

# TETRODA

# QB 4/1100

Philips

Wzmacniacz w. cz. Modulator

## Wartości charakterystyczne

|             |      |      |
|-------------|------|------|
| $U_z$       | 5    | V    |
| $I_z$       | 14,1 | A    |
| $U_a$       | 2500 | V    |
| $U_{s2}$    | 500  | V    |
| $I_a$       | 100  | mA   |
| $S_a$       | 4    | mA/V |
| $K_{s2/s1}$ | 5,1  |      |

## Pojemności

|           |      |    |
|-----------|------|----|
| $C_{a/k}$ | 4,9  | pF |
| $C_{s/k}$ | 12,7 | pF |
| $C_{a/s}$ | 0,12 | pF |

## Wartości graniczne

|                   |      |     |
|-------------------|------|-----|
| $U_a \text{ max}$ | 4000 | V   |
| $U_s \text{ max}$ | -500 | V   |
| $I_a \text{ max}$ | 350  | mA  |
| $P_a \text{ max}$ | 400  | W   |
| $f_{\text{max}}$  | 110  | MHz |

## Dane mechaniczne

**Wykonanie:** szklane, katoda wolframowa, torowana.

**Chłodzenie:** powietrzem 0,4 m<sup>3</sup>/min, 5 mm(H<sub>2</sub>O)

$t_{\text{bałki max}}$  350°C

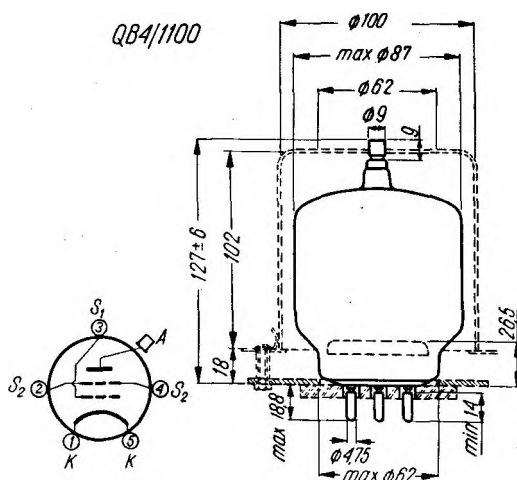
$t_{\text{wypr max}}$  180°C

$t_{\text{wypr anody max}}$  220°C

**Ustawienie:** pionowo, cokol na dole lub na górze.

**Ciężar:** netto 190 G

brutto (9 lamp) 6,5 kG



Typy pobobne: QV 4-400 — Mullard, RS 1002 A — Siemens, 4-400 A — Eimac, C 1136 — EEV, Q 400-1 — Brown Boveri, RE 400 F — Tesla

## Wzmacniacz w. cz. Klasa C. Telegrafia

| Wartości graniczne |      |     | Wartości robocze |      |      |      |      |      |     |
|--------------------|------|-----|------------------|------|------|------|------|------|-----|
| $f_{max}$          | 110  | MHz | $f$              | 75   | 75   | 75   | 100  | 100  | MHz |
| $U_a max$          | 4000 | V   | $U_a$            | 4000 | 3000 | 2500 | 4000 | 3500 | V   |
| $P_{wej max}$      | 1400 | W   | $U_{s2}$         | 500  | 500  | 500  | 500  | 500  | V   |
| $P_a max$          | 400  | W   | $U_{s1}$         | -220 | -220 | -200 | -170 | -170 | V   |
| $I_a max$          | 350  | mA  | $I_a$            | 350  | 350  | 350  | 270  | 250  | mA  |
| $U_{s2 max}$       | 600  | V   | $I_{s2}$         | 25   | 30   | 35   | 16   | 17   | mA  |
| $P_{s2 max}$       | 35   | W   | $I_{s1}$         | 6    | 6    | 6,5  | 9,5  | 9    | mA  |
| $U_{s1 max}$       | -500 | V   | $U_{s1 szcz}$    | 305  | 305  | 290  | 240  | 235  | V   |
| $I_{s1 max}$       | 25   | mA  | $P_{s1}$         | 1,8  | 1,8  | 1,8  | 2    | 1,8  | W   |
|                    |      |     | $P_{s2}$         | 12,5 | 15   | 17,5 | 8    | 8,5  | W   |
|                    |      |     | $P_{wej}$        | 1400 | 1050 | 875  | 1080 | 875  | W   |
|                    |      |     | $P_a$            | 300  | 250  | 235  | 280  | 225  | W   |
|                    |      |     | $P_{wyj}$        | 1100 | 800  | 640  | 800  | 650  | W   |
|                    |      |     | $\eta$           | 78,5 | 76   | 73   | 74   | 74   | %   |

## Wzmacniacz w. cz. Klasa C. Modulacja anodowo-ekranowa

## Praca ciągła (CCS)

| Wartości graniczne |      |     | Wartości robocze |      |      |      |     |
|--------------------|------|-----|------------------|------|------|------|-----|
| $f_{max}$          | 75   | MHz | $f$              | 75   | 75   | 75   | MHz |
| $U_a max$          | 3200 | V   | $U_a$            | 3000 | 2500 | 2000 | V   |
| $P_{wej max}$      | 880  | W   | $U_{s2}$         | 500  | 500  | 500  | V   |
| $P_a max$          | 270  | W   | $U_{s1}$         | -220 | -220 | -220 | V   |
| $I_a max$          | 275  | mA  | $I_a$            | 275  | 275  | 275  | mA  |
| $U_{s2 max}$       | 600  | V   | $I_{s2}$         | 36   | 38   | 40   | mA  |
| $P_{s2 max}$       | 35   | W   | $I_{s1}$         | 6    | 6    | 6    | mA  |
| $U_{s1 max}$       | -500 | V   | $U_{s1 szcz}$    | 305  | 308  | 305  | V   |
| $I_{s1 max}$       | 25   | mA  | $P_{s1}$         | 1,6  | 1,7  | 1,6  | W   |
|                    |      |     | $P_{s2}$         | 18   | 19   | 20   | W   |
|                    |      |     | $P_{wej}$        | 825  | 688  | 550  | W   |
|                    |      |     | $P_a$            | 195  | 178  | 170  | W   |
|                    |      |     | $P_{wyj}$        | 630  | 510  | 380  | W   |
|                    |      |     | $\eta$           | 76   | 74   | 69   | %   |
|                    |      |     | $m$              | 100  | 100  | 100  | %   |
|                    |      |     | $U_{s2 szcz}$    | 400  | 400  | 400  | V   |
|                    |      |     | $P_{mod}$        | 413  | 344  | 275  | W   |

## Praca okresowa (ICAS)

| Wartości graniczne |      |     | Wartości robocze      |      |     |                       |      |   |
|--------------------|------|-----|-----------------------|------|-----|-----------------------|------|---|
| $f_{max}$          | 30   | MHz | $f$                   | 30   | MHz | $P_{s2}$              | 15   | W |
| $U_a \max$         | 4000 | V   | $U_a$                 | 3650 | V   | $P_{wej}$             | 1000 | W |
| $P_{wej \max}$     | 1100 | W   | $U_{s2}$              | 500  | V   | $P_a$                 | 235  | W |
| $P_a \max$         | 270  | W   | $U_{s1}$              | -225 | V   | $P_{wyj}$             | 765  | W |
| $I_a \max$         | 275  | mA  | $I_a$                 | 275  | mA  | $\eta$                | 76,5 | % |
| $U_{s2 \max}$      | 600  | V   | $I_{s2}$              | 30   | mA  | $m$                   | 100  | % |
| $P_{s2 \max}$      | 35   | W   | $I_{s1}$              | 6    | mA  | $U_{s2 \text{ szcz}}$ | 400  | V |
| $U_{s1 \max}$      | -500 | V   | $U_{s1 \text{ szcz}}$ | 308  | V   | $P_{mod}$             | 500  | W |
| $I_{s1 \max}$      | 25   | mA  | $P_{s1}$              | 1,7  | W   |                       |      |   |

Wzmacniacz jednowstęgowy w. cz. Klasa B.  $I_{s1} = 0$  (SSB)

## Wartości graniczne

|                |      |     |              |     |    |
|----------------|------|-----|--------------|-----|----|
| $f_{max}$      | 110  | MHz | $I_a max$    | 350 | mA |
| $U_a max$      | 4000 | V   | $U_{s2} max$ | 850 | V  |
| $P_{weij} max$ | 1400 | W   | $P_{s2} max$ | 35  | W  |
| $P_a max$      | 400  | W   |              |     |    |

## Wartości robocze

|               |       |                     |                 |       |                     |                 |       |                     |                 |     |
|---------------|-------|---------------------|-----------------|-------|---------------------|-----------------|-------|---------------------|-----------------|-----|
| $f$           | 110   |                     |                 | 110   |                     |                 | 110   |                     |                 | MHz |
| $U_a$         | 4000  |                     |                 | 3500  |                     |                 | 3000  |                     |                 | V   |
| $U_{s1}$      | - 130 |                     |                 | - 135 |                     |                 | - 140 |                     |                 | V   |
| $U_{s2}$      | 705   |                     |                 | 750   |                     |                 | 810   |                     |                 | V   |
| $U_{s1} szcz$ | 0     | 1 <sup>1)</sup> 130 | 2 <sup>2)</sup> | 0     | 1 <sup>1)</sup> 135 | 2 <sup>2)</sup> | 0     | 1 <sup>1)</sup> 140 | 2 <sup>2)</sup> | V   |
| $I_a$         | 65    | 250                 | 175             | 75    | 280                 | 200             | 90    | 300                 | 215             | mA  |
| $I_{s2}$      |       | 10                  | 7               |       | 12                  | 8,4             |       | 15                  | 10,5            | mA  |
| $P_{s2}$      |       | 7,05                | 4,95            |       | 9                   | 6,3             |       | 12,5                | 8,5             | W   |
| $P_{weij}$    | 260   | 1000                | 700             | 263   | 980                 | 700             | 270   | 900                 | 645             | W   |
| $P_a$         | 260   | 350                 | 375             | 263   | 380                 | 400             | 270   | 400                 | 395             | W   |
| $P_{wyj}$     |       | 650                 | 325             |       | 600                 | 300             |       | 500                 | 250             | W   |
| $\eta$        |       | 65                  | 46,5            |       | 61,2                | 43              |       | 55,5                | 38,8            | %   |

1) Badane jedną częstotliwością

2) Badane dwiema częstotliwościami

Wzmacniacz m. cz. Klasa B.  $I_{s1} > 0$ 

## Wartości graniczne

|           |      |    |              |                   |    |
|-----------|------|----|--------------|-------------------|----|
| $U_a max$ | 4000 | V  | $U_{s2} max$ | 800 <sup>1)</sup> | V  |
| $P_a max$ | 400  | W  | $P_{s2} max$ | 35                | W  |
| $I_a max$ | 350  | mA | $I_{s1} max$ | 25                | mA |

1)  $U_{s2} max = 1000$  V, gdy temperatura wyprowadzeń jest mniejsza od 120°C

## Wartości robocze (2 lampy)

|                  |         |          |         |          |         |          |         |          |    |
|------------------|---------|----------|---------|----------|---------|----------|---------|----------|----|
| $U_a$            | 4000    |          | 3500    |          | 3000    |          | 2500    |          | V  |
| $U_{s2}$         | 500     |          | 500     |          | 500     |          | 500     |          | V  |
| $U_{s1}$         | - 90    |          | - 85    |          | - 80    |          | - 75    |          | V  |
| $R_{a/a}$        | 15      |          | 11,3    |          | 10      |          | 8       |          | kΩ |
| $U_{s1/s1} szcz$ | 0       | 290      | 0       | 305      | 0       | 292      | 0       | 290      | V  |
| $I_a$            | 2 × 80  | 2 × 319  | 2 × 80  | 2 × 350  | 2 × 90  | 2 × 350  | 2 × 95  | 2 × 350  | mA |
| $I_{s2}$         |         | 2 × 20   |         | 2 × 20   |         | 2 × 20   |         | 2 × 30   | mA |
| $I_{s1}$         |         | 2 × 6    |         | 2 × 6,5  |         | 2 × 6,5  |         | 2 × 7    | mA |
| $P_{s2}$         |         | 2 × 10   |         | 2 × 10   |         | 2 × 10   |         | 2 × 15   | W  |
| $P_{s1}$         |         | 2 × 0,8  |         | 2 × 0,9  |         | 2 × 0,85 |         | 2 × 0,91 | W  |
| $P_{weij}$       | 2 × 320 | 2 × 1272 | 2 × 280 | 2 × 1225 | 2 × 270 | 2 × 1050 | 2 × 238 | 2 × 875  | W  |
| $P_a$            | 2 × 320 | 2 × 400  | 2 × 280 | 2 × 400  | 2 × 270 | 2 × 362  | 2 × 238 | 2 × 320  | W  |
| $P_{wyj}$        |         | 1750     |         | 1650     |         | 1375     |         | 1110     | W  |
| $\eta$           |         | 68,5     |         | 67,5     |         | 65,5     |         | 63,5     | %  |

Wzmacniacz m. cz. Klasa B.  $I_{s1} = 0$ 

## Wartości graniczne

|                   |      |    |                      |     |    |
|-------------------|------|----|----------------------|-----|----|
| $U_a \text{ max}$ | 4000 | V  | $U_{s2} \text{ max}$ | 800 | V  |
| $P_a \text{ max}$ | 400  | W  | $P_{s2} \text{ max}$ | 35  | W  |
| $I_a \text{ max}$ | 350  | mA | $I_{s1} \text{ max}$ | 25  | mA |

## Wartości robocze (2 lampy)

|                            |         |          |         |          |         |          |         |          |    |
|----------------------------|---------|----------|---------|----------|---------|----------|---------|----------|----|
| $U_a$                      | 4000    |          | 3500    |          | 3000    |          | 2500    |          | V  |
| $U_{s2}$                   | 750     |          | 750     |          | 750     |          | 750     |          | V  |
| $U_{s1}$                   | - 150   |          | - 145   |          | - 137   |          | - 130   |          | V  |
| $R_{a/a}$                  | 14,5    |          | 11,5    |          | 8,9     |          | 6,8     |          | kΩ |
| $U_{s1/s1} \text{ szczyt}$ | 0       | 300      | 0       | 290      | 0       | 274      | 0       | 260      | V  |
| $I_a$                      | 2 × 60  | 2 × 293  | 2 × 70  | 2 × 305  | 2 × 80  | 2 × 318  | 2 × 95  | 2 × 318  | mA |
| $I_{s2}$                   |         | 2 × 15   |         | 2 × 13,5 |         | 2 × 11   |         | 2 × 11,6 | mA |
| $P_{s2}$                   |         | 2 × 11,2 |         | 2 × 10,4 |         | 2 × 10,3 |         | 2 × 8,7  | W  |
| $P_{wej}$                  | 2 × 240 | 2 × 1170 | 2 × 245 | 2 × 1065 | 2 × 240 | 2 × 955  | 2 × 238 | 2 × 795  | W  |
| $P_a$                      | 2 × 240 | 2 × 400  | 2 × 245 | 2 × 400  | 2 × 240 | 2 × 400  | 2 × 238 | 2 × 370  | W  |
| $P_{wyj}$                  |         | 1540     |         | 1330     |         | 1110     |         | 850      | W  |
| $\eta$                     |         | 66       |         | 62,5     |         | 58       |         | 53,5     | %  |

