

ELECTRONIC TUBE REFERENCE

4CX300Y

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

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TETRODE

External-anode RF power tetrode with 400 W plate dissipation for professional transmitting service to roughly 110 MHz.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6 V / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Tetrode	
TRANSCONDUCTANCE	0.012 S
AMPLIFICATION FACTOR	5.6
MAXIMUM PLATE VOLTAGE	2000 V
MAXIMUM SCREEN VOLTAGE	400 V
MAXIMUM PLATE DISSIPATION	400 W
MAXIMUM SCREEN DISSIPATION	8 W
MAXIMUM GRID DISSIPATION	1 W
Single electrical section; values mapped from printed ratings/characteristics.	

MECHANICAL Base ----- GSpecial, breechblock terminal surfaces Recommended Socket -----
----- . - EIMAC SK-700 Series Operating Position T T T SR -¥) 4 Maximum Operating Temperatures:
Ceramic-to-Metal Seals ----- « - < ----- 250°C Anode Core ----- = = = - 4 ----- . 950°C Cooling ---
----- Forced Air Maximum Over-All Dimensions: Height ----- 25 in

Diameter ----- = = = = ----- < - . 1865 in Net Weight ----- . ----- 4 Oz Shipping Weight
(Approximate) lb fuy '

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

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

1962 EIMAC

Section 1 · Tetrode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The EIMAC	0 a	The EIMAC 4CX300Y is a compact integral-finned external-anode
power tetrode having a maximum plate-dissipation rating of	400 a	power tetrode having a maximum plate-dissipation rating of 400 watts.
The	110 MHz	The 4CX300Y may be operated at maximum ratings to 110 MHz.
Current (E;=	3.85 volts	Current (E;=6.0 volts) - - - 3.0 3.85 A
Transconductance (	12000 ma	Transconductance (1,=200 ma.) - - 12,000 umhos
Input R T T S	38 pF	Input R T T S 30 38 pF
Output - - - - - =	5 pF	Output - - - - - = - - - 3.9 5.0 pF
Feedback - T R S	0.07 pF	Feedback - T R S 0.07 pF
Input	18 pF	Input - - - - - 18 pF
Output	5 pF	Output - - - - - 3.9 5.0 pF
Feedback T	0.01 pF	Feedback T 0.01 pF
Frequency for Maximum Ratings	110 MHz	Frequency for Maximum Ratings - - - - - 110 MHz
Ceramic-to-Metal Seals - - - - - - - « - <	250 °C	Ceramic-to-Metal Seals - - - - - « - < - - - 250°C
Anode Core - - - - = = =	950 °C	Anode Core - - - - = = = - - 4 - - - - . 950°C
(Revised	1968 A	(Revised 6-15-66) © 1962, 1966, 1968 by Varian Printed in U.S.A.
OR OSCILLATOR DC Plate Voltage	1500 volts	OR OSCILLATOR DC Plate Voltage - - - - 1000 1500 volts
Class-C Telegraphy or FM Telephony DC Screen Voltage	250 volts	Class-C Telegraphy or FM Telephony DC Screen Voltage - - - - 250 250 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(Key-down condifions) DC Grid Voltage - - - - =	90 volts	(Key-down condifions) DC Grid Voltage - - - - =9 —90 volts
IN DC Plate Current	0.4 amps	IN DC Plate Current - - . - 038 0.4 amps
DC PLATE VOLTAGE	26 VOLTS	DC PLATE VOLTAGE - - - 2000 VOLTS DC Screen Current* - - - - 31 26 mA
DC SCREEN VOLTAGE	33 VOLTS	DC SCREEN VOLTAGE - - - 300 VOLTS DC Grid Current* .- - - - 32 33 mA
DC GRID VOLTAGE - - - -	110 VOLTS	DC GRID VOLTAGE - - - —250 VOLTS Peak RF Grid Voltage* - - - 110 110 'volts
DC PLATE CURRENT	3.8 MA	DC PLATE CURRENT - - - 400 MA Driving Power* - - - - . 3.5 3.8 watts
PLATE DISSIPATION	600 WATTS	PLATE DISSIPATION - - - 400 WATTS Plate input Power - - - - 380 600 watts
SCREEN DISSIPATION	425 WATTS	SCREEN DISSIPATION - - - 8 WATTS Plate Output Power - - - - 240 425 watts
GRID DISSIPATION	1 WATT	GRID DISSIPATION - - - 1 WATT *Approximate values
DC Plate Voltage	2000 volts	DC Plate Voltage - - - - 1000 1500 2000 volts
MODULATOR DC Screen Voltage	400 volts	MODULATOR DC Screen Voltage - - - - 400 400 400 volts
Class-ABy ?C Gsrid Vlog%gg'l corront &	70 volts	Class-ABy ?C Gsrid Vlog%gg'l corront & :88 — 270 —70 volts
ero-Signa ate Current	200 mA	ero-Signa ate Current - - 00 200 mA
MAXIMUM RATINGS (per tube) Max-gjgnall BC SP ate Current	750 mA	MAXIMUM RATINGS (per tube) Max-gjgnall BC SP ate Current - - 800 790 750 mA
DC PLATE VOLTAGE _ _	4 VOLTS	DC PLATE VOLTAGE _ _ . 2000 VOLTS ax-Signa C Screen Current - - 24 16 4 mA
DC SCREEN VOLTAGE	5100 VOLTS	DC SCREEN VOLTAGE - - - 400 VOLTS Peak AF Grid Input Voltage 060 3000 5100 ohms
DC PLATE CURRENT	60 MA	DC PLATE CURRENT - - - 400 MA b (per h;be)' - - e e 55 65 60 volts
PLATE DISSIPATION	0 WATTS	PLATE DISSIPATION - - - 400 WATTS riving Power - - - - - 0 0 0 watts
SCREEN DISSIPATION	890 WATTS	SCREEN DISSIPATION - - - 8 WATTS Q::);fi:nga?ea!'alrulite Output Power - 340 800 890 watts
GRID DISSIPATION	1 WATT	GRID DISSIPATION - - - 1 WATT lAdjPust grid bias to obtain listed zero-signal plate current.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ri oltag - - - D —	70 volts	ri oltag - - - D —70 —70 volts
MAXIMUM RATINGS Zero-Signal DC Plate Current	100 mA	MAXIMUM RATINGS Zero-Signal DC Plate Current - - 200 100 100 mA
DC PLATE VOLTAGE	205 VOLTS	DC PLATE VOLTAGE - - - 2000 VOLTS DC Plate Current - - - - 280 210 205 mA
DC SCREEN VOLTAGE	5 VOLTS	DC SCREEN VOLTAGE - - - 400 VOLTS DC Screen Current* - - - - 5 5 —5 mA
DC PLATE CURRENT	30 MA	DC PLATE CURRENT - - - 400 MA Peak RF Grid Voltage* - - - 28 33 30 volts
PLATE DISSIPATION	115 WATTS	PLATE DISSIPATION - - - 400 WATTS Plate Output Power - - - - 52 110 115 watts
SCREEN DISSIPATION	8 WATTS	SCREEN DISSIPATION - - - 8 WATTS *Approximate values.
GRID DISSIPATION	1 WATT	GRID DISSIPATION - - - 1 WATT 1Adjust grid bias to obtain listed zero-signal plate current.
RADIO-FREQUENCY LINEAR AMPLIFIER DC Plate Voltage	2000 volts	RADIO-FREQUENCY LINEAR AMPLIFIER DC Plate Voltage - - - - 1000 1500 2000 volts
Class-AB; (Single-Sideband Suppressed-Carrier DC Screen Voltage	400 volts	Class-AB; (Single-Sideband Suppressed-Carrier DC Screen Voltage - - - - 400 400 400 volts
Operation) DC Grid Voltage	70 volts	Operation) DC Grid Voltage - - - . 60 —70 —70 volts
Zero-Signal DC Plate Current	100 mA	Zero-Signal DC Plate Current - - 200 100 100 mA
MAXIMUM RATINGS E%a';IRF %id Voltage*	392 a	MAXIMUM RATINGS E%a';IRF %id Voltage* - - - 488 332 392 voAts
DC PLATE VOLTAGE	2 VOLTS	DC PLATE VOLTAGE - - - 2000 VOLTS DC Screen Current* - - - - 12 8 2 mA
DC SCREEN VOLTAGE	750 VOLTS	DC SCREEN VOLTAGE - - - 400 VOLTS Plate Input Power - - - - 400 590 750 watts
DC PLATE CURRENT	415 MA	DC PLATE CURRENT - - - 400 MA Plate QOutput Power - - - - 170 400 415 watts
PLATE DISSIPATION	400 WATTS	PLATE DISSIPATION - - - 400 WATTS Two-Tone Average DC Plate Current
SCREEN DISSIPATION	8 WATTS	SCREEN DISSIPATION - - - 8 WATTS T e faverage DC Screen Current
GRID DISSIPATION	1 WATT	GRID DISSIPATION - - - 1 WATT 1Adjust grid bias to obtain listed zero-signal plate current.
TL	130 volts	- - -TL- 1300 —130 , volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
AXIMUM_RATING DC Plate Current	300 mA	AXIMUM_RATING DC Plate Current - - - - 285 300 mA
DC SCREEN VOLTAGE	17 VOLTS	DC SCREEN VOLTAGE - - - 300 VOLTS DC Grid Current* . . 17 17 mA
DC GRID VOLTAGE - - - -	148 VOLTS	DC GRID VOLTAGE - - - —250 VOLTS Peak RF Grid Input Voltage* - - - 148 148 volts
DC PLATE CURRENT	1.7 MA	DC PLATE CURRENT - - - 300 MA Driving Power* - - - - . - 1.7 1.7 watts
PLATE DISSIPATION	500 WATTS	PLATE DISSIPATION - - - 250 WATTS plate input Power - - - - 285 500 wafts
SCREEN DISSIPATION	300 WATTS	SCREEN DISSIPATION - - - 8 WATTS Plate Output Power - - - - 165 300 watts
GRID DISSIPATION	1 WATT	GRID DISSIPATION - - - 1 WATT *Approximate values. .
pF. The SK	606 pF	pF. The SK-606 chimney is recommended for power should be kept near the values shown in
include the SK	770 A	include the SK-740, SK-760, and SK-770. These In class-A and class AB; amplifiers, where no
pacitors. The SK	770 a	pacitors. The SK-760 and SK-770 incorporate applied through a resistor. The maximum per-
installed in the usual manner. screen dissipation for the	8 watts	installed in the usual manner. screen dissipation for the 4CX300Y is 8 watts.
metal seal temperature for the	300 volts	metal seal temperature for the 4CX300Y is 300 volts when the tube is operated in class-C
ments to maintain seal temperatures at	200 °C	ments to maintain seal temperatures at 200°C Under certain operating conditions the screen
in	50 °C	in 50°C ambient air are tabulated below. current of a tetrode may reverse. This makes it
Plate SEA LEVEL	10000 a	Plate SEA LEVEL 10,000 FEET or a series regulator to supply the screen voltage
ot NGRS OGP AR	0 a	ot NGRS OGP AR 0Pk unless a bleeder or regulator tube is connected
for the	6 volts	for the 4CX300Y is 6.0 volts.
The heater voltage must be maintained within Plate Operation—The	0 a	The heater voltage must be maintained within Plate Operation—The 4CX300Y has a finned
for the	400 watts	for the 4CX300Y is 400 watts, which is also the efficiency is low.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
watts under carrier conditions, rising to	400 watts	watts under carrier conditions, rising to 400 the plate supply voltage. Screen voltage modu-
watts under	1 watts	watts under 100% sine-wave modulation. Plate lation factors between 0.75 and 1.00 may be used.
AB; operation is	2000 volts	AB; operation is 2000 volts. In class-C tele-scribed under “Screen Operation” above.
mum rated plate voltage is	1500 volts	mum rated plate voltage is 2000 and 1500 volts Special Applications—If it is desired to oper-
SCREEN VOLTAGE—	250 VOLTS	SCREEN VOLTAGE—250 VOLTS
SCREEN VOLTAGE —	400 VOLTS	SCREEN VOLTAGE —400 VOLTS