

These ratings represent those of current samples of this type. Refer to the Objective Technical Information sheet for design-objective ratings.

This technical information is proprietary and is furnished only as a service to customers.

ZM-6047

PACKAGED VOLTAGE-TUNABLE MAGNETRON

2900-3200 Megacycles

90 Watts Average CW Output

Integral Magnet and Isolator

The ZM-6047 is a voltage-tuned magnetron designed for CW/FM transmitting-tube operation at low- or high-modulation frequencies. The tube has a minimum power output of 75 watts at any point in the band. The typical tube averages 90 watts across the band. The high efficiency allows air cooling to be used. The tube is protected against load mismatch by an integral isolator. The voltage-frequency relationship is approximately linear. The anode is integral with the tube body and is normally grounded, anode voltage being applied negatively to the cathode and filament.

GENERAL

Electrical

Cathode (filament) – Directly Heated

Warm-up Time, maximum 10 Seconds

Cathode Input Capacitance

Maximum 40 μ f

Typical 35 μ f

Mechanical

Mounting Position – Any

Net Weight 7.5 Pounds

Thermal

Cooling – Forced Air*

Air Temperature, maximum 110 C

Body Temperature, maximum † 125 C

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Maximum Ratings, Absolute Values

Filament Voltage	2.5	Volts
Filament Current ‡	5.7	Amperes
Anode Voltage	3100	Volts
Sweep Voltage	400	Volts
Anode Current	70	Milliamperes
Power Input	200	Watts
Injection Electrode Voltage	1300	Volts
Voltage Standing Wave Ratio of Load	2.0	

Typical Operating Conditions

Operation with 60-cycle Sweep Voltage

Filament Voltage, approximate	2.1	Volts
Filament Current ‡	4.4 to 5.6	Amperes
Swept Frequency Range	2900 to 3200	Megacycles
Sweep Voltage, Peak to Peak, typical	350	Volts
Anode Voltage at 3.05 Gigacycles	2800	Volts
Anode Current	65	Milliamperes
Injection Electrode Voltage, positive with respect to cathode	500 to 1300	Volts ¶
Injection Electrode Current, may be either polarity but less than	0.5	Milliamperes

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS (Cont'd.)

Typical Operating Conditions (Cont'd.)

Operation with 60-cycle Sweep Voltage

Power Output

Average, Swept Across Full Band	90	Watts**
Minimum, At Any Point Without Sweep Voltage	75	Watts**
Variation Across Band		
Typical	1.4	Decibels
Maximum	2	Decibels

Efficiency, minimum

At Any Frequency	45	Percent
Swept Across Full Band	55	Percent

ENVIRONMENTAL

Altitude, maximum

Operating	15,000	Feet
Non-operating	70,000	Feet

*Hold temperature to 125 C or less at point shown on the outline drawing. At the maximum inlet temperature of 110 C, 150 cubic feet per minute is required but this drops rapidly for lower inlet temperatures.

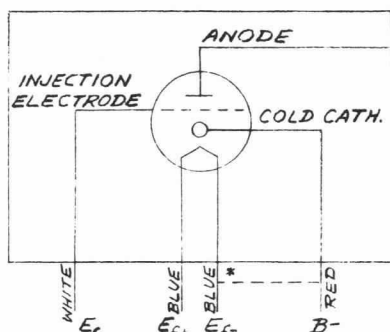
†Measured at point shown on the outline drawing.

‡Set to value marked on tube within ± 0.1 ampere.

¶Set to give anode current marked on tube within ± 2 milliamperes.

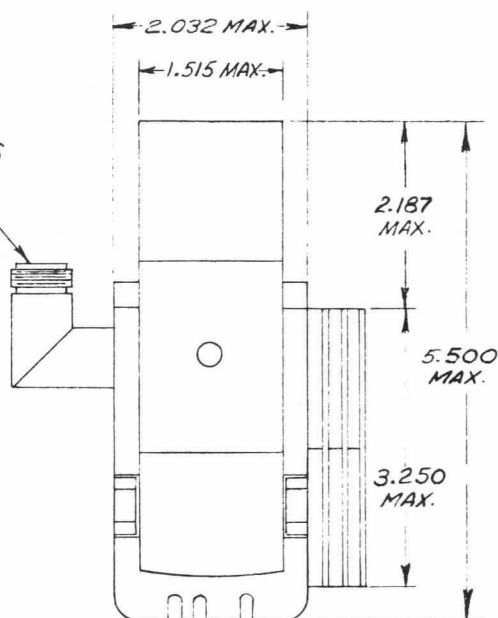
**Measured with load VSWR < 1.2 ; for loads between 1.2 and 2.0 VSWR the power output is diminished by the amount reflected, plus a positive or negative change due to residual pulling. At 2.0 VSWR the theoretical reduction at the worst load phase is down to 85 percent, and the guaranteed performance is not less than 75 percent of rated power.

CAUTION: A CLEARANCE OF SIX INCHES BETWEEN FERROMAGNETIC MATERIALS AND THE TUBE WILL PREVENT ANY SERIOUS CHANGE OF THE OPERATING CHARACTERISTICS.



*NOTE:
AN EXTERNAL CONNECTION IS
REQUIRED BETWEEN THE COLD CATH.
LEAD & ONE OF THE HEATER LEADS

OUTPUT MATES
WITH UG-21 B/U



CONNECTS TO FILAMENT SUPPLY (BLUE)
CONNECTS TO POS. OF INJECTION ELECTRODE (WHITE)
CONNECTS TO NEGATIVE OF ANODE SUPPLY (RED)
CONNECTS TO FILAMENT SUPPLY (BLUE)

