PRELIMINARY
TECHNICAL DATA

3cx1000A7 X2186

HIGH-MU VHF TRANSMITTING TRIODE

The EIMAC X2186 is a ceramic/metal high-mu triode designed especially for use in the VHF spectrum as a cathode-driven Class AB rf amplifier or Class C power amplifier, and for pulsed rf amplifier service.

The X2186 makes use of a beam-forming cathode and control grid geometry to produce high gain, low grid interception, and zero-bias operation capability in linear-amplifier service.

The tube has coaxial terminals for which contact collets are available from EIMAC. It is forced-air cooled, with an anode dissipation rating of 10,000 watts.

GENERAL CHARACTERISTICS [1]

ELECTRICAL

Cathode: Oxide-coated, Unipotential

Heater Voltage	15.0 ± 0.5	V
Heater Current, @ 15.0 volts	13.0	A
Amplification Factor (average)	200	

Direct Interelectrode Capacitances (grid grounded) [2]

Cin	90	pF
Cout	22.8	pF
Cpk	0.25	pF

Frequency of Maximum Rating:

CW	260	MHz
Pulsed	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 in accordance with Electronic Industries Association Standard RS-191.

MECHANICAL

Overall Dimensions:

Length	6.700 In; 170 mm
Diameter	7.050 In; 179 mm
Net Weight (Approx)	20 lb; 9.1 kg

(Effective 7-20-78) by Varian

Printed in U.S.A.

Cooling . . . . . Forced Air

Base . . . . . Special Coaxial

Recommended Contact Collets:

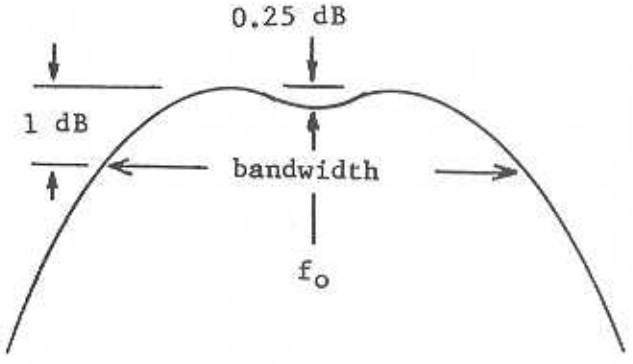
TUBE ELEMENT	EIMAC P/N
Heater	154373
Heater-Cathode	154374
Grid	154375

RADIO FREQUENCY POWER AMPLIFIER
CATHODE DRIVEN

Class A Television Translator Service

ABSOLUTE MAXIMUM RATINGS:

DC PLATE VOLTAGE	5000	VOLTS
DC PLATE CURRENT	3.0	AMPERES
PLATE DISSIPATION	10,000	WATTS
GRID DISSIPATION	100	WATTS



Measured data taken in EIMAC translator cavities with bandpass characteristic as show

	Channel	f_o(MHz)	Gain (dB)	Bandwidth (MHz)	
LOW BAND CAVITY	# 2	57	15.1	6.26	All data taken at 2.5 kW single tone output, wit
	3	63	15.3	6.34	
	4	69	15.3	6.26	Eb = 4800 Vdc
	5	79	15.1	6.28	Ibo = 1.9 Adc
	6	85	14.2	6.22	Ib = 2.4 Adc
HIGH BAND CAVITY	7	177	16.6	6.39	All data taken at 2.5 kW single tone output, wit
	8	183	16.65	6.3	
	9	189	16.5	6.24	Eb = 4800 Vdc
	10	195	16.7	6.27	Ibo = 1.9 Adc
	11	201	16.7	6.27	Ib = 2.25 Adc
	12	207	16.8	6.29	
	13	213	17.1	6.2	
	E_1	220.75	16.5	7.06	
	E_2	227.75	16.8	7.08	

Three-tone test under CCIR loading: Video -8 dB (below 2.5 kW peak output)
Sound -7 dB
Color -17 dB

Third order intermodulation products: -52 dB @ 206 MHz

PULSED RADIO FREQUENCY POWER AMPLIFIER

Class C - CATHODE DRIVEN

ABSOLUTE MAXIMUM RATINGS:

DC PLATE VOLTAGE	12,000	VOLTS
DC GRID VOLTAGE	-300	VOLTS
PEAK PLATE CURRENT [2]	100	AMPERES
PLATE DISSIPATION [1]	10,000	WATTS
GRID DISSIPATION [1]	100	WATTS
PULSE LENGTH	See Note 2	
DUTY FACTOR	See Note 2	

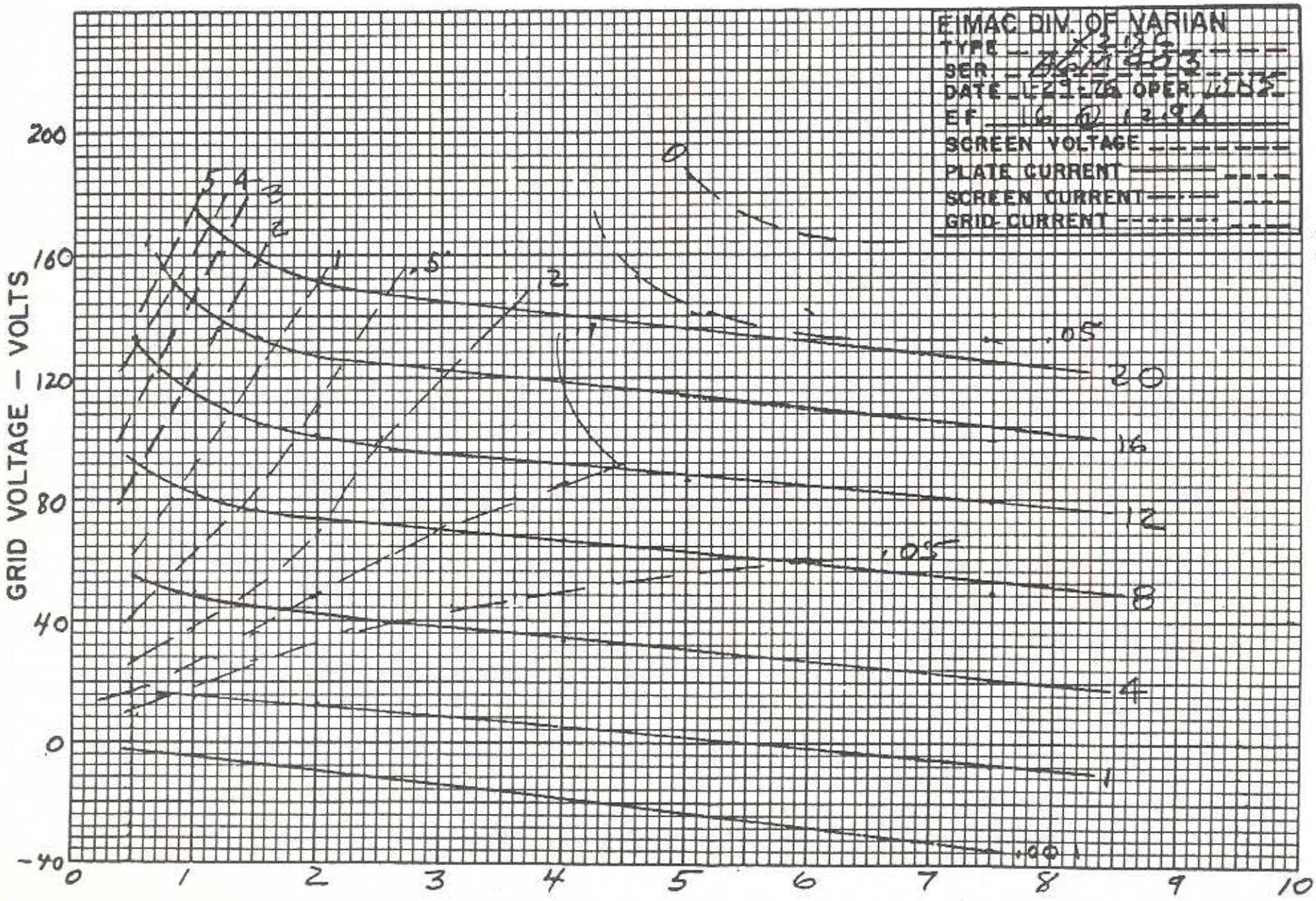
1 Dissipation values shown are average.

2 Pulse length, peak current, and duty are inter-related by the expression:

$$3 = ib\sqrt{duty}$$

Peak plate current (ib) is defined as the average current during the pulse.

GROUNDED CATHODE
CONSTANT CURRENT CHARACTERISTICS



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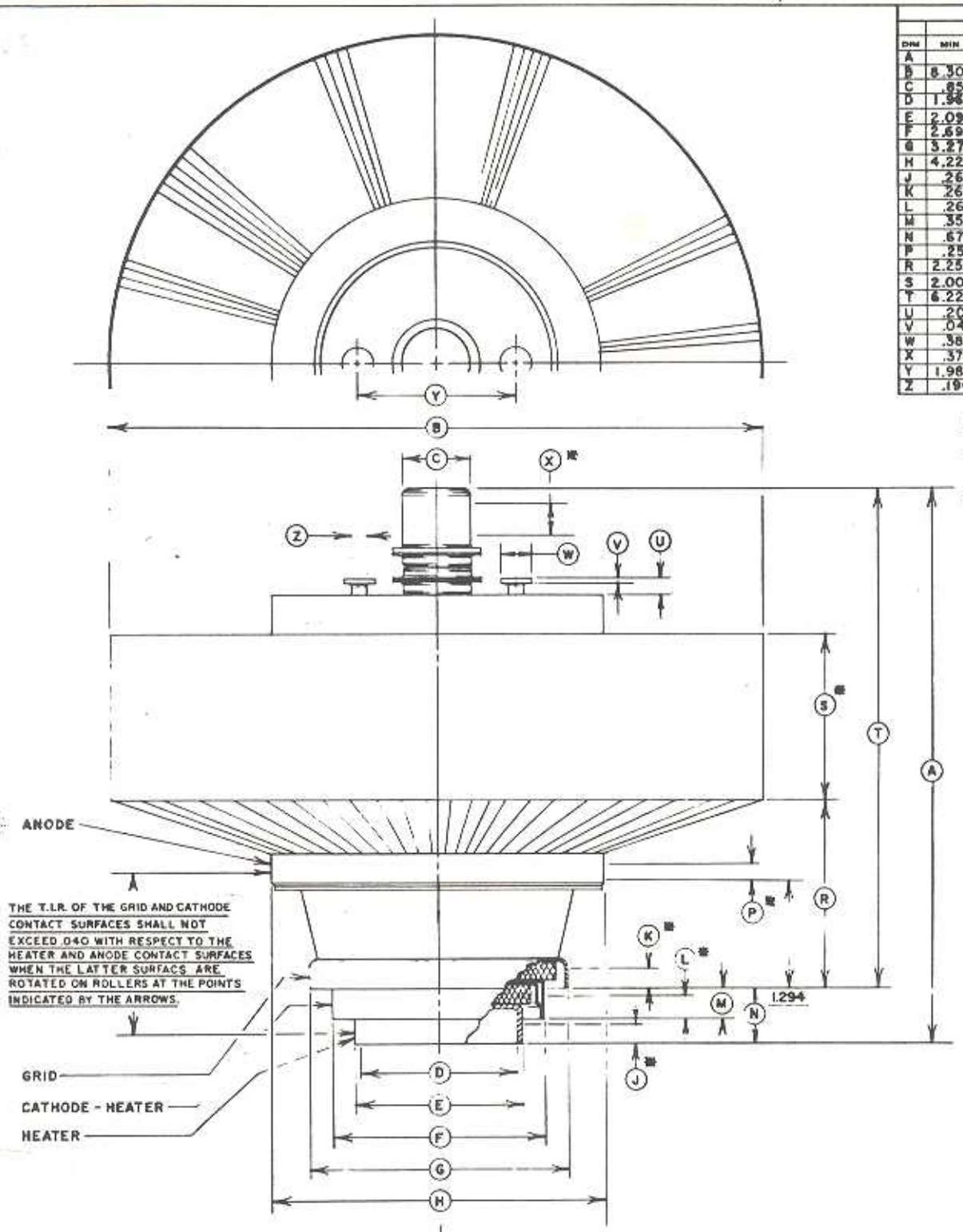
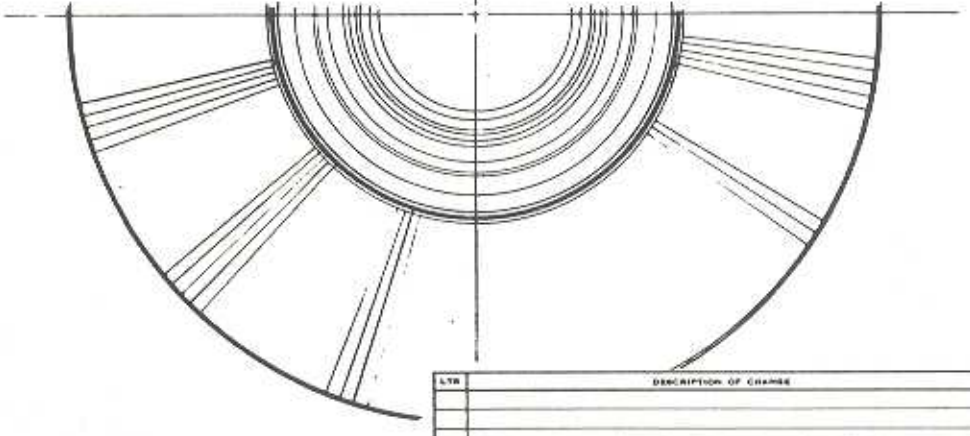
DIMENSIONAL DATA						
	INCHES			MILLIMETERS		
DIM	MIN	MAX	REF.	MIN.	MAX	REF
A		7.300				
B	6.305	6.355				
C	.855	.895				
D	1.965	1.985				
E	2.090	2.110				
F	2.690	2.720				
G	3.275	3.310				
H	4.225	4.245				
J	.265					
K	.265					
L	.265					
M	.350	.385				
N	.675	.715				
P	.250					
R	2.250	2.340				
S	2.000					
T	6.220	6.600				
U	.200	.240				
V	.045	.075				
W	.380	.430				
X	.375					
Y	1.985	2.015				
Z	.190	.200				

NOTES:

1. REF DIMENSIONS ARE FOR INFO ONLY & ARE NOT REQUIRED FOR INSPECTION PURPOSES.
2. ✱ CONTACT SURFACE



THE T.I.R. OF THE GRID AND CATHODE CONTACT SURFACES SHALL NOT EXCEED .040 WITH RESPECT TO THE HEATER AND ANODE CONTACT SURFACES WHEN THE LATTER SURFACES ARE ROTATED ON ROLLERS AT THE POINTS INDICATED BY THE ARROWS.



LTR	DESCRIPTION OF CHANGE	ECO	DATE	BY

DRAWN RD | 17 NOV 78 | ENGR APPR | 11-21-78 | SCALE: NONE | CHK'D | SUPERVISOR

EIMAC, division of varian
San Carlos, California

CODE IDENT No

PART No

OUTLINE X2186C

No. 196014

5014