

## 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 Power Tube Department Regional Sales Office.

DEVELOPMENTAL  
TYPE

ZM-6602  
OTI-73A  
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ZM-6602

X-BAND

MULTIPLE-BEAM KLYSTRON

100 KILOWATTS CW

The ZM-6602 is a klystron featuring a multiple-gun assembly in a single compact vacuum envelope. The use of a multiplicity of electron beams provides a power output greatly in excess of that obtainable in the basic single-beam tube. The tube operates at comparatively low voltages, which reduces problems associated with high-voltage power supplies, voltage breakdown and radiation protection.

Other design features include reduced size and weight over conventional klystrons at high-power levels where external paralleling is required.

The multiple-beam klystron is particularly adapted for use in long-range radar and high-power communications systems.

### GENERAL

#### ELECTRICAL

|                                    |           |            |
|------------------------------------|-----------|------------|
| Frequency . . . . .                | 7.1 - 9.0 | Gigacycles |
| Tuning Range . . . . .             | 80        | Megacycles |
| Cathode - Impregnated Unipotential |           |            |
| Voltage, maximum . . . . .         | 9         | Volts      |
| Current, maximum . . . . .         | 40        | Amperes    |
| Focusing Method - Electromagnet    |           |            |

#### MECHANICAL

|                                              |     |        |
|----------------------------------------------|-----|--------|
| Mounting Position - Any                      |     |        |
| Connectors - Waveguide                       |     |        |
| RF Input and Output - Matches UG-51/U Flange |     |        |
| Weight                                       |     |        |
| Tube and Pole-piece Assembly . . . . .       | 100 | Pounds |
| Electromagnet . . . . .                      | 160 | Pounds |

#### THERMAL

|                                   |     |                        |
|-----------------------------------|-----|------------------------|
| Cooling - Water                   |     |                        |
| Collector                         |     |                        |
| Inlet Pressure, maximum . . . . . | 100 | Pounds per Square Inch |
| Differential Pressure, maximum    |     |                        |
| (incoming to outgoing) . . . . .  | 65  | Pounds per Square Inch |
| Water Flow, minimum . . . . .     | 50  | Gallons per Minute     |
| Body                              |     |                        |
| Inlet Pressure, maximum . . . . . | 40  | Pounds per Square Inch |
| Water Flow, minimum . . . . .     | 3.0 | Gallons per Minute     |
| Cathode                           |     |                        |
| Pressure, maximum . . . . .       | 40  | Pounds per Square Inch |
| Water Flow, minimum . . . . .     | 0.1 | Gallons per Minute     |
| Magnet                            |     |                        |
| Pressure, maximum . . . . .       | 40  | Pounds per Square Inch |
| Water Flow, minimum . . . . .     | 2   | Gallons per Minute     |

MAXIMUM RATINGS

|                        |      |            |
|------------------------|------|------------|
| Beam Voltage .....     | 17   | Kilovolts  |
| Cathode Current .....  | 17.5 | Amperes    |
| Perveance, total ..... | 8.0  | Micropervs |
| Magnet                 |      |            |
| Current .....          | 14.5 | Amperes    |
| Power .....            | 4.0  | Kilowatts  |
| Load VSWR.....         | 1.25 |            |
| Output .....           | 100  | Kilowatts  |

TYPICAL OPERATING CONDITIONS  
(High-Efficiency Tuning)

|                        |     |            |
|------------------------|-----|------------|
| Gain .....             | 45  | Decibels   |
| Efficiency.....        | 35  | Percent    |
| Bandwidth (3 db) ..... | 19  | Megacycles |
| Output .....           | 100 | Kilowatts  |



