

## S.Q. TUBE

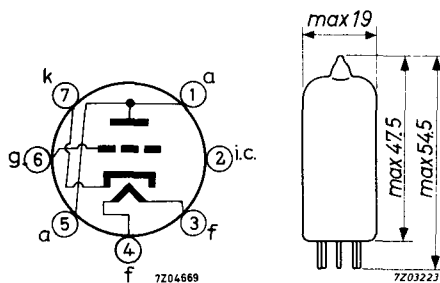
Triode designed for use as R.F. power amplifier or oscillator for frequencies up to 150 MHz.

| QUICK REFERENCE DATA      |                          |
|---------------------------|--------------------------|
| Life test                 | 500 hours                |
| Base                      | Miniature                |
| Heating                   | Indirect<br>A.C. or D.C. |
| Heater voltage            | $V_f$ 6.3 V              |
| Heater current            | $I_f$ 150 mA             |
| Output power $f = 50$ MHz | $W_o$ 3.6 W              |
| $f = 100$ MHz             | $W_o$ 3.3 W              |

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Miniature



**CHARACTERISTICS**

|                      |        |      |               |
|----------------------|--------|------|---------------|
| Heater voltage       | $V_f$  | 6.3  | V             |
| Heater current       | $I_f$  | 150  | mA            |
| Anode voltage        | $V_a$  | 100  | 250 V         |
| Grid voltage         | $-V_g$ | 0    | 8.5 V         |
| Anode current        | $I_a$  | 11.8 | 10.5 mA       |
| Mutual conductance   | $S$    | 3.25 | 2.2 mA/V      |
| Amplification factor | $\mu$  | 21.5 | 17            |
| Internal resistance  | $R_i$  | 6.6  | 7.7 $k\Omega$ |

**CAPACITANCES**

|                             |            | Without shield | With shield |
|-----------------------------|------------|----------------|-------------|
| Anode to grid               | $C_{ag}$   | 1.4            | 1.3 pF      |
| Grid to cathode and heater  | $C_{a/kf}$ | 1.5            | 1.7 pF      |
| Anode to cathode and heater | $C_{g/kf}$ | 1.2            | 2.6 pF      |

**LIMITING VALUES** (Design centre rating system)

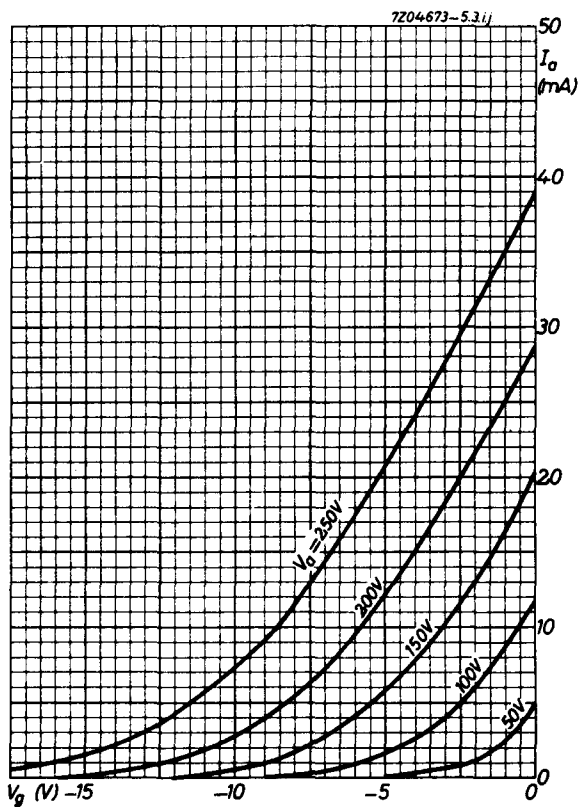
|                                    |            |      |               |
|------------------------------------|------------|------|---------------|
| Anode voltage                      | $V_{a_o}$  | max. | 550 V         |
|                                    | $V_a$      | max. | 300 V         |
| Anode dissipation                  | $W_a$      | max. | 3.5 W         |
| Cathode current:                   |            |      |               |
| (as R.F. oscillator or amplifier)  | $I_k$      | max. | 30 mA         |
| (as R.F. doubler or trebler)       | $I_k$      | max. | 20 mA         |
| Grid voltage                       | $-V_g$     | max. | 100 V         |
| Grid current                       | $+I_g$     | max. | 5.0 mA        |
| Grid resistor                      | $R_g$      | max. | 250 $k\Omega$ |
| Voltage between cathode and heater | $V_{kf}$   | max. | 150 V         |
| Bulb temperature                   | $t_{bulb}$ | max. | 180 °C        |

## OPERATING CHARACTERISTICS

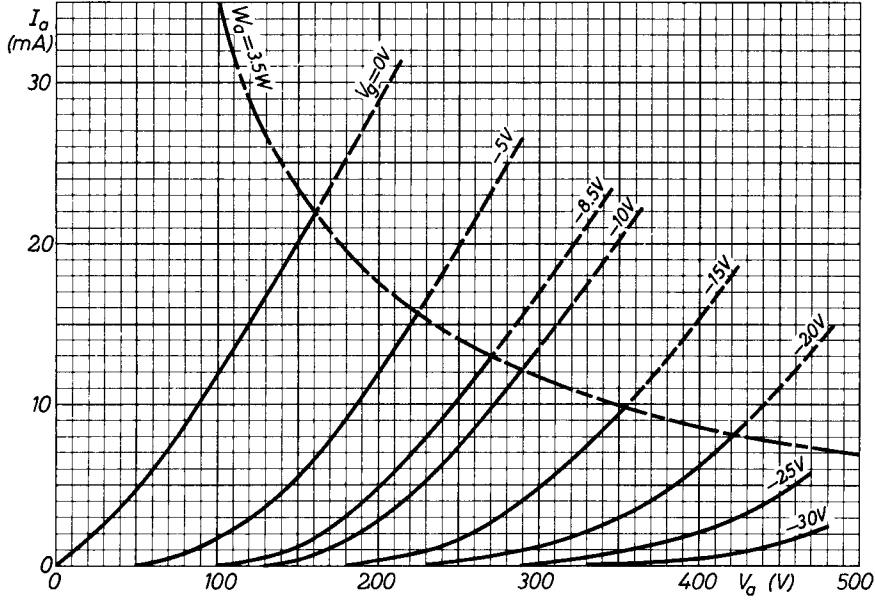
As R.F. amplifier or oscillator

Class C telegraphy or F.M.

|               |        |      |      |     |
|---------------|--------|------|------|-----|
| Frequency     | $f$    | 50   | 100  | MHz |
| Anode voltage | $V_a$  | 300  | 300  | V   |
| Grid voltage  | $-V_g$ | 27   | 27   | V   |
| Anode current | $I_a$  | 16.2 | 17.1 | mA  |
| Grid current  | $+I_g$ | 3.8  | 2.9  | mA  |
| Output power  | $W_o$  | 3.6  | 3.3  | W   |
| Efficiency    | $\eta$ | 67   | 55   | %   |



7204670-5.3*i*<sub>j</sub>



# PHILIPS

## Data handbook



**Electronic  
components  
and materials**

### EC90

| page | sheet | date       |
|------|-------|------------|
| 1    | 1     | 1968.12    |
| 2    | 2     | 1968.12    |
| 3    | 3     | 1968.12    |
| 4    | 4     | 1968.12    |
| 5    | FP    | 2001.04.13 |