



THOMSON-CSF

DIVISION TUBES ELECTRONIQUES

DATA TEH 4479

TH 3505

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TH 3505

X-BAND TRAVELING WAVE TUBE

The TH 3505 is a pulsed traveling-wave tube operating in X band, which provides a peak output of 1250 watts or more, with a duty factor of 0.015. The minimum saturated gain of this amplifier is 35 dB.

In ECM applications, the sturdy PPM-focused TH 3505 is ideal for high-power jammer use, especially in naval and ground-transportable types. It may also be used as a radar-transmitter preamplifier.

This tube is particularly rugged because of its all metal-ceramic construction. Cooling is either by conduction or forced air ; an internal thermal switch cuts off the supply voltage if the temperature exceeds 130 °C.



GENERAL CHARACTERISTICS

Electrical

Heater voltage	6.3	V
Heater current	1.6	A
Frequency	7 - 11	GHz
Collector voltage	10 - 11.4	kV
Helix voltage	10 - 11.4	kV
Peak cathode current, max.	2	A
Peak helix current	0.5	A
Peak grid voltage	250	V
Grid cut-off voltage	- 90	V
Peak output power, min.	1250	W
Saturated gain, min.	35	dB
Duty factor	0.015	
Pulse duration	10	µs

Mechanical

Dimensions	See the Outline Drawing
Operating position	Any
Approximate weight	2.5 kg
RF input and output	Female TNC coaxial connectors
Power-supply connections	Flying leads

ABSOLUTE LIMITS (1)

	Min.	Max.	Units
Heater voltage	6.1	6.6	V
Warm-up time	3	—	mn
Heater surge current	—	2.5	A
Collector voltage	—	12	kV
Helix voltage	—	12	kV
Peak helix current	—	0.7	A
Peak grid voltage	− 300	+ 300	V
Pulse duration	—	25	μs
Duty factor	—	0.02	
Collector dissipation	—	160	W
Load VSWR	—	2 : 1	
Operating temperature (2)	—	130	°C

- (1) Limiting values, **NOT** operating values. No one value ever to be exceeded even under transient conditions, and operation at more than one limiting value at the same time may cause tube damage. Equipment must be designed so that these limits are never exceeded.
- (2) Measured on the hottest point of the housing. A "Vigitherme" thermal switch cuts off the supply voltages if the temperature exceeds 130 °C.

OPERATING NOTES

For optimum performance, the TH 3505 should be operated at the values determined at the factory and shown on the tube label for these parameters : heater voltage, helix voltage, collector voltage, grid current, and peak cathode current. The positive grid voltage is defined to correspond to the value of cathode current specified on the label.

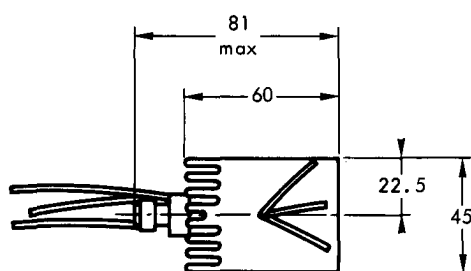
Voltages should be applied in the following order : heater (allow at least 3 minutes for the cathode to warm up), negative grid voltage, helix voltage and collector voltage.

In the case of brief power outages (less than 5 seconds), voltages may be reapplied immediately, without waiting for the cathode to warm up again.

If a dc heater supply is used, the positive side of the supply must be connected to the common heater-cathode lead.

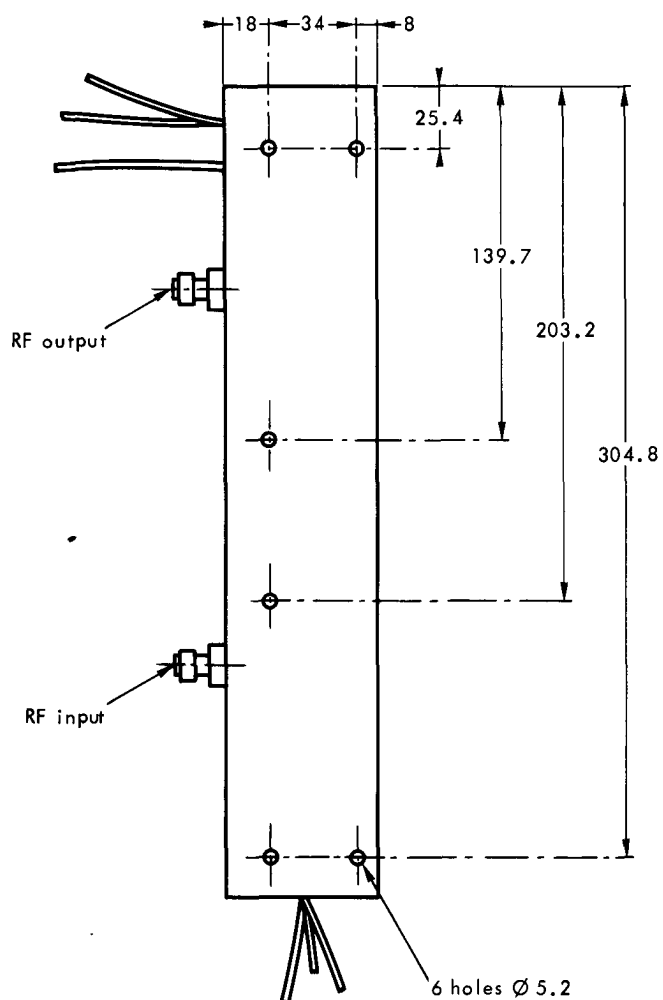
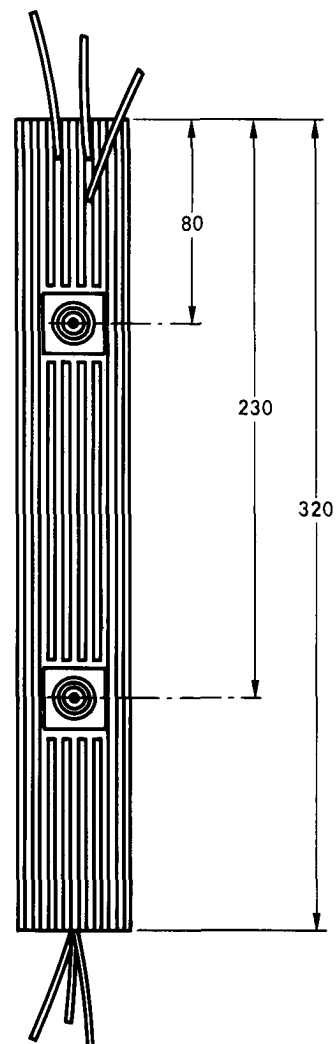
An overcurrent relay should be installed to cut off voltages if the peak cathode current or the helix current exceeds the maximum rating. Voltages should be cut off simultaneously or preferably in the following order : positive grid voltage, helix voltage and collector voltage.

OUTLINE DRAWING

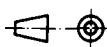


CONNECTIONS	
Brown	Heater
Yellow	Cathode
Green	Grid
Black	Ground-helix
Red	Collector
Grey-White	"Vigitherme" (insulated leads)

Minimum lead length = 300 mm.



All dimensions in mm, nominal unless otherwise marked.





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