

ELECTRONIC TUBE REFERENCE

7794

Specialized - Magnetron electronic tube

CONSOLIDATED TECHNICAL DATA  
1 SECTION  
CONSTRUCTION  
MAGNETRON

C-band continuous-wave magnetron designed for communications, telemetry, relay, and modulated microwave service around 4.2-4.4 GHz.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | —             |
| NOMINAL HEATER      | — / —             | PARALLEL HEATER      | — / —         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

SECTION RATINGS

|                                             |
|---------------------------------------------|
| SECTION1 Magnetron                          |
| No fixed ratings recorded.                  |
| Source-derived physical/electrical section. |

Westinghouse January 1, 1961 TUNABLE MAGNETRON TYPE 7794 The 7794 is a C band 5 watt CW magnetron. It is designed for AM modulated communications, telemetering and relay systems requiring high average power with good bandwidth. In pulse code modulation systems peak powers up to 10 watts are avigilable. In amplitude modulated systems one hundred percent modulation of a five watt carrier is permitted. With 100% modulation incidental FM is less than 10 megacycles. The rugged light weight design permits use on airborne systems where shock und vibration are severe. The 7794 uses a multivoned anode structure ond an oxide coated unipotential cathode. It contains a capacitive tuning element which can be adjusted by means of a differential screw to a desired frequency in the range 4200-4400 Mc. The integral magnets are enclosed in steel shells which serve to shield the magnetron from stray magnetic field effects, The 7794 is also most satisfactory for laboratory use as its tuning system permits

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1947 Westinghouse

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1947 WESTINGHOUSE

## Section 1 · Magnetron

| OTHER                                                        |                 |                                                                                                              |
|--------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|
| PARAMETER                                                    | PUBLISHED VALUE | CONDITION / NOTE                                                                                             |
| The                                                          | 5               | The 7794 is a C band 5 watt CW magnetron. It is designed for AM modulated communications, telemetering and   |
| up to                                                        | 10              | up to 10 watts are avgilable. In amplitude modulated systems one hundred percent modulation of a five watt   |
| carrier is permitted. With                                   | 10              | carrier is permitted. With 100% modulation incidental FM is less than 10 megacycles. The rugged light weight |
| 4400 Mc. The integral magnets are enclosed in steel shells w | 4400            | 4400 Mc. The integral magnets are enclosed in steel shells which serve to shield the magnetron from stray    |
| Voltaga {(Note                                               | 6.3             | Voltaga {(Note 1} . . . . .o i ion v 6.3 Yolts                                                               |
| Current L . . . i e e e e                                    | 10              | Current L . . . i e e e e 0.6 ft 10% Ampere                                                                  |
| Warm-Up Time (Note                                           | 40              | Warm-Up Time (Note 2) . . . . . 40 Seconds                                                                   |
| Operating Voltages ...<br>..... Special                      | 337             | Operating Voltages ... ..... Special 8-Pin [n-Line Plug % {O 337 MADE IN USA                                 |
| Ambient Temperature . . . .<br>... o e ~                     | 70              | Ambient Temperature . . . . . o e ~55°C to +70°C VVC[III& I)USC                                              |
| Shell Temperature                                            | 35              | Shell Temperature . . . . . 35°C max. above ambient : SER NO                                                 |
| Heotor Curront .. . v v vs o                                 | 0.66            | Heotor Curront .. . v v vs o 0.54 0.60 0.66 Amperes The maximum ratings must not be exceeded if per-         |
| Powar Output . . . . oo                                      | 5               | Powar Output . . . . oo ... 0.5 4.5 5 Watts                                                                  |
| Froquency                                                    | 4400            | Froquency . . . .. 0o aet 4200 »- 4400 Megacycles can be applied simultanecusly.                             |
| Pulling Figure for VSWR of                                   | 4               | Pulling Figure for VSWR of 1.5 - - - 4.0 Megacycles                                                          |

| PARAMETER                                                                           | PUBLISHED VALUE | CONDITION / NOTE                                                                                              |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------|
| Heater Voltage (Note                                                                | <b>7</b>        | Heater Voltage (Note 1) . . . . . 57 63 7.0 Volts                                                             |
| Heater Current . . . . v .<br>.. e e                                                | <b>0.66</b>     | Heater Current . . . . v . . . e e 0.54 0.60 0.66<br>Amperes                                                  |
| Peak Cathode Voltage . . .<br>..... ~                                               | <b>-500</b>     | Peak Cathode Voltage . . . ..... ~250 —450 -500<br>Volts tube if brought within strong A.C. field<br>regions. |
| Peak Power . .« v vv v v v<br>convex                                                | <b>100</b>      | Peak Power . .« v vv v v v convex 0.5 50 100<br>Watts mounting brackets. Magnets should be<br>kept at least   |
| Heater Current . . . v o v v<br>e ot                                                | <b>0.66</b>     | Heater Current . . . v o v v e ot 0.54 0.60 0.66<br>Amperes Handling Precautions:                             |
| Cathode Center Voltage . . .<br>... ~                                               | <b>400</b>      | Cathode Center Voltage . . . . . ~300 -350 —400<br>Volts                                                      |
| Modulation Frequency . . .<br>.. .. -+                                              | <b>10</b>       | Modulation Frequency . . . . . -+ 10% 10®<br>Cycles/Sec.                                                      |
| Modulation Amplitude (Note<br>&) . - - - =                                          | <b>100</b>      | Modulation Amplitude (Note &) . - - - = 100%<br>out special precaution except that the output<br>section      |
| 2: Cathode voltage and<br>heater voltage can be<br>applied at the                   | <b>2</b>        | 2: Cathode voltage and heater voltage can be<br>applied at the center of its tuning range.<br>Loosening the   |
| full rating in less than                                                            | <b>40</b>       | full rating in less than 40 seconds. either<br>direction. An approximate tuning curve is                      |
| support. Non-magnetic clamps<br>should be used to f                                 | <b>180</b>      | support. Non-magnetic clamps should be used<br>to f 2  180 <                                                  |
| but pulse widths less than                                                          | <b>2</b>        | but pulse widths less than 1.0 microseconds<br>have 5 2 2 g0 A                                                |
| 6: The amplitude of<br>modulation voltage is<br>related to « 360                    | <b>360</b>      | 6: The amplitude of modulation voltage is<br>related to « 360                                                 |
| between                                                                             | <b>230</b>      | between 230 volts and the operating center<br>voltage CE-AtER?                                                |
| is the amplitude needed for                                                         | <b>100</b>      | is the amplitude needed for 100% sine wave<br>modu-                                                           |
| settings to be maintained in<br>systems where vibration<br>watt, as shown in Figure | <b>3</b>        | settings to be maintained in systems where<br>vibration watt, as shown in Figure 3.                           |
| about —                                                                             | <b>5</b>        | about —5 Mc.                                                                                                  |
| 40 [~ probable with<br>amplitude modulation. Higher<br>or lower                     | <b>4</b>        | 40 [~ probable with amplitude modulation.<br>Higher or lower                                                  |

| PARAMETER | PUBLISHED VALUE | CONDITION / NOTE |
|-----------|-----------------|------------------|
|           | 656             | 1344° 656"       |

| CHARACTERISTIC  |                 |                                                                                                        |
|-----------------|-----------------|--------------------------------------------------------------------------------------------------------|
| PARAMETER       | PUBLISHED VALUE | CONDITION / NOTE                                                                                       |
| Cathode Voltage | -450            | Cathode Voltage . . . . . -250 -425 -450 Yalts<br>formance characteristics are to be maintained.<br>It |
| through         | 1               | through 1 megohm of resistance. Tuning:                                                                |