



TECHNICAL DATA

8249
4W300B

**RADIAL BEAM
POWER TETRODE**

The EIMAC 8249/4W300B is a ceramic/metal, water cooled, external-anode radial-beam tetrode with a maximum plate dissipation rating of 300 watts and a maximum power input rating of 500 watts. The 8249/4W300B is designed to operate with a heater voltage of 6.0 volts. Electrically identical to the 4CX250B, it is intended for use where water cooling is preferred or where reserve anode dissipation is desired.

GENERAL CHARACTERISTICS¹

ELECTRICAL

Cathode: Oxide Coated, Unipotential

Heater: Voltage	6.0 ± 0.3 V
Current, at 6.0 volts	2.6 A
Cathode - Heater Potential	±150 V

Transconductance (Average):

$I_b = 200 \text{ mAdc}$	12,000 μmhos
--------------------------------	-------------------------

Amplification Factor (Average):

Grid to Screen	5.0
----------------------	-----

Direct Interelectrode Capacitance (grounded cathode)²

Input	15.7 pF
Output	4.5 pF
Feedback	0.04 pF

Direct Interelectrode Capacitance (grounded grid)²

Input	13.0 pF
Output	4.5 pF
Feedback	0.01 pF

Frequency of Maximum Rating:

CW	500 MHz
----------	---------

1. Characteristics and operating values are based upon performance tests. These figures may change without notice as the result of additional data or product refinement. EIMAC Division of Varian should be consulted before using this information for final equipment design.
2. Capacitance values are for a cold tube as measured in a special shielded fixture.

MECHANICAL

Maximum Overall Dimensions:

Length	3.407 in; 86.54 mm
Diameter	1.562 in; 39.67 mm
Net Weight	5.75 oz; 163.0 gm
Operating Position	Vertical, base up or down





8249/4W300B

Maximum Operating Temperature:

Ceramic/Metal Seals 250°C

Cooling Water and forced air

Base Special 9-pin JEDEC-B8-236

Recommended Air System Socket SK-600 series

MAXIMUM RATINGS:

	Class C Plate Mod	Class C CW or FM	Class AB Audio or SSB	
DC PLATE VOLTAGE . . .	1500	2000	2000	VOLTS
DC SCREEN VOLTAGE . .	300	300	400	VOLTS
DC GRID VOLTAGE . . .	-250	-250	-250	VOLTS
DC PLATE CURRENT . . .	0.20	0.25	0.25	AMPERE
PLATE DISSIPATION . . .	200	300	300	WATTS
SCREEN DISSIPATION . .	12	12	12	WATTS
GRID DISSIPATION . . .	2	2	2	WATTS

TYPICAL OPERATION:

	DC Plate Voltage (Volts)	Power Input (Watts)	Driving Power (Watts)	Power Output (Watts)
CLASS C AMPLIFIER				
CW or FM	2000	500	3	390
Plate Modulated	1500	300	2	235
CLASS AB ₁ AMPLIFIER				
Audio (Two tubes)	2000	1000	0	600
SSB (One tube)	2000	500	0	300

For full listing of ratings, constant current curves and typical operating conditions, see EIMAC data sheet for 7203/4CX250B.

RANGE VALUES FOR EQUIPMENT DESIGN

	Min.	Max.
Heater: Current at 6.0 volts	2.3	2.9 A
Cathode Warmup Time	30	-- sec.
Interelectrode Capacitances ¹ (grounded cathode connection)		
Input	14.2	17.2 pF
Output	4.0	5.0 pF
Feedback	---	0.06 pF

1. Capacitance values are for a cold tube as measured in a shielded fixture.

APPLICATION

COOLING - The water-cooled anode requires a minimum of 1/16 gallon of cooling water per minute for the rated plate dissipation of 300 watts. The outlet-water temperature should not exceed 70°C and the system pressure should not exceed 50 pounds per square inch.

The ceramic/metal seals must be cooled by forced air. At frequencies below 30 MHz and when one of the recommended sockets is used, a flow rate of 1.0 CFM is sufficient. As the operating frequency is increased, the air-flow rate must be increased. At 500 MHz a minimum of 3.8 CFM is required. In all cases, seal temperatures are the criteria which determine cooling effectiveness.



PIN NO. 1. SCREEN GRID

PIN NO. 2. CATHODE

PIN NO. 3. HEATER

PIN NO. 4. CATHODE

PIN NO. 5. I.C-DO NOT USE FOR EXTERNAL CONNECTION

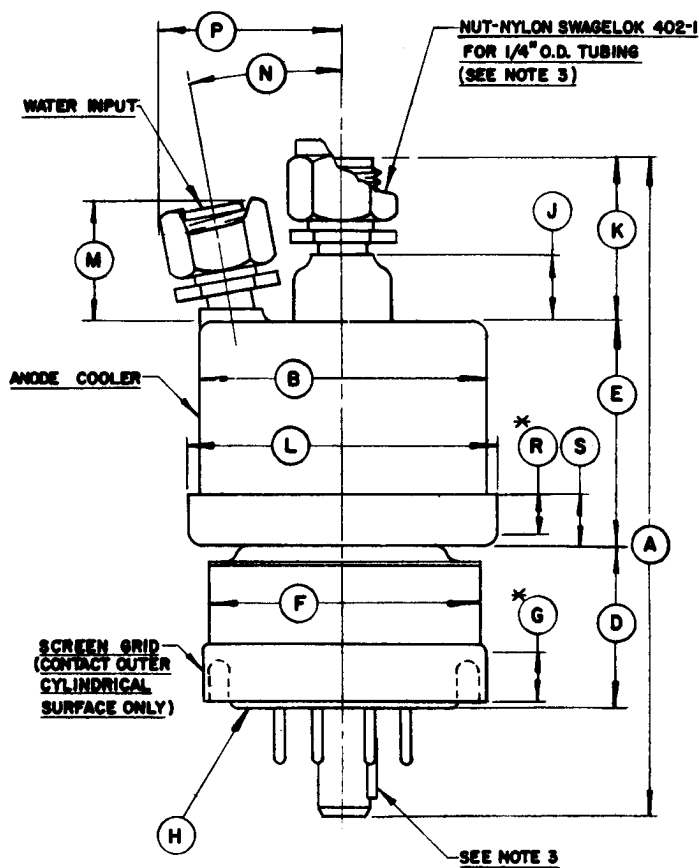
PIN NO. 6. CATHODE

PIN NO. 7. HEATER

PIN NO. 8. CATHODE

CENTER PIN-CONTROL GRID

DIMENSIONAL DATA						
DIM	INCHES			MILLIMETERS		
	MIN.	MAX.	REF.	MIN.	MAX.	REF.
A	- -	3.407	- -	- -	86.54	- -
B	1.450	1.490	- -	36.83	37.85	- -
D	0.750	0.810	- -	19.05	20.57	- -
E	1.106	1.186	- -	28.09	30.12	- -
F	- -	1.406	- -	- -	35.71	- -
G	0.187	- -	- -	4.75	- -	- -
H	BASE: B8-236 (JEDEC DESIGNATION)					
J	- -	- -	0.244	- -	- -	6.20
K	0.797	0.857	- -	20.24	21.77	- -
L	- -	1.562	- -	- -	39.67	- -
M	- -	- -	0.670	- -	- -	17.02
N	- -	- -	10°	- -	- -	10°
R	0.156	- -	- -	3.96	- -	- -
S	- -	- -	0.250	- -	- -	6.35
P	- -	1.063	- -	- -	27.00	- -



NOTES:

1. REF. DIMENSIONS ARE FOR
INFORMATION ONLY &

ARE NOT REQ'D FOR
INSPECTION PURPOSES.

2. (*) CONTACT SURFACE

3. AXIS OF FITTINGS IS
ON AXIS OF INDEX OF
CENTER PIN AS SHOWN.