



ELECTRONIC TUBE REFERENCE

TH290

Power - Tetrode (NOT beam) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TETRODE

Coaxial transmitting tetrode usable as a continuous-wave oscillator or grounded-grid RF power amplifier, particularly suited to broadband television transmitter service.

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 Tetrode

No fixed ratings recorded.

Published electrical data audited and retained in parameter table.

The TH290 is a coaxial transmitting tetrode usable as a continuous-wave oscillator or grounded-grid RF power amplifier and is particularly suited to broadband television transmitters.

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
MHz. The anode can dissipate	12 MHz	MHz. The anode can dissipate 12 kW.
TH	290 W	TH 290 tetrode is well adapted as a R.F. power
Heater voltage ([1]	1 V	Heater voltage (1) - (2) o A
Heater voltage ([2]	2 V	Heater voltage (1) - (2) o A
output (@	2	-output (@2tied t0gl) ... pF
Maximum temperature (	8	Maximum temperature (8) ovvveremen oo
([1]	1 V	(1) - For heater voltage application, see note page 4,
([2]	4 V	(1) - For heater voltage application, see note page 4,
(	2	(2) In high frequency operation, the cathode is subjected to
([1]	3 kW	(3) 30 °C incoming air temperature 12 kW anode
([2]	30 kW	(3) 30 °C incoming air temperature 12 kW anode
([3]	12 kW	(3) 30 °C incoming air temperature 12 kW anode
D.C.anode voltage [1]	5.2 W	D.C.anode voltage 5.2 Anode dissipation 12
D.C.anode voltage [2]	12 W	D.C.anode voltage 5.2 Anode dissipation 12
D.C.gridg2 voltage [1]	400 W	D.C.gridg2 voltage 400 >><<< Grid g2 dissipation 150
D.C.gridg2 voltage [2]	150 W	D.C.gridg2 voltage 400 >><<< Grid g2 dissipation 150

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D.C.gridgl voltage [1]	250 W	D.C.gridgl voltage - 250 Grid g1 dissipation 50
D.C.gridgl voltage [2]	50 W	D.C.gridgl voltage - 250 Grid g1 dissipation 50
Peak cathode current [1]	25 A	Peak cathode current 25 Frequency 1000
Peak cathode current [2]	1000 A	Peak cathode current 25 Frequency 1000
D.C.anodecurrent	6 A	D.C.anodecurrent 6
Frequency [1]	860 MHz	Frequency-..... 860 MHz D.C. anode current 4.8
Frequency [2]	4.8 MHz	Frequency-..... 860 MHz D.C. anode current 4.8
Bandwidth [1]	10 MHz	Bandwidth 10 MHz D.C. grid g2 current 50 mA
Bandwidth [2]	50 MHz	Bandwidth 10 MHz D.C. grid g2 current 50 mA
D.C.anodevoltage [1]	4.5 V	D.C.anodevoltage 4.5 kV D.C. grid g1 current 450 mA
D.C.anodevoltage [2]	450 V	D.C.anodevoltage 4.5 kV D.C. grid g1 current 450 mA
D.C.gridg2voltage [1]	325 W	D.C.gridg2voltage 325 v Driving power, approx. 1000
D.C.gridg2voltage [2]	1000 W	D.C.gridg2voltage 325 v Driving power, approx. 1000
D.C.gridgl voltage ~ [1]	-75 kW	D.C.gridgl voltage ~-75 \Y Anode dissipation, approx. 10.5 kW
D.C.gridgl voltage ~ [2]	10.5 kW	D.C.gridgl voltage ~-75 \Y Anode dissipation, approx. 10.5 kW
Load output power ([1]	1 kW	Load output power (1) 10 kW
Load output power ([2]	10 kW	Load output power (1) 10 kW
([1]	1 W	(1) - Including power transferred from driver stage and 0.7 dB losses in output circuits.
([2]	0.7 W	(1) - Including power transferred from driver stage and 0.7 dB losses in output circuits.
D.C.anodevoltage [1]	5.2 W	D.C.anodevoltage 5.2 \ Anode dissipation 12
D.C.anodevoltage [2]	12 W	D.C.anodevoltage 5.2 \ Anode dissipation 12
D.C.gridg2voltage [1]	400 W	D.C.gridg2voltage 400 . Grid g2 dissipation 150

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D.C.gridg2voltage [2]	150 W	D.C.gridg2voltage 400 . Grid g2 dissipation 150
D.C.gridgl voltage	250 W	D.C.gridgl voltage - 250 Grid g1 dissipation
D.C.anode current	6 A	D.C.anode current 6
Frequency	860 MHz	Frequency 860 MHz D.C. grid g2 current
D.C.anodevoitage [1]	5	D.C.anodevoitage 5 kV - pedestal level 25 mA
D.C.anodevoitage [2]	25	D.C.anodevoitage 5 kV - pedestal level 25 mA
D.C.gridg2 voltage	320 V	D.C.gridg2 voltage 320 \ D.C. grid g1 current
D.C.gridgl voltage [1]	-80 V	D.C.gridgl voltage -80 \ - synchronizing level 500 mA
D.C.gridgl voltage [2]	500 V	D.C.gridgl voltage -80 \ - synchronizing level 500 mA
D.C. anode current - pedestal level	100 A	D.C. anode current - pedestal level 100 mA
synchronizing level	4.8 W	-synchronizing level 4.8 A Driving power, approx.
Load output power, approx. (	1 W	Load output power, approx. (1)
D.C. anode voltage [1]	5.2 kW	D.C. anode voltage 5.2 kV Anode dissipation e e e 12 kW
D.C. anode voltage [2]	12 kW	D.C. anode voltage 5.2 kV Anode dissipation e e e 12 kW
D.C.gridg2voltage [1]	400 W	D.C.gridg2voltage 400 \ Grid g2 dissipation 150 w
D.C.gridg2voltage [2]	150 W	D.C.gridg2voltage 400 \ Grid g2 dissipation 150 w
D.C.gridgt voltage [1]	250 W	D.C.gridgt voltage - 250 \Y Grid g1 dissipation. 50 W
D.C.gridgt voltage [2]	50 W	D.C.gridgt voltage - 250 \Y Grid g1 dissipation. 50 W
Peak cathode current [1]	25 MHz	Peak cathode current 25 A Frequency 1000 MHz
Peak cathode current [2]	1000 MHz	Peak cathode current 25 A Frequency 1000 MHz
D.C.anodecurrent	6 A	D.C.anodecurrent 6 A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D.C.anode voltage [1]	5 V	D.C.anode voltage 5 kV D.C.anodecurrent 4 A
D.C.anode voltage [2]	4 V	D.C.anode voltage 5 kV D.C.anodecurrent 4 A
D.C.gridg2voltage [1]	300 W	D.C.gridg2voltage 300 \ ' Drivingpower 900 w
D.C.gridg2voltage [2]	900 W	D.C.gridg2voltage 300 \ ' Drivingpower 900 w
D.C.gridgt voltage [1]	-80 kW	D.C.gridgt voltage -80 Vv Anode dissipation, approx. 9 kW
D.C.gridgt voltage [2]	9 kW	D.C.gridgt voltage -80 Vv Anode dissipation, approx. 9 kW
Load output power ([1]	1 kW	Load output power (1) 10 kW
Load output power ([2]	10 kW	Load output power (1) 10 kW
([1]	1 W	(1) - Including power transferred from driver stage and 0. 7 dB losses in output circuits.
([2]	0 W	(1) - Including power transferred from driver stage and 0. 7 dB losses in output circuits.
([3]	7 W	(1) - Including power transferred from driver stage and 0. 7 dB losses in output circuits.
D.C.anodevoltage [1]	6 kW	D.C.anodevoltage 6 kV Anode dissipation 12 kW
D.C.anodevoltage [2]	12 kW	D.C.anodevoltage 6 kV Anode dissipation 12 kW
D.C.gridg2 voltage [1]	800 W	D.C.gridg2 voltage 800 \ ' Grid g2 dissipation 150 w
D.C.gridg2 voltage [2]	150 W	D.C.gridg2 voltage 800 \ ' Grid g2 dissipation 150 w
D.C.gridgl voltage [1]	250 MHz	D.C.gridgl voltage - 250 \ ' Frequency 1000 MHz
D.C.gridgl voltage [2]	1000 MHz	D.C.gridgl voltage - 250 \ ' Frequency 1000 MHz
D.C. anode voltage	5.7 V	D.C. anode voltage 5.7 kV Average grid g2 current at peak of
D.C.gridg2voltage [1]	700 V	D.C.gridg2voltage 700 Vv envelope 135 mA
D.C.gridg2voltage [2]	135 V	D.C.gridg2voltage 700 Vv envelope 135 mA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Zero signal anode current [1]	1.5 A	Zero signal anode current 1.5 A Average grid g2 current 95 mA
Zero signal anode current [2]	95 A	Zero signal anode current 1.5 A Average grid g2 current 95 mA
Average anode current at peak of Load impedance	650 A	Average anode current at peak of Load impedance 650 Q
Average anode current [1]	3.2 kW	Average anode current 3.2 A Average load power 6 kW
Average anode current [2]	6 kW	Average anode current 3.2 A Average load power 6 kW
L.oad peak envelope power e	12 kW	L.oad peak envelope power e 12 kW
Published value [1]	1 V	1- % VT (filament voltage) during 60 seconds
Published value [2]	60 V	1- % VT (filament voltage) during 60 seconds
Published value	3	3- Grid bias
Published value	4 V	4 - Anode voltage
Published value	6 V	6- Screen voltage
Published value	6 V	6- Driving voltage
Published value	2 A	2- SECURITY DEVICES AGAINST ANODE, SCREEN, GRID OVERCURRENTS -
Published value [1]	1 A	1- Overcurrents due to improper utilisation conditions : the protection can be achieved by 3 relays inserted
Published value [2]	3 A	1- Overcurrents due to improper utilisation conditions : the protection can be achieved by 3 relays inserted
currents equal to	1.5 A	currents equal to 1.5 I _{max} . are attained, I _{max} . being the normal current in the considered operating
Published value [1]	2 A	2- Overcurrents due to stray oscillations or electrode arcings : the protection can be achieved by 3 short-
Published value [2]	3 A	2- Overcurrents due to stray oscillations or electrode arcings : the protection can be achieved by 3 short-
response security devices (grid, screen, anode) acting for currents equal to	5 A	response security devices (grid, screen, anode) acting for currents equal to 5 I _{max} , I _{max} being the normal
current in the considered operating conditions. Each of these [1]	3 A	current in the considered operating conditions. Each of these 3 systems acting on the 2 others must

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
current in the considered operating conditions. Each of these [2]	2 A	current in the considered operating conditions. Each of these 3 systems acting on the 2 others must

TUBE TINKER

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