

## TUNG-SOL

## TRIODE

## MINIATURE TYPE

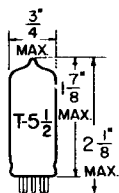
COATED UNIPOTENTIAL CATHODE

HEATER

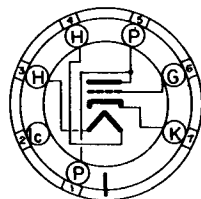
6.3 VOLTS 150 MA.

AC OR DC

ANY MOUNTING POSITION



GLASS BULB


 BOTTOM VIEW  
 MINIATURE BUTTON  
 7 PIN BASE

THE 6C4 IS A LOW-MU TRIODE VOLTAGE AMPLIFIER OF THE MINIATURE TYPE. IT IS PARTICULARLY USEFUL AS A HIGH FREQUENCY LOW-POWER OSCILLATOR DUE TO ITS HIGH TRANSCONDUCTANCE, LOW CAPACITANCES AND LEAD INDUCTANCES. LOW HEATER POWER REQUIREMENTS MAKE IT ATTRACTIVE FOR USE IN PORTABLE AND ALSO IN SERIES-HEATER CONNECTED CIRCUITS.

## DIRECT INTERELECTRODE CAPACITANCES

WITH NO EXTERNAL SHIELD

|                         |     |               |
|-------------------------|-----|---------------|
| GRID TO PLATE: (G TO P) | 1.6 | $\mu\text{f}$ |
| INPUT: G TO (H+K)       | 1.8 | $\mu\text{f}$ |
| OUTPUT: P TO (H+K)      | 1.3 | $\mu\text{f}$ |

## RATINGS

INTERPRETED ACCORDING TO RMA STANDARD M8-210

|                                              | AF<br>AMPLIFIER | RF<br>AMPLIFIER |       |
|----------------------------------------------|-----------------|-----------------|-------|
| HEATER VOLTAGE                               | 6.3             | 6.3             | VOLTS |
| MAXIMUM HEATER-CATHODE VOLTAGE               | 90              | 90              | VOLTS |
| MAXIMUM PLATE VOLTAGE                        | 300             | 300             | VOLTS |
| MAXIMUM NEGATIVE DC GRID VOLTAGE             | ---             | 50              | VOLTS |
| MAXIMUM GRID CIRCUIT RESISTANCE (FIXED BIAS) | 0.25            | ---             | MEG.  |
| MAXIMUM GRID CIRCUIT RESISTANCE (SELF BIAS)  | 1               | ---             | MEG.  |
| MAXIMUM DC PLATE CURRENT                     | ---             | 25              | MA.   |
| MAXIMUM DC GRID CURRENT                      | ---             | 8               | MA.   |
| PLATE DISSIPATION                            | 3.5             | 5               | WATTS |

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS  $A_1$  AMPLIFIER

|                           |       |       |                  |
|---------------------------|-------|-------|------------------|
| HEATER VOLTAGE            | 6.3   | 6.3   | VOLTS            |
| HEATER CURRENT            | 150   | 150   | MA.              |
| PLATE VOLTAGE             | 100   | 250   | VOLTS            |
| GRID VOLTAGE <sup>A</sup> | 0     | -8.5  | VOLTS            |
| PLATE CURRENT             | 11.8  | 10.5  | MA.              |
| PLATE RESISTANCE          | 6 250 | 7 700 | OHMS             |
| TRANSCONDUCTANCE          | 3 100 | 2 200 | $\mu\text{MHOS}$ |
| AMPLIFICATION FACTOR      | 19.5  | 17    |                  |

<sup>A</sup> THE TYPE OF INPUT COUPLING USED SHOULD NOT INTRODUCE TOO MUCH RESISTANCE IN THE GRID CIRCUIT. TRANSFORMER OR IMPEDANCE COUPLING DEVICES ARE RECOMMENDED.

CONTINUED ON FOLLOWING PAGE

→ INDICATES A CHANGE OR ADDITION.

CONTINUED FROM PRECEDING PAGE

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

RF POWER AMPLIFIER AND OSCILLATOR - CLASS C TELEGRAPHY  
 AS AN OSCILLATOR AT 150 MC APPROXIMATELY 2.5 WATTS CAN BE OBTAINED WITH  
 A GRID RESISTOR OF 10000 OHMS AND MAXIMUM RATED INPUT.

|                           |      |       |
|---------------------------|------|-------|
| HEATER VOLTAGE            | 6.3  | VOLTS |
| HEATER CURRENT            | 150  | MA.   |
| DC PLATE VOLTAGE          | 300  | VOLTS |
| DC GRID VOLTAGE           | -27  | VOLTS |
| DC PLATE CURRENT          | 25   | MA.   |
| DC GRID CURRENT (APPROX.) | 7    | MA.   |
| DRIVING POWER (APPROX.)   | 0.35 | WATT  |
| POWER OUTPUT (APPROX.)    | 5.5  | WATTS |

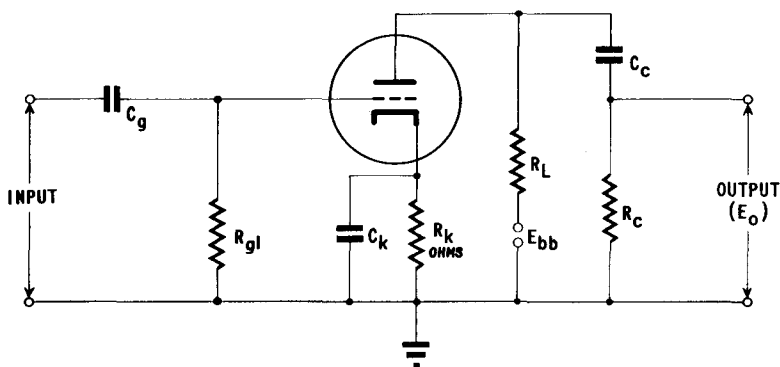
## RESISTANCE COUPLED AMPLIFIER

| $R_L$<br>MEG. | $R_{g1}$<br>MEG. | $R_c$<br>MEG. | $E_{bb} = 90$ VOLTS |      |       | $E_{bb} = 180$ VOLTS |      |       | $E_{bb} = 300$ VOLTS |      |       |
|---------------|------------------|---------------|---------------------|------|-------|----------------------|------|-------|----------------------|------|-------|
|               |                  |               | $R_k$               | GAIN | $E_o$ | $R_k$                | GAIN | $E_o$ | $R_k$                | GAIN | $E_o$ |
| 0.10          | A                | 0.10          | 3000                | 11   | 12    | 2000                 | 12   | 23    | 1600                 | 13   | 34    |
| 0.10          | A                | 0.24          | 3300                | 12   | 15    | 2400                 | 12   | 30    | 1800                 | 13   | 40    |
| 0.24          | A                | 0.24          | 7500                | 12   | 14    | 4700                 | 13   | 25    | 3600                 | 13   | 37    |
| 0.24          | A                | 0.51          | 8200                | 12   | 16    | 6200                 | 13   | 32    | 4300                 | 13   | 43    |
| 0.51          | A                | 0.51          | 12000               | 12   | 13    | 8200                 | 13   | 24    | 6200                 | 13   | 33    |
| 0.51          | A                | 1.0           | 13000               | 12   | 15    | 9100                 | 13   | 28    | 6800                 | 13   | 36    |
| 0.24          | 10               | 0.24          | ---                 | 13   | 12    | ---                  | 15   | 24    | ---                  | 16   | 35    |
| 0.24          | 10               | 0.51          | ---                 | 14   | 15    | ---                  | 16   | 28    | ---                  | 17   | 49    |
| 0.51          | 10               | 0.51          | ---                 | 14   | 13    | ---                  | 15   | 25    | ---                  | 17   | 40    |
| 0.51          | 10               | 1.0           | ---                 | 14   | 16    | ---                  | 16   | 32    | ---                  | 17   | 54    |

<sup>A</sup> VALUE OF  $R_{g1}$  IS NOT CRITICAL.

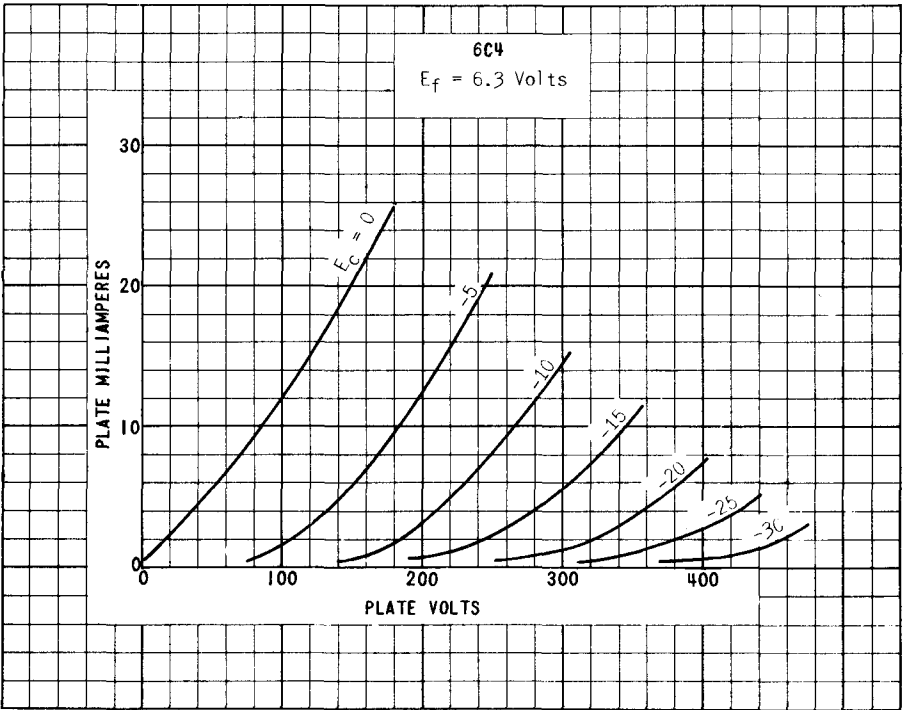
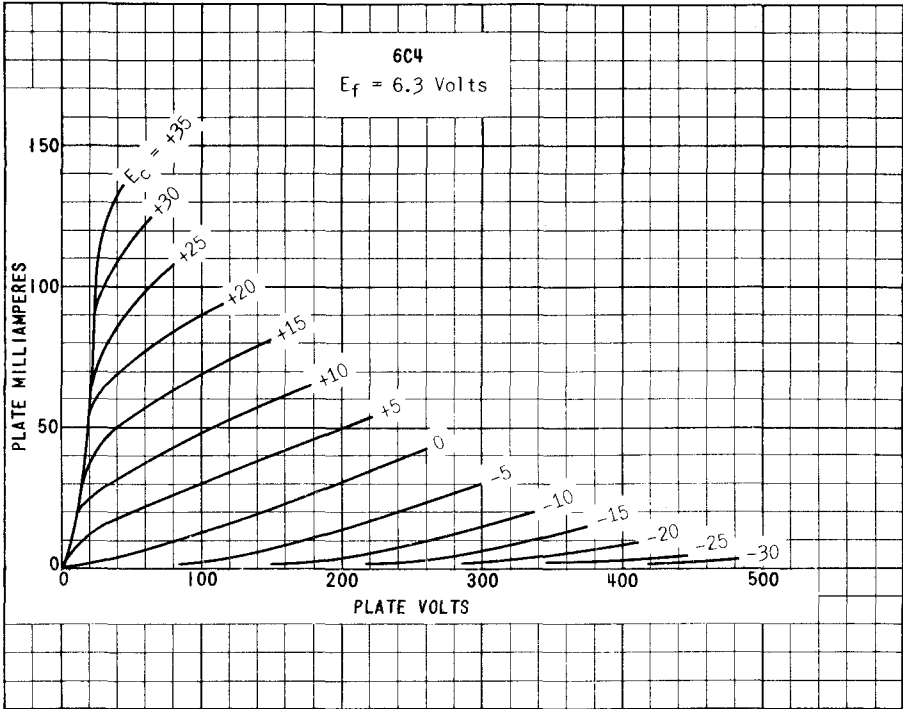
GAIN MEASURED AT  $E_o = 2.0$  VOLTS RMS OUTPUT.

$E_o$  IS RMS OUTPUT FOR 5% TOTAL HARMONIC DISTORTION.



NOTE: COUPLING CAPACITORS  $C_g$  AND  $C_c$  SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE.  $R_k$  SHOULD BE ADEQUATELY BY-PASSED BY CAPACITOR  $C_k$ .

PLATE  
1964  
FEB. 2,  
1948



PRINTED IN U. S. A.

PLATE  
1965  
FES. 2,  
1948

# 6C4

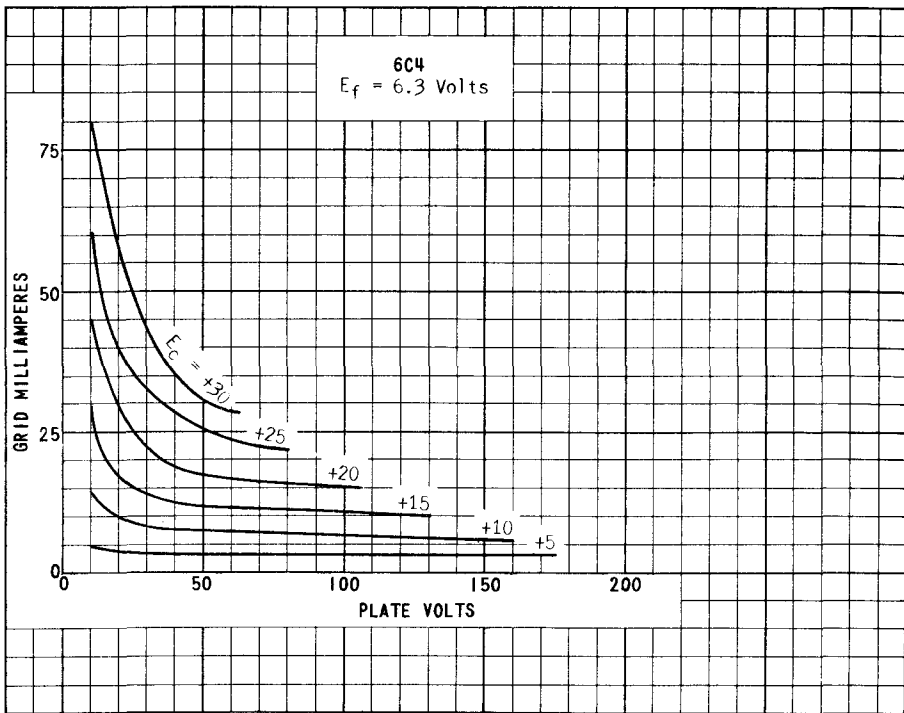


PLATE  
1966  
FEB. 2,  
1968