# PHILIPS

# YJ1000

Packaged MAGNETRON for use as pulsed oscillator, operating at a fixed frequency in the X-band between the limits of 9190 and 9320 Mc/s and capable of delivering a peak output power of min. 2.5 kW. The output system has been designed for coupling to a standard rectangular waveguide RG-52/U (EIA designation WR90) with outside dimensions 1/2" x 1"

## HEATING

| | | | |
|---|---|---|---|
| Indirect. | Heater voltage | $V_f$ | = 6.3 V ± 5 % |
| | Heater current at 6.3V | $I_f(V_f=6.3\ V)$ = | 0.5 A |

At ambient temperatures above 0 °C the cathode must be heated for at least 2 minutes before the application of high voltage. Below this temperature the heating time must be increased to at least 3 minutes.

## TYPICAL CHARACTERISTICS

| | | |
|---|---|---|
| Frequency | f = between 9190 and 9320 Mc/s | |
| Negative temperature coefficient | $-\frac{\Delta f}{\Delta t}$ | = max. 0.25 Mc/s°C |
| Pulling figure at voltage standing wave ratio = 1.5 | $\Delta f_p(VSWR=1.5)$ | = max. 18 Mc/s |
| Pushing figure | $\frac{\Delta f}{\Delta I_{a_p}}$ | = max. 2.5 Mc/sA |
| Distance of voltage standing wave minimum from face of mounting plate into magnetron | d | = 3 - 9 mm |
| Peak anode voltage at peak anode current = 3A | $V_{a_p}(I_{a_p} = 3\ A)$ | = 3.2-3.6 kV |
| Input capacitance | $C_{ak}$ | = max. 9 pF |

## COOLING

Naturel

## MAGNETRON OUTPUT

To fasten the magnetron base plate to the RG-52/U waveguide the bolted flange choke coupling joint, services type 5985-99-0830051 should be used.

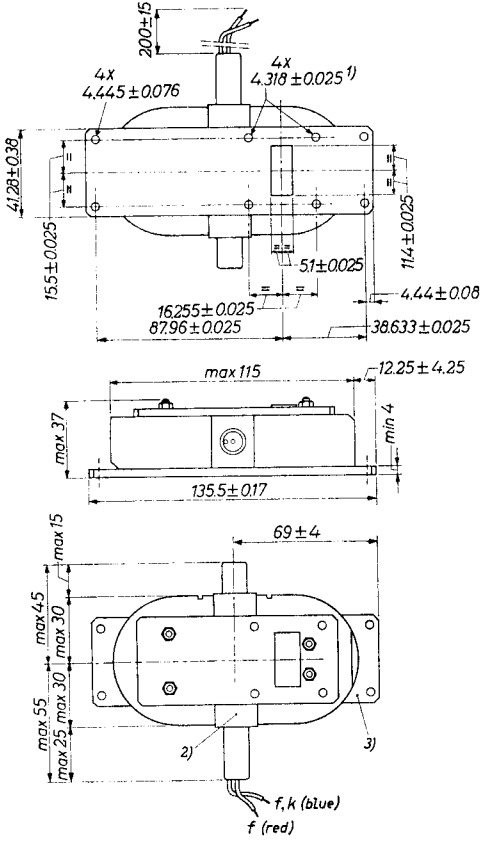
## MOUNTING POSITION

Any

## NET WEIGHT

1 kg Shipping weight 2.3 kg

Dimensions in mm




1) Holes for locating pins, depth 4 mm
2) Point for temperature measurement
3) The anode is terminated at the base plate

LIMITING VALUES (Absolute limits)

Each limiting value should be regarded independently of other values, so that under no circumstances it is permitted to exceed a limiting value whichsoever.

| | | | |
|---|---|---|---|
| Pulse duration | $T_{imp}$ | = max.<br>= min. | 1 µsec<br>0.02 µsec |
| Duty factor | $\delta$ | = max. | 0.001 |
| Peak anode current | $I_{ap}$ | = max.<br>= min. | 3.5 A<br>2.25 A |
| Average input power | $W_i$ | = max. | 13 W |
| Rate of rise of anode voltage | $\frac{\Delta V}{\Delta T_{rv}}$ | = max. | 60 kV/µsec |
| Voltage standing wave ratio | V.S.W.R. | = max. | 1.5 |
| Temperature of anode block (See note 2) page 2) | $t_a$ | = max. | 120 °C |

OPERATING CHARACTERISTICS

| | | | |
|---|---|---|---|
| Heater voltage | $V_f$ | = | 6.3 V |
| Pulse duration | $T_{imp}$ | = | 0.1 µsec |
| Duty factor | $\delta$ | = | 0.0002 |
| Pulse repetition rate | $f_{imp}$ | = | 2000 c/s |
| Peak anode voltage | $V_{ap}$ | = | 3.4 kV |
| Rate of rise of anode voltage | $\frac{\Delta V_a}{\Delta T_{rv}}$ | = | 50 kV/µsec |
| Average anode current | $I_a$ | = | 600 µA |
| Peak anode current | $I_{ap}$ | = | 3 A |
| Average output power | $W_o$ | = | 0.6 W |
| Peak output power | $W_{op}$ | = | 3 kW |
| Pulling figure at voltage standing wave ratio = 1.5 | $\Delta f_p$(VSWR=1.5) | = | 15 Mc/s |

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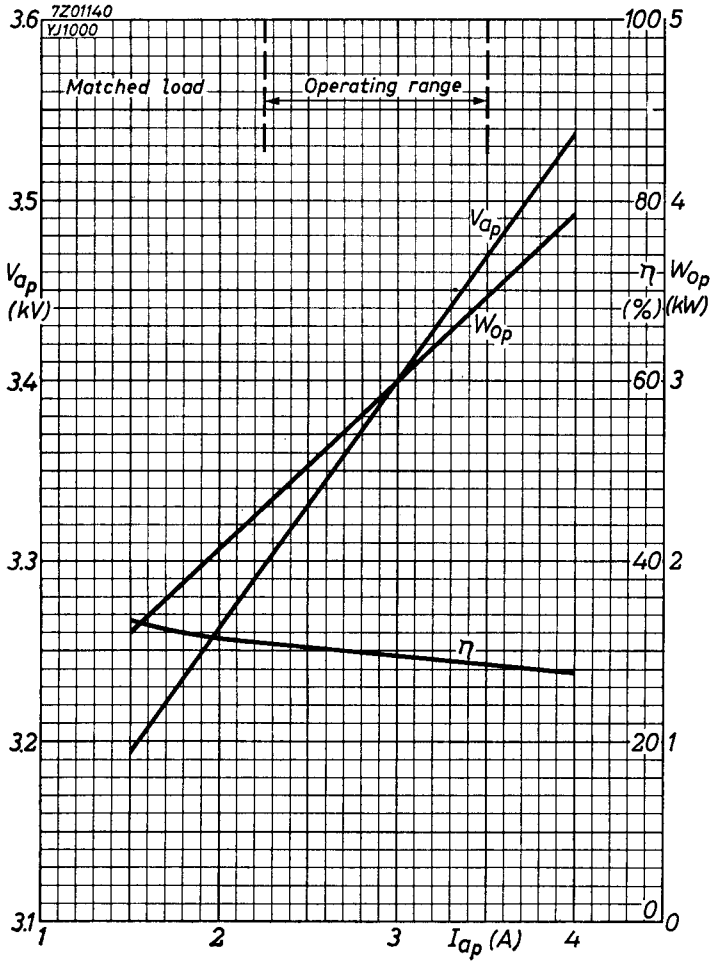


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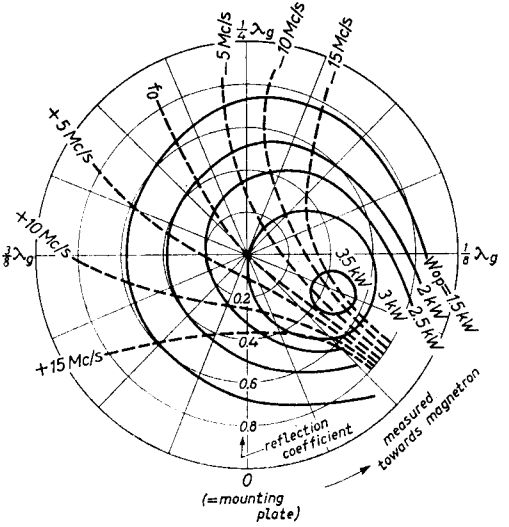
A

LOAD DIAGRAM of average magnetron

Measured at:

| | |
|---|---|
| Peak anode current | $I_{ap}$ = 3.0 A |
| Frequency | $f_o$ = 9245 Mc/s |
| Pulling figure | $\Delta f_p$ = 15 Mc/s |




**YJ1000**

| page | sheet | date |
|---|---|---|
| 1 | 1 | 1962.11.11 |
| 2 | 2 | 1962.11.11 |
| 3 | 3 | 1962.11.11 |
| 4 | A | 1962.11.11 |
| 5 | B | 1962.11.11 |
| 6 | FP | 1999.12.24 |