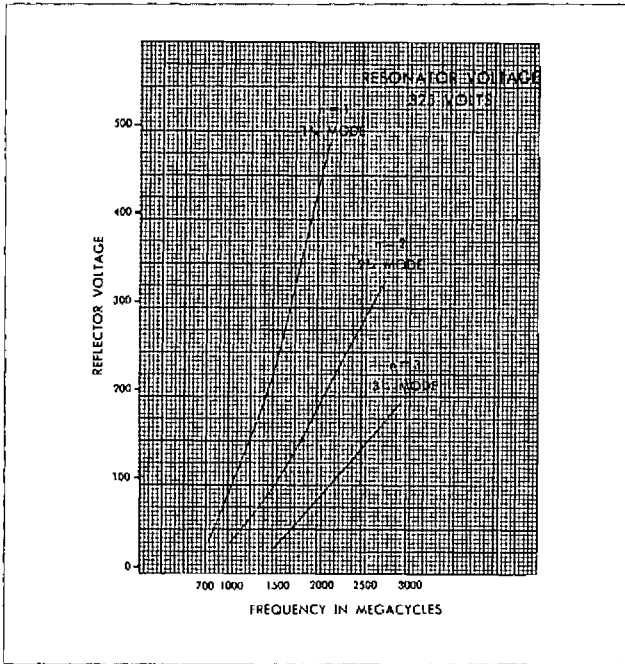


Figure 5. Typical Reflector Voltage vs. Frequency Type 7505/ZV1010

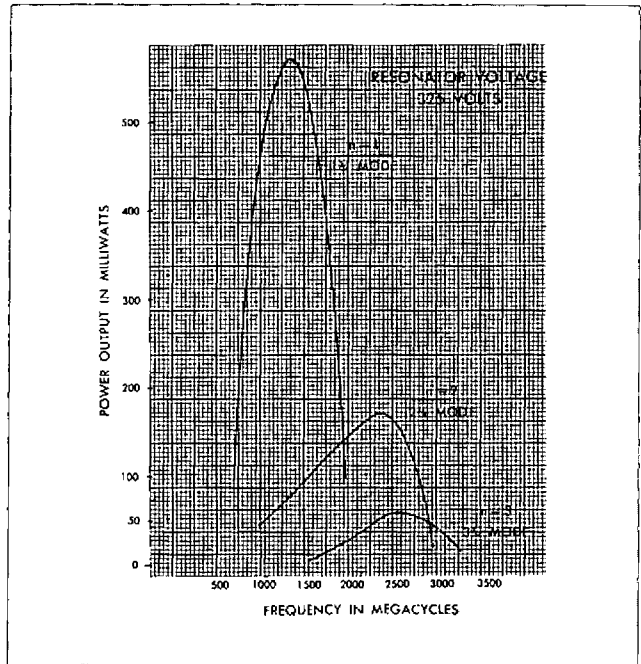


Figure 6. Typical Curve of Power Characteristics Type 7505/ZV1010

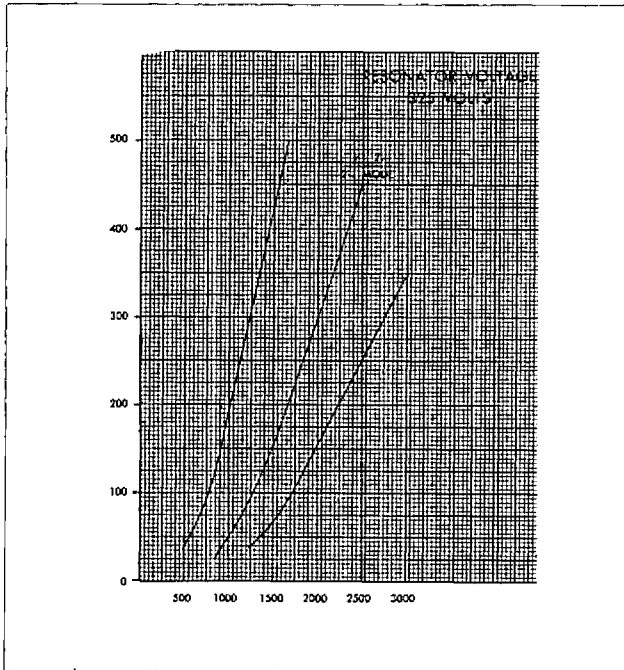


Figure 7. Typical Reflector Voltage vs. Frequency Type 7506/ZV1012

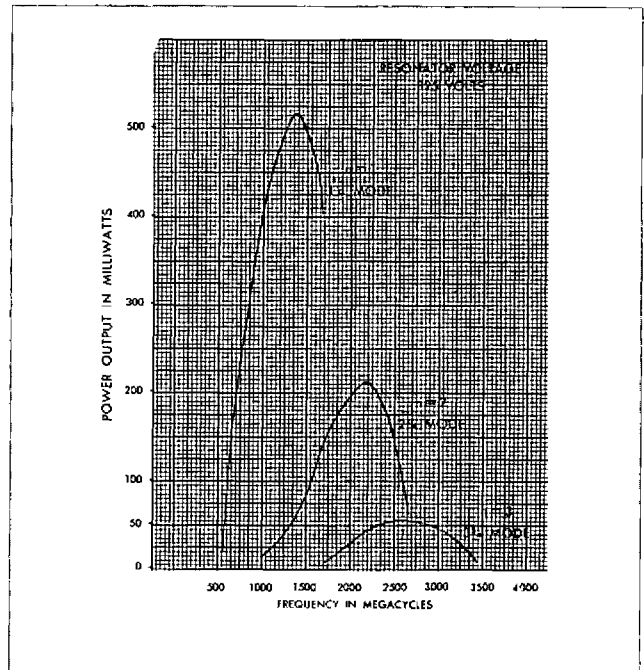


Figure 8. Typical Curve of Power Characteristics Type 7506/ZV1012