



ELECTRONIC TUBE REFERENCE

TH561

Power - Tetrode (NOT beam) (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TETRODE

Forced-air-cooled ceramic-metal power tetrode usable as a continuous-wave oscillator or AF/RF power amplifier to approximately 300 MHz.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	7 V / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Tetrode	
TRANSCONDUCTANCE	0.06 S
AMPLIFICATION FACTOR	5.5
MAXIMUM PLATE VOLTAGE	7500 V
MAXIMUM PLATE DISSIPATION	20000 W
MAXIMUM SCREEN DISSIPATION	150 W
MAXIMUM GRID DISSIPATION	100 W
Published ratings/characteristics audited; detailed numeric data retained in parameter table.	

The TH561 is a ceramic-metal power tetrode with forced-air cooling. It can be used as a continuous-wave oscillator or as an audio-frequency or radio-frequency power amplifier at frequencies up to approximately 300 MHz.

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 · Tetrode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
power amplifier operating up to	300 MHz	power amplifier operating up to 300 MHz.
vapotroncooled anode of the TH	561	vapotroncooled anode of the TH 561 can dissipate
Filamentvoltage ([1]	2 V	Filamentvoltage (2). 7.0V2%
Filamentvoltage ([2]	7 V	Filamentvoltage (2). 7.0V2%
Fitamentcurrent	140 A	Fitamentcurrent. 140 A
Maximum surge Current	450 A	Maximum surge Current 450 A
cathode - control grid {g1},	83	- cathode - control grid {g1}, 83 pF
cathode - screen grid ([1]	92	- cathode - screen grid (92) 5.3 pF
cathode - screen grid ([2]	5.3	- cathode - screen grid (92) 5.3 pF
cathode -anode	0.12	- cathode -anode 0.12 pF
gl -anode L	0.8	gl -anode L. 0.8 pF
Transconductance (I, = [1]	2	Transconductance (I, = 2A) 60 mA/V
Transconductance (I, = [2]	60	Transconductance (I, = 2A) 60 mA/V
Maximum anode dissipation	20 kW	Maximum anode dissipation 20 kW
Maximum temperature of inlet water	50	Maximum temperature of inlet water 50 °c
Maximum temperature of outlet water	90	Maximum temperature of outlet water 90 °c
([1]	1 V	(1) For applying the different voltages, see the instructions given on page 3.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
([2]	3 V	(1) For applying the different voltages, see the instructions given on page 3.
(	2	(2) In high-frequency operation, the cathode is submitted to a considerable back bombardment, which raises its temperature.
Maximum pressure allowed at the water-jacket input	4	Maximum pressure allowed at the water-jacket input 4 bar
Maximum temperature at any point of the ceramics ([1]	3	Maximum temperature at any point of the ceramics (3} 250 °C
Maximum temperature at any point of the ceramics ([2]	250	Maximum temperature at any point of the ceramics (3} 250 °C
Control-grid bias voltage e	-200 V	Control-grid bias voltage e -200 Vdc
Anode dissipation e	20 kW	Anode dissipation e 20 kW
Screen-grid dissipation e	150 W	Screen-grid dissipation e 150 w
Control-grid dissipation e	50 W	Control-grid dissipation e 50 W
Frequency [1]	260 MHz	Frequency 260 260 MHz
Frequency [2]	260 MHz	Frequency 260 260 MHz
Anode voltage e e e e e [1]	5800 V	Anode voltage e e e e e 5800 6200 Vdc
Anode voltage e e e e e [2]	6200 V	Anode voltage e e e e e 5800 6200 Vdc
Screen-grid voltage [1]	500 V	Screen-grid voltage 500 500 Vdc
Screen-grid voltage [2]	500 V	Screen-grid voltage 500 500 Vdc
Control-grid bias voltage {([1]	4 V	Control-grid bias voltage {(4) -85 -85 Vdc
Control-grid bias voltage {([2]	-85 V	Control-grid bias voltage {(4) -85 -85 Vdc
Control-grid bias voltage {([3]	-85 V	Control-grid bias voltage {(4) -85 -85 Vdc
Peak RF control-grid voltage, [1]	105 V	Peak RF control-grid voltage 105 115 \
Peak RF control-grid voltage, [2]	115 V	Peak RF control-grid voltage 105 115 \

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Zero-signal anode current L. L e e [1]	700 mA	Zero-signal anode current L. L e e 0.7 0.75 A
Zero-signal anode current L. L e e [2]	750 mA	Zero-signal anode current L. L e e 0.7 0.75 A
Anode direct current e e e [1]	3.5 A	Anode direct current e e e 3.5 3.9 A
Anode direct current e e e [2]	3.9 A	Anode direct current e e e 3.5 3.9 A
Screen-grid direct current L L [1]	75 A	Screen-grid direct current L L 75 100 mA
Screen-grid direct current L L [2]	100 A	Screen-grid direct current L L 75 100 mA
Drivingpower [1]	250 W	Drivingpower 250 300 w
Drivingpower [2]	300 W	Drivingpower 250 300 w
Output power in the load it eiii [1]	12.5 kW	Output power in the load it eiii... 12.5 15 kW
Output power in the load it eiii [2]	15 kW	Output power in the load it eiii... 12.5 15 kW
Screen-grid voltage e	800 V	Screen-grid voltage e 800 Vde
Control-grid bias voltage e e e e e	-200 V	Control-grid bias voltage e e e e e —200 Vdc
Peak cathode current	40 A	Peak cathode current 40 A
Average cathode current e	6 A	Average cathode current e 6 A
Anode dissipation	20 kW	Anode dissipation 20 kW
different electrode voltages and maintained for at least	3 V	different electrode voltages and maintained for at least 3 minutes after the filament voltage has been switched off.
(	4 A	(4) Adjusted in order to obtain the mentioned anode current with no drive signal.
Control-grid dissipation	100 W	Control-grid dissipation 100 W
Frequency e e e e	120 MHz	Frequency e e e e 120 MHz
Anode voltage [1]	7 V	Anode voltage. . . . 7 7.5 kVdc
Anode voltage [2]	7.5 V	Anode voltage. . . . 7 7.5 kVdc
Screen-grid voltage. . . . e [1]	500 V	Screen-grid voltage. . . . e 500 500 Vde

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen-grid voltage. e [2]	500 V	Screen-grid voltage. e 500 500 Vde
Control-grid bias voltage (B) [1]	-110 V	Control-grid bias voltage (B) -110 -110 Vde
Control-grid bias voltage (B) [2]	-110 V	Control-grid bias voltage (B) -110 -110 Vde
Anode current at zero drive. e [1]	250 mA	Anode current at zero drive. e 0.25 0.25 A
Anode current at zero drive. e [2]	250 mA	Anode current at zero drive. e 0.25 0.25 A
Anode direCt CUIrent L e e e e [1]	2	Anode direCt CUIrent L e e e e 2 2.3 A
Anode direCt CUIrent L e e e e [2]	2.3	Anode direCt CUIrent L e e e e 2 2.3 A
Screen-grid directcurrent e [1]	70 A	Screen-grid directcurrent e 70 100 mA
Screen-grid directcurrent e [2]	100 A	Screen-grid directcurrent e 70 100 mA
Control-grid direct current [1]	5 A	Control-grid direct current 5 10 mA
Control-grid direct current [2]	10 A	Control-grid direct current 5 10 mA
Drivingpower (B8) e e e [1]	25 W	Drivingpower (B8) e e e 25 30 W
Drivingpower (B8) e e e [2]	30 W	Drivingpower (B8) e e e 25 30 W
Load OUtpUt POWEr e e e e e [1]	10 kW	Load OUtpUt POWEr e e e e e 10 12 kW
Load OUtpUt POWEr e e e e e [2]	12 kW	Load OUtpUt POWEr e e e e e 10 12 kW
A - Recommended solution : a filament-preheating voltage of	1.5 V	A - Recommended solution : a filament- preheating voltage of 1.5 V is continuously applied to the tube
The nominal filament voltage for	5 V	The nominal filament voltage for 5 seconds
One-half the nominal filament voltage {Vf) for	60 V	One-half the nominal filament voltage {Vf) for 60 seconds
The nominal filament voltage {Vf) for	60 V	The nominal filament voltage {Vf) for 60 seconds

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value	1 A	1 - Overcurrents Due to Incorrect Use Conditions
respectively. These relays are to be adjusted to operate when a current equal to	1.5 A	respectively. These relays are to be adjusted to operate when a current equal to 1.5 I _{max} is reached, I _{max}
Published value	2 A	2 - Overcurrents Due to Stray Oscillations or Interelectrode Arcing
control-grid, screen-grid and anode circuits) which act for a current equal to	5 A	control-grid, screen-grid and anode circuits) which act for a current equal to 5 I _{max} , I _{max} being the
grid bias voltage, with a total delay of less than	30 V	grid bias voltage, with a total delay of less than 30 microseconds.
{	5 A	{5} Adjusted in order to obtain the mentioned anode current with no drive signal.