ELECTRONIC INNOVATIONS IN ACTION

TUBES

OBJECTIVE
TECHNICAL INFORMATION

These ratings represent the design objective for this product. Refer to the Preliminary Technical Information sheet for ratings currently achieved in the progression towards design objectives. If PTI sheets do not exist, consult your local Tube Department Regional Sales Office.

DEVELOPMENTAL TYPE

ZM-6276
OTI-215
Page 1
12-68

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

ZM-6276

PACKAGED VOLTAGE-TUNABLE MAGNETRON

2600-3200 Megacycles — 100 Watts Minimum CW Output

Integral Magnet and Isolator

The ZM-6276 is a magnetically shielded voltage-tunable oscillator which operates at a minimum power output of 100 watts over the 2600 to 3200-megacycle range. It is designed for CW/FM transmitting-tube operation at low- or high-modulation frequencies. The high efficiency allows air cooling to be used and in many applications heat-sink cooling is adequate. The integral isolator protects the tube against load mismatches thus minimizing interface problems between the VTM and its associated equipment.

This shielded tube is unaffected by passive magnetic materials and does not require the special tools, storage and handling necessitated by conventional electron devices employing magnetic fields. It is a complete radio-frequency power source which requires only d-c input power and generates radio-frequency power over its electronically tuned frequency range. This voltage-tuned magnetron may be operated over a portion or all of the frequency range or operated at a fixed frequency. Its frequency versus voltage-tuning characteristic is essentially linear.

GENERAL

Electrical

Cathode (filament) - Directly Heated

Warm-up Time, maximum	10	Seconds

Cathode Input Capacitance

Maximum	40	$\mu\mu f$
Typical	35	$\mu\mu f$

Mechanical

Mounting Position		Any
Net Weight	4.5	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 ‡	6.0	Amperes
Anode Voltage	3400	Volts
Sweep Voltage	700	Volts
Anode Current, swept	80	Milliamperes
Power Input	250	Watts
Injection Electrode Voltage	1700	Volts
Voltage Standing Wave Ratio of Load	2.0	

Typical Operating Conditions

Operation with 60-cycle Sweep Voltage

Filament Voltage, approximate	2.3	Volts
Filament Current ‡	5.3	Amperes
Swept Frequency Range	2600 to 3200	Megacycles
Sweep Voltage, Peak to Peak, typical	600	Volts
Anode Voltage at 2.9 Gigacycles	3000	Volts
Anode Current	65	Milliamperes
Injection Electrode Voltage, positive with respect to cathode	700 to 1700	Volts¶
Injection Electrode Current, may be either polarity but less than	0.5	Milliamperes

The specifications of this type are subject to change. This device is now under development and is made available for experimental purposes only. For the most recent information concerning the status of this development, please consult your local Tube Department Regional Sales Office, or current Preliminary Technical Information for the same catalog number.

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

Typical Operating Conditions (Cont'd.)

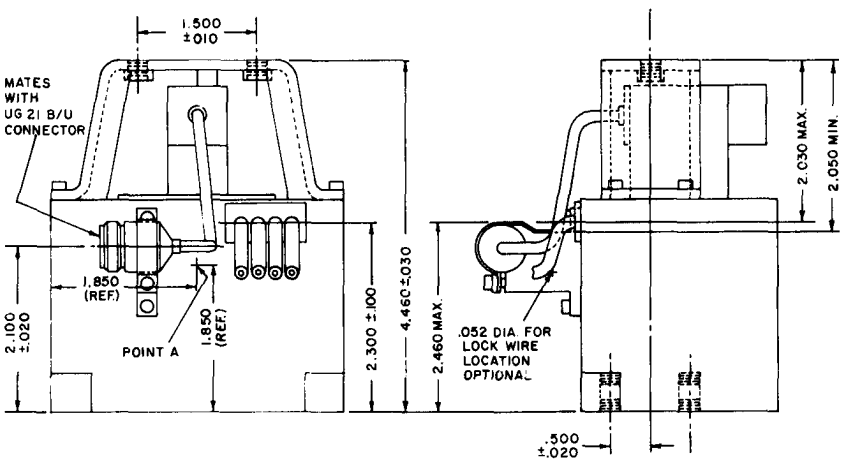
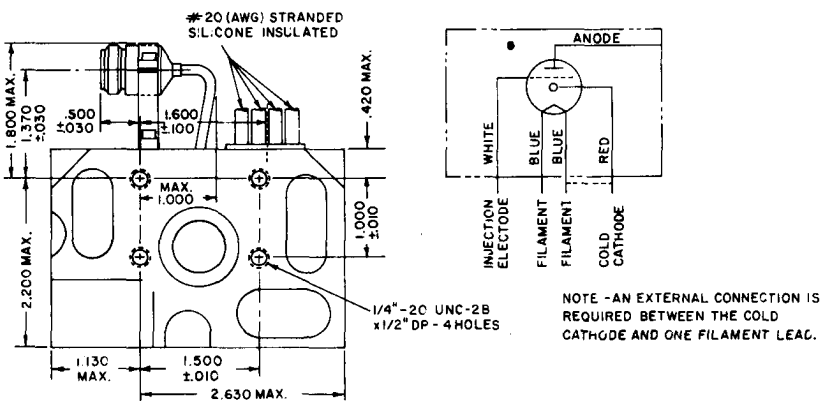
Operation with 60-cycle Sweep Voltage (Cont'd.)

Power Output		
Average, Swept Across Full Band	120	Watts ***
Minimum, At Any Point Without Sweep Voltage	100	Watts ***
Variation Across Band		
Typical	1.4	Decibels
Maximum	2.0	Decibels
Efficiency, minimum		
At Any Frequency	55	Percent
Swept Across Full Band	60	Percent

* Hold temperature to 125 C or less at point shown on the outline drawing. At the maximum inlet temperature of 110 C, 100 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.