

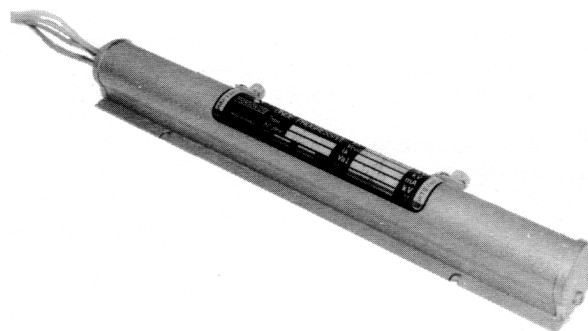
## TOP.1223 TRAVELING WAVE TUBE

The TOP.1223 traveling wave tube is a broadband amplifier capable of providing a minimum saturated output power of 10 W from 5.0 to 11.0 GHz. The saturation gain is more than 30 dB. Integral periodic permanent focusing reduces the stray magnetic field and saves weight.

The TOP.1223 is cooled by natural convection and conduction. Because of its small size, light weight, and sturdy construction this tube is especially attractive for transportable and airborne equipments.

A TWTa is available including TOP.1223 with its integral power supply :

The BFA.1274 is a small, light weight, compact, adjustment free microwave amplifier fitted with the TOP.1223 intended for airborne and transportable equipments, radio links and space communications. (see Data Sheet TEH 4083).



### GENERAL CHARACTERISTICS (1)

#### Electrical

|                                        | min. | max. |     |
|----------------------------------------|------|------|-----|
| Frequency .....                        | 5    | 11   | GHz |
| Heater voltage .....                   | 6.2  | 6.4  | V   |
| Heater current .....                   | 0.5  | 1.1  | A   |
| Output power .....                     | 10   | —    | W   |
| Gain for an output power of 10 W ..... | 30   | —    | dB  |
| Helix voltage .....                    | 2.7  | 3.3  | kV  |
| Helix current .....                    | —    | 5    | mA  |
| Anode voltage .....                    | 1.0  | 1.8  | kV  |
| Anode current .....                    | —    | 1.0  | mA  |
| Collector voltage .....                | 1.3  | 2.0  | kV  |
| Cathode current .....                  | —    | 50   | mA  |

(1) - All voltages are referred to the cathode.


**THOMSON-CSF**  
 GROUPEMENT TUBES ELECTRONIQUES

## Mechanical

|                            |                                         |
|----------------------------|-----------------------------------------|
| Operating position         | any                                     |
| Weight (approx.)           | 700 g                                   |
| RF connections             | coaxial plugs OSM 202<br>(omni spectra) |
| Thermal switch connections | flexible leads                          |
| Supply connections         | flexible leads                          |
| Cooling                    | conduction                              |

## ABSOLUTE RATINGS

(non simultaneous values)

|                            | min. | max.                                                   |    |
|----------------------------|------|--------------------------------------------------------|----|
| Heater voltage             | 6.0  | 6.6                                                    | V  |
| Heater surge current       | —    | 2.2                                                    | A  |
| Warm-up time               | 3    | —                                                      | mn |
| Ambient temperature        | —    | 100                                                    | °C |
| Base plate temperature (1) | —    | 120                                                    | °C |
| Vibrations                 |      | 1 mm between 10 to 50 Hz<br>10 g between 50 to 2000 Hz |    |
| Shocks                     |      | 100 g — 11 ms                                          |    |

(1) - A thermal switch, can be used to remove high voltage by opening the supply circuit if the base plate temperature exceeds 120° C.

|                       |                 |       |       |    |
|-----------------------|-----------------|-------|-------|----|
| Helix voltage (1)     | nominal voltage | — 200 | +200  | V  |
| Helix current         |                 | —     | 5.5   | mA |
| Anode voltage (1)     | nominal voltage | —     | +200  | V  |
| Anode current         |                 | —     | 2.0   | mA |
| Collector voltage (1) | nominal voltage | 2     | +400  | V  |
| Cathode current       |                 | —     | 55    | mA |
| Load VSWR             |                 | —     | 3 : 1 |    |

(1) - The nominal voltage is indicated for each tube on the Test Data Sheet.

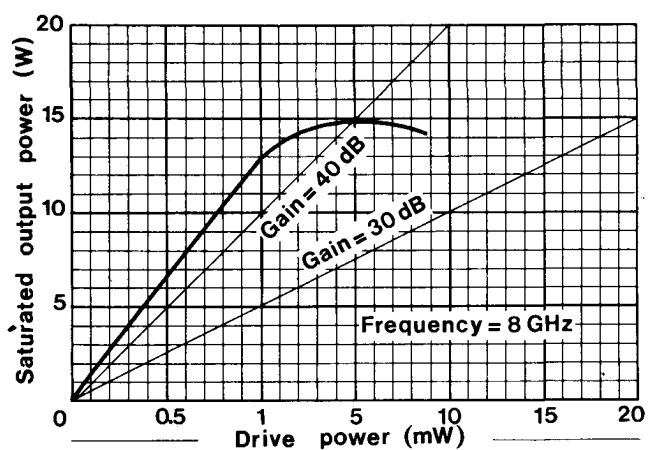
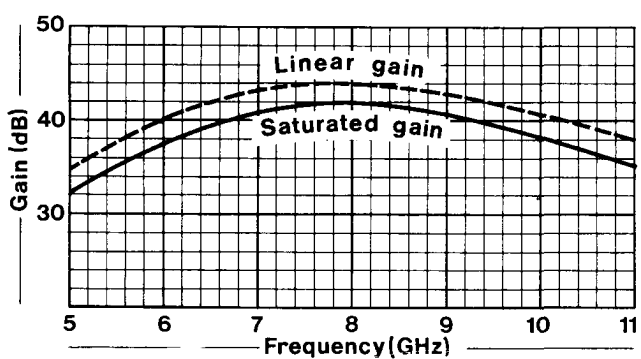
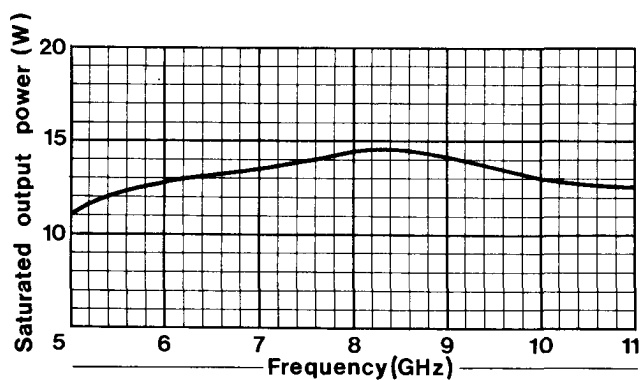
(2) - The collector voltage may be adjusted to a value higher than the nominal voltage, within the indicated ratings, without degradation of characteristics.

## TYPICAL OPERATION

|                   |       |     |
|-------------------|-------|-----|
| Frequency         | 8     | GHz |
| Heater voltage    | 6.3   | V   |
| Heater current    | 0.940 | mA  |
| Drive power       | 1.4   | mW  |
| Output power      | 14    | W   |
| Gain              | 40    | dB  |
| Helix voltage     | 3.05  | kV  |
| Helix current     | 300   | μA  |
| Anode voltage     | 1.5   | kV  |
| Anode current     | 0     |     |
| Cathode current   | 45    | mA  |
| Collector voltage | 1.5   | kV  |



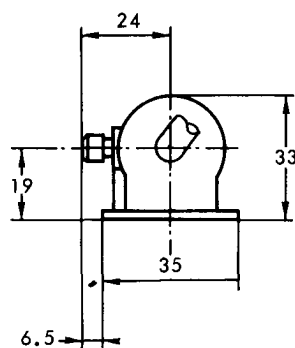
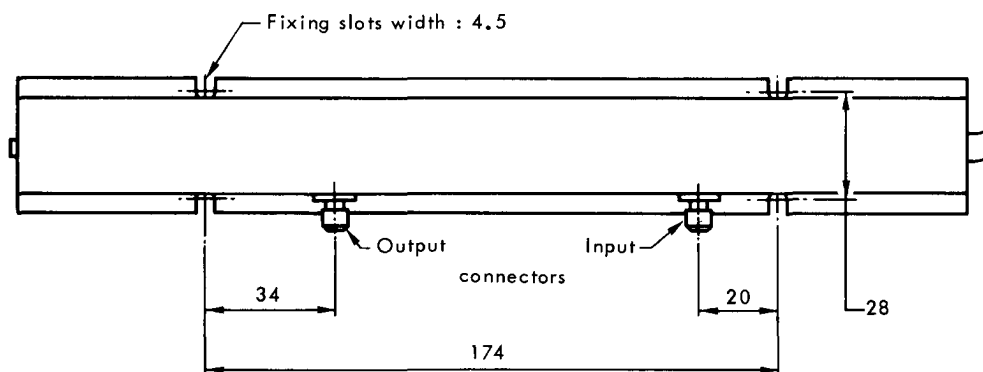
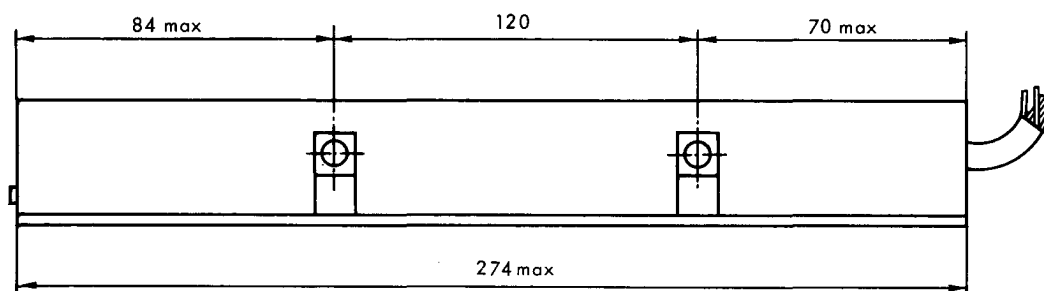
### Typical characteristics





**THOMSON-CSF**  
GROUPEMENT TUBES ELECTRONIQUES

## OUTLINE DRAWING



| Connections |                |
|-------------|----------------|
| Brown       | Heater-cathode |
| Yellow      | Cathode        |
| Green       | Wehnelt        |
| Blue        | Anode          |
| Red         | Collector      |
| Orange      | Ground-helix   |

Dimensions in mm.

