



THOMSON-CSF

GRUPEMENT TUBES ELECTRONIQUES

DATA TEH 4080

F4186

February 1970 - page 1/4

F4186

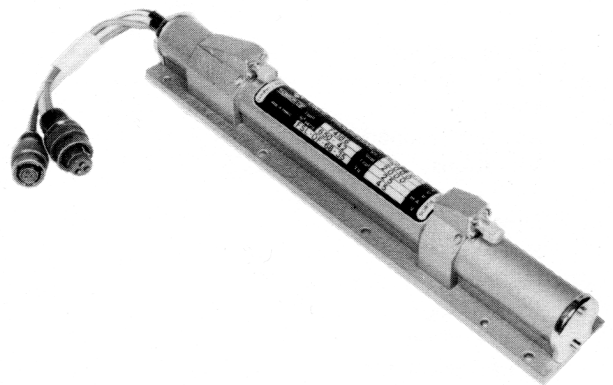
TRAVELING WAVE TUBE

The F4186 is a wideband, high gain, traveling wave tube amplifier, specially designed for counter-measures systems.

The saturation output power is about 2 to 3 W, and the gain is at least 50 dB.

This tube has a control grid which permits easy modulation, furthermore, the helix is isolated from ground, which simplifies serrodyne operation.

Periodic permanent magnet focusing reduces size and weight. The tube and magnet are cooled by conduction.



GENERAL CHARACTERISTICS

Electrical

	min.	max.	
Frequency	5	11	GHz
Heater voltage	—	6.3	V
Heater current	0.8	1.0	A
Output power, saturation	2.0	—	W
Gain	50	—	dB
Noise factor	—	30	dB
Grid voltage(2)	- 100	+ 60	V
Helix voltage	1.90	2.10	kV
Helix current	—	4	mA
Serrodyne voltage	- 150	+ 150	V
Grid current	—	5	mA
Collector voltage	1.90	2.10	kV
Collector current	—	30	mA

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

(2) - The grid should always be in cut-off condition when the high voltage is not applied.

Mechanical

Operating position	any
Weight (approx.)	800 g
RF connections	coaxial plugs, OSM 202
Supply connections	flexible leads
Cooling	conduction



ABSOLUTE RATINGS

(non simultaneous values)

	min.	max.	
Heater voltage	6.0	6.6	V
Heater surge current	—	2.0	A
Warm-up time	90	—	s
Ambient temperature	— 40	+ 100	°C
Vibrations	1 mm between 10 to 50		Hz
	10 g between 50 to 2000		Hz
Shocks	100 g — 11		ms
Helix voltage	1.75	2.25	kV
Helix current (1)	—	5	mA
Grid voltage	— 150	+ 70	V
Grid current	—	6	mA
Collector voltage	1.80	2.20	kV
Cathode current	—	40	mA
Serrodyne voltage	— 175	+ 175	V
Drive power	—	1	mW
Altitude without pressurization	—	25 000	m
Load VSWR	—	3 : 1	

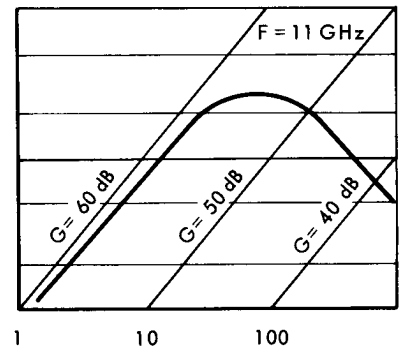
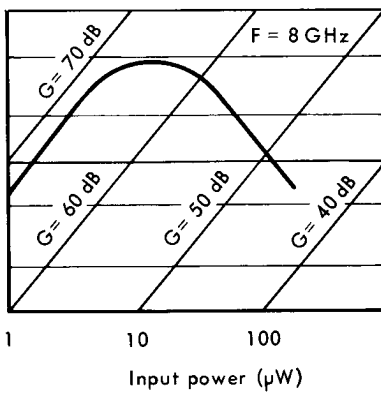
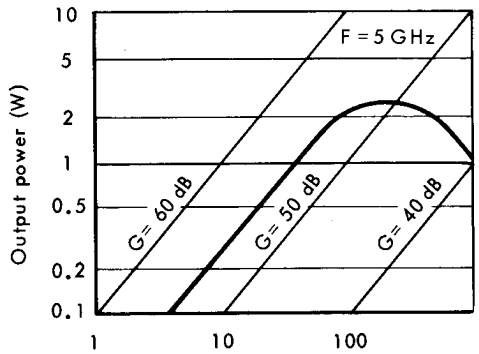
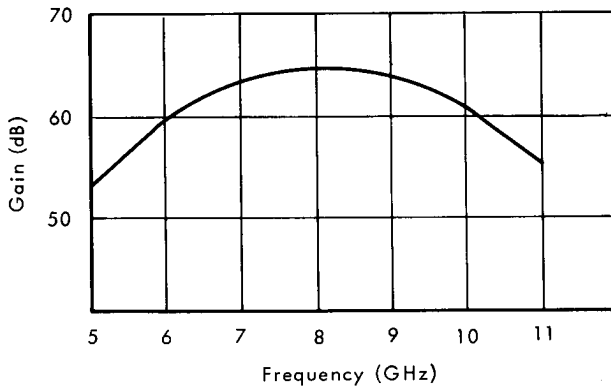
(1) - Overcurrent interlock should be provided to remove helix, collector and grid voltages if the helix current exceeds 5 mA.

TYPICAL OPERATION

Frequency	8	GHz
Heater voltage	6.3	V
Heater current	0.95	A
Drive power	1.1	μW
Output power	3.5	W
Gain	6.5	dB
Helix voltage	1.98	kV
Helix current	1	mA
Grid voltage	40	V
Grid current	3	mA
Collector voltage	1.98	kV
Collector current	25	mA

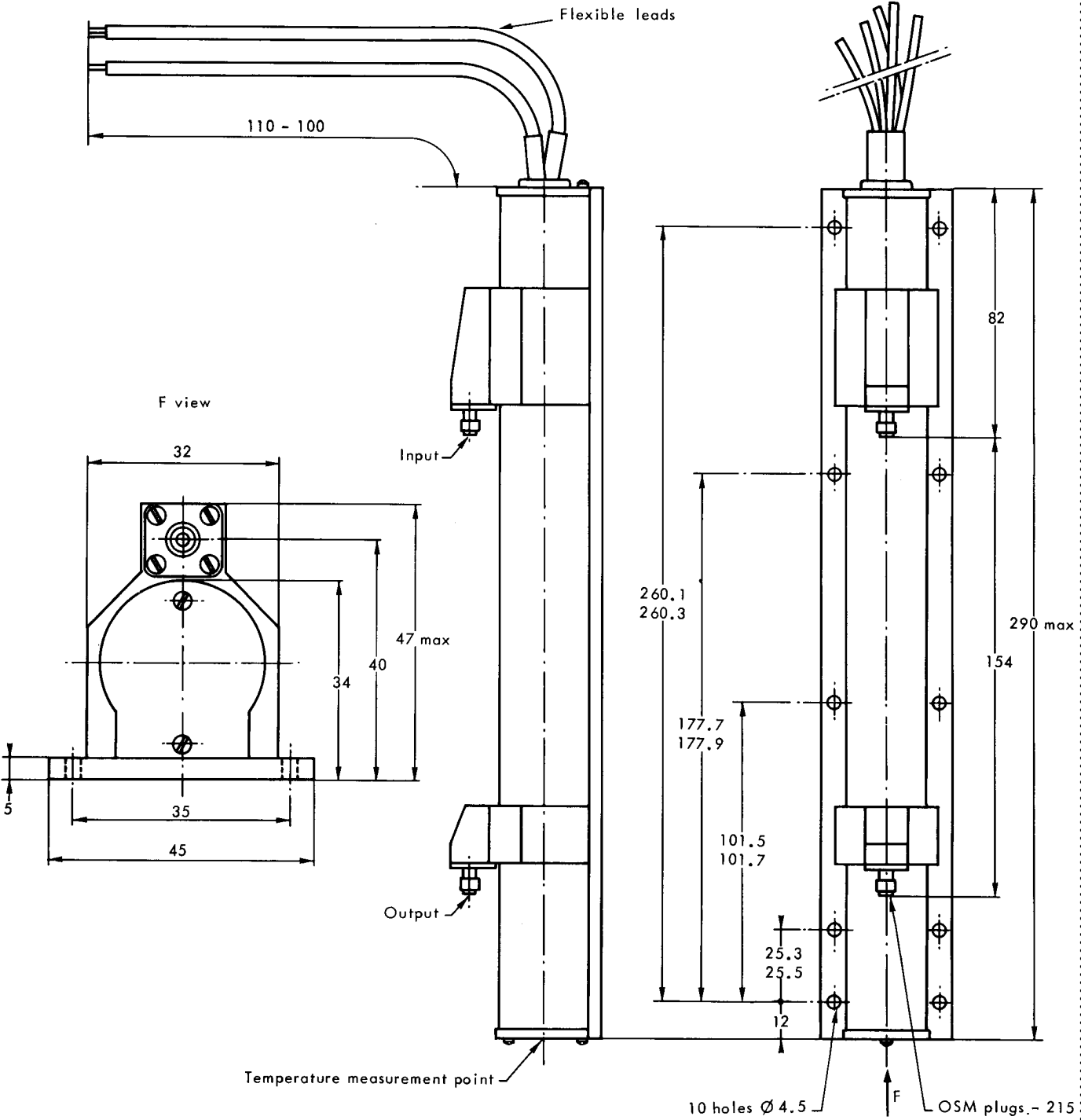


CHARACTERISTIC CURVES





OUTLINE DRAWING



Dimensions in mm.

