



ELECTRONIC TUBE REFERENCE

TV2013

Specialized - Klystron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
KLYSTRON

High-power sealed-off five-cavity pulsed S-band klystron amplifier producing multi-megawatt peak output for fixed-frequency high-energy applications.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Klystron

No fixed ratings recorded.

Published ratings and characteristics audited; detailed numeric data retained in parameter table.

The TV2013 is a high-power sealed-off five-cavity pulsed amplifier klystron for fixed-frequency S-band operation. It provides multi-megawatt peak output with high gain and uses water-based Vapotron cooling.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1972 Thomson CSF

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1972 THOMSON CSF

Section 1 · Klystron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak r, f, input power nom	100 W	Peak r, f, input power nom. 100 W
Bandwidth at [1]	-1 MHz	Bandwidth at -1 db mm. 10 MHz
Bandwidth at [2]	10 MHz	Bandwidth at -1 db mm. 10 MHz
Beam voltage, peak	120 kV	Beam voltage, peak . 120 kV
Beam current, peak	83 A	Beam current, peak . 83 t~
Pulse duration, r, f. ([1]	-3	Pulse duration, r, f. (-3 db) _ 10 s
Pulse duration, r, f. ([2]	10	Pulse duration, r, f. (-3 db) _ 10 s
Pulse repetition rate	1500	Pulse repetition rate . 1500 Hz
Output, peak	4.5	Output, peak . 4.5 MW
Output, avg	37.5 kW	Output, avg. 37.5 kW
Gain	47	Gain 47 db
Bandwidth ([1]	-1 MHz	Bandwidth (-1 db) 20 MHz
Bandwidth ([2]	20 MHz	Bandwidth (-1 db) 20 MHz
Heater surge current max	50 A	Heater surge current max. 50 A
Beam voltage, peak max [1]	135 kV	Beam voltage, peak max. 135 kV (1)
Beam voltage, peak max [2]	1 kV	Beam voltage, peak max. 135 kV (1)
Power supply, avg. max	180 kW	Power supply, avg. max. 180 kW
Effective beam pulse duration max [1]	12	Effective beam pulse duration max. 12 ,us (1)
Effective beam pulse duration max [2]	1	Effective beam pulse duration max. 12 ,us (1)
Output power, avg. ... max	38 kW	Output power, avg. ... max. 38 kW
Waveguide output VSW~, max	1.3	Waveguide output VSW~, max. 1.3

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cooling water inlet temperature .. . max	50	Cooling water inlet temperature .. . max. 50 C
r, f, input connector UG [1]	21	r, f, input connector UG 21 Iy/U (for RG 9 3/U coaxial
r, f, input connector UG [2]	9	r, f, input connector UG 21 Iy/U (for RG 9 3/U coaxial
r, f, input connector UG [3]	3	r, f, input connector UG 21 Iy/U (for RG 9 3/U coaxial
Heater-cathode connector . TV [1]	19	Heater-cathode connector . TV 19 201
Heater-cathode connector . TV [2]	201	Heater-cathode connector . TV 19 201
coil resistances : max	0.1	coil resistances : max. 0.1Q
Voltage	5 kV	Voltage . 5.0 kV
Current , max	200 mA	Current , max. 0.2 A
The tube TV	2013 W	The tube TV 2013 is a high power, sealed-off, pulsed amplifier
at least [1]	60 kW	at least 60 kW average power output and 4 MW peak power output.
at least [2]	4 kW	at least 60 kW average power output and 4 MW peak power output.
range [1]	2700 MHz	range 2700 - 3100 MHz. The r. f, input is made on a coaxial plug and the r, f.
range [2]	3100 MHz	range 2700 - 3100 MHz. The r. f, input is made on a coaxial plug and the r, f.
high gain	15	- high gain : 15 dh
(	2	(2) An other type of cooling device is available upon request : the collector
Anode and cathode connections special connectors see page	4	Anode and cathode connections special connectors see page 4
r.f, input UG	22	r.f, input UG 22 D/U plug
r. f. output [1]	2	r. f. output 2 waveguides 284 with small
r. f. output [2]	284	r. f. output 2 waveguides 284 with small
Active getter input UG	496	Active getter input UG 496/U plug
Heater voltage (a, c. or d, c) [1]	25 V	Heater voltage (a, c. or d, c) 25 V $\pm$ 10 % (1)

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage (a, c. or d, c) [2]	10 V	Heater voltage (a, c. or d, c) 25 V $\pm$ 10 % (1)
Heater voltage (a, c. or d, c) [3]	1 V	Heater voltage (a, c. or d, c) 25 V $\pm$ 10 % (1)
Heater resistance (hot) [1]	1	Heater resistance (hot) 1 S2 +10%
Heater resistance (hot) [2]	10	Heater resistance (hot) 1 S2 +10%
Heater resistance (cold) [1]	0.14	Heater resistance (cold) 0.14 Q + 10%
Heater resistance (cold) [2]	10	Heater resistance (cold) 0.14 Q + 10%
Pulse duration, r, f max [1]	10	Pulse duration, r, f max. 10 bus (2)
Pulse duration, r, f max [2]	2	Pulse duration, r, f max. 10 bus (2)
Frequency [1]	2700 MHz	Frequency 2700 - 3100 MHz (3)
Frequency [2]	3100 MHz	Frequency 2700 - 3100 MHz (3)
Frequency [3]	3 MHz	Frequency 2700 - 3100 MHz (3)
Output, peak min [1]	4	Output, peak min. 4 MW (4)
Output, peak min [2]	4	Output, peak min. 4 MW (4)
Output, avg. min	30 kW	Output, avg. min. 30 kW
This voltage is to be observed within +	5 V	This voltage is to be observed within + 5 %.
DRAIN CONNECTOR / RF INPUT UG_	22	DRAIN CONNECTOR / RF INPUT UG_22D/U
HEATER CONNECTION .Fa.._	47	HEATER CONNECTION .Fa.._ 047
CATHODE -HEATER CONNECTION .c [1]	0	CATHODE -HEATER CONNECTION .c 0 83,5 255 450
CATHODE -HEATER CONNECTION .c [2]	835	CATHODE -HEATER CONNECTION .c 0 83,5 255 450
CATHODE -HEATER CONNECTION .c [3]	255	CATHODE -HEATER CONNECTION .c 0 83,5 255 450
CATHODE -HEATER CONNECTION .c [4]	450	CATHODE -HEATER CONNECTION .c 0 83,5 255 450