ITT ELECTRON TUBE DIVISION
CLIFTON, NEW JERSEY
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

# F-2064 TRAVELING WAVE TUBE

**TENTATIVE**

## GENERAL DESCRIPTION:

The F-2064 is a 2000 watt pulse traveling wave amplifier tube having 33 db gain and designed primarily for use in the 2800 to 3500 mc frequency range. It is constructed in a rugged metal envelope with a helix type slow wave structure. The integral matching circuit is in 50 ohm coaxial line and is provided with type "TNC" connectors. The tube is focused by a periodic permanent magnet which is integral with the tube. A convergent beam gun and oxide impregnated cathode are used. Duty cycles up to .01 and pulse widths up to 10 microseconds can be used. A control grid suitable for grid pulsing is provided.

## ELECTRICAL RATINGS, ABSOLUTE VALUES

| | | | | | |
|---|---|---|---|---|---|
| Heater Voltage | 6.3 (+10%) | volts | Maximum Duty Cycle | .01 | |
| Heater Current | 3.0 | amperes | Maximum Pulse Width (beam) | 10 | microseconds |
| Maximum Anode Voltage (Note 1) | 8000 | volts | Maximum Cathode Current | 2.0 | ampere peak |
| Maximum Helix Current | 0.8 | ampere peak | Maximum Grid Voltage | | |
| Maximum Collector Voltage | 8000 | volts | Negative | -100 | volts |
| Maximum Collector Dissipation | 120 | watts average | Positive (with respect to cathode) | 200 | volts |
| Maximum R-F Output Power | 30 | watts average | | | |

## ELECTRICAL INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| Maximum Frequency (Note 2) | 3500 | mc | Capacitance | | |
| Minimum Frequency (Note 2) | 2800 | mc | Control Grid to All Other Elements | 20 | uufd |
| Minimum Cold Transmission Loss | 50 | db | | | |

## MECHANICAL INFORMATION

| | | | | |
|---|---|---|---|---|
| Type of Cathode | Oxide Impregnated Unipotential | Weight | 10 pounds | Maximum |
| Base | (See Outline) | R-F Connections | Type "TNC" | |
| Type of Envelope | Metal | Cooling Data | 25 cfm of air | |
| Mounting Position | Any | | | |

## TYPICAL OPERATION AS POWER AMPLIFIER

| | | | | | |
|---|---|---|---|---|---|
| Frequency | 2800 to 3500 | mc | Power Output (minimum) | 1000 | watts peak |
| Anode Voltage (Note 1) | 7500 | volts | Gain | 33 | db |
| Cathode Current | 1.5 | amperes peak | Duty | .01 | |
| Collector Voltage (tied to shell) | 7500 | volts | Pulse Width | 5 | microseconds |
| Collector Current | 1.0 | amperes peak | Grid Bias (for cut-off) | -30 | volts |
| | | | Grid Voltage during Pulse | 175 | volts |

NOTE 1: All voltages shown are with respect to cathode. The shell is normally operated at ground potential and the anode connection is made to the shell of the package.

NOTE 2: Useful gain and power output exists below 2800 mc and above 3500 mc and can be utilized by adjusting anode voltage to optimize the frequency range desired. However, bandwidth cannot be extended both upward and downward simultaneously and maximum gain and power output outside the normal bandwidth will be lower than rated values.

NOTE 3: Heater warm up of two minutes before applying high voltage is recommended.

NOTE 4: High voltage must not be applied in the absence of proper grid bias.

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