

E I M A C Division of Varian S A N C A R L O S C A L I F O R N I A

8 2 3 9 3CX3000F1 LOW-MU

TRIODE

The Eimac 8239/3CX3000F1 is a low-mu forced-air cooled power triode intended for use as an audio amplifier or modulator. The maximum rated plate dissipation is 3000 watts.

Two 3CX3000F1s in class-AB, audio service will deliver up to 10 kilowatts maximum-signal plate output power at 6000 plate volts without drawing grid current.

The 3CX3000F1 is provided with "flying leads" for filament and grid connections.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated	Tun	gste	n			د	Min.	Nom.	Max.	•
Voltage	-	-	-	-	-	-	_	7.5		V
Current	-	-	-	-	-	-	48		53	Α
Amplification Factor						-	4.3		5.6	
Direct Interelectrode	Cap	acita	ances	s (A	vera	age))			
Grid-Plate	- -	-	-	-	-	-		17		рF
Grid-Filament -	-	-	-	-	-	-		29		рF
Plate-Filament	-	-	-	-	-	-		2.5		pF
Transconductance (I	_b = 1	.0A,	\mathbf{E}_{b} =	= 300	00V))		11,000		umhos

MECHANICAL

Base	-	-	-	-	-	-	-	-	-	-	•	-	-	- Se	e o	utli	ne drawing
Mounting Position	-	-	-	-	-	-	-	-	-	-	-	-	Ver	tical,	ba	se (down or up
Cooling		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Forced Air
Maximum Temperatur	res:																
Grid and Filament	Sea	ls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250°C
Anode Cooler Core	-	-			-	-	-	-	-	-	-	-	-	-	-	-	250°C
Maximum Diameter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.16 in.
Net Weight	-	-	-											-			7.5 lbs.
Shipping Weight -	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	17 lbs.

AUDIO FREQUENCY POWER AMPLIFIER OR MODULATOR

Class-AB₁

MAXIMUM RATINGS (Per tube)

DC PLATE VOLTAGE	6000	VOLTS
DC PLATE CURRENT	2.5	AMPERES
PLATE DISSIPATION	3000	WATTS
GRID DISSIPATION	50	WATTS

^{*}Adjust to stated Zero-Signal DC Plate Current. Can be expected to vary ±15%. Effective grid-current resistance must not exceed 200,000 ohms.

TYPICAL OPERATION (Sinusoidal wave, two tubes)

Class AB₁

DC Plate Voltage	4.0	5.5	ķV
DC Grid Voltage (Approx)* -	-750	-1070	ķV Volts
Zero-Signal DC Plate Current	500	500	$\mathbf{m}\mathbf{A}$
Max-Signal DC Plate Current	2.75	2.2	Amps
Effective Load, Plate-to-Plate	2120	4000	Ohms
Peak AF Grid Input Voltage			
(per tube)	750	1070	Volts
Max-Signal Driving Power	0	0	Watts
Max-Signal Plate Input			
=	11.0	13.1	$\mathbf{k}\mathbf{W}$
Max-Signal Plate Dissipation			
	2.75	2.55	$\mathbf{k}\mathbf{W}$
Max-Signal Plate Output			
Power	5.5	8.25	kW

3CX3000F1



APPLICATION

MECHANICAL

Mounting: The 3CX3000F1 must be mounted vertically with its base up or down at the convenience of the designer. The base is fitted with heavy filament leads to facilitate connections. These leads should be arranged to prevent mechanical stress on the filament structure. The grid is also fitted with a flying lead.

The tube must be protected from severe shock and vibration during shipment and operation.

Cooling: Sufficient forced air cooling must be provided to maintain seal temperature at 250°C or below. Air-flow must be started when filament power is applied and it is advisable to continue air-cooling for two minutes after all voltages are removed.

The table below lists minimum air-flow requirements to maintain tube temperatures below 250°C with air flowing in both the base-to-anode and anode-to-base directions. This tabulation presumes air at 50°C and sea level. A separate supply of approximately 3 cubic feet per minute, directed into the filament structure is also required to maintain rated filament seal temperatures. This is best accomplished using a small diameter insulating tubing directed into the stem, between the filament seals.

	MIN	MINIMUM COOLING AIR-FLOW REQUIREMENTS								
	BASE-TO-	ANODE FLOW	ANODE-TO-BASE FLOW							
Plate Dissipation (Watts)	AIR-FLOW (CFM)	PRESSURE DROP (inches of water)	AIR-FLOW (CFM)	PRESSURE DROP (inches of water)						
1000 2000 3000	32 67.5 106	0.49 1.52 3.15	39 85 138	0.65 2.16 4.55						

NOTE:

An extra 450 watts have been added to these plate dissipation figures in preparing this tabulation, to compensate for grid and filament dissipation.

For operation at high altitudes or higher ambient temperatures, these quantities should be increased. In all cases it is suggested that actual temperatures be measured to insure adequate cooling.

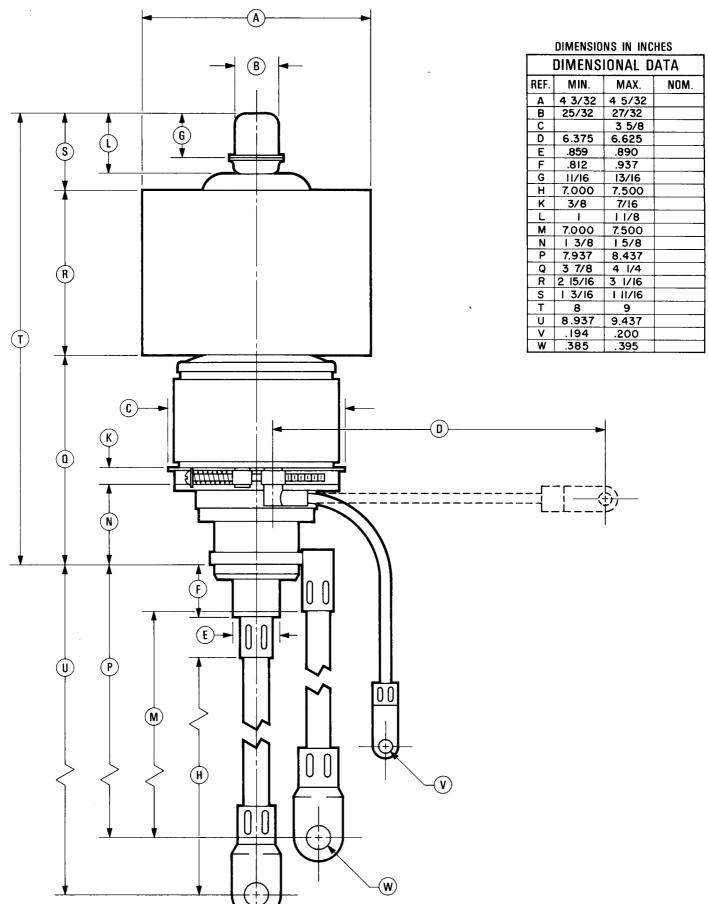
ELECTRICAL

Filament: The rated filament voltage for the 3CX3000F1 is 7.5 volts and should not be exceeded by more than five percent if maximum tube life is to be realized. Reduction of filament voltage to about 7.2 volts will actually enhance tube life and provision should be made for this adjustment where the lower emission can be tolerated.

Grid Operation: The grid dissipation rating of the 3CX3000F1 is 50 watts. This is the product of the peak positive grid voltage and average dc grid current. When tubes are used in parallel in amplifier or modulator service, provision should be made for individual adjustment of bias voltage, in order to match the tubes.

Special Applications: If it is desired to operate the tube under conditions widely different from those given here, write to Eimac Division of Varian Assoc., 301 Industrial Way, San Carlos, California, for information and recommendations.





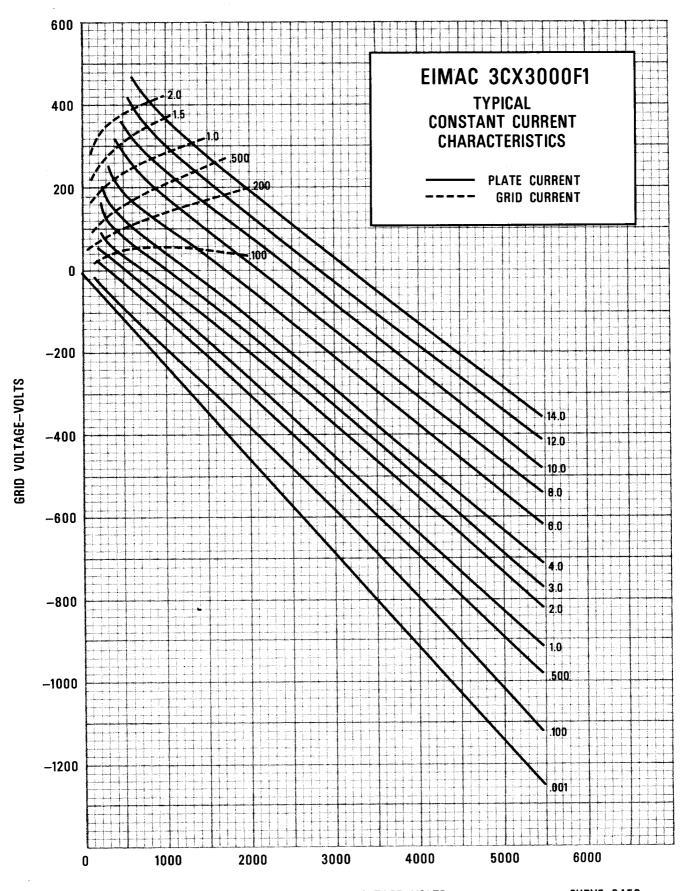


PLATE VOLTAGE-VOLTS

CURVE 3452