

EIMAC

Division of Varian

5 A N C A P L O S
C A L I F O P N I A

8 2 3 9 3CX3000F1

TRIODE

Quartier de Courtabreuf

R.P. Nº 12

91401 ORGAV CEDEX

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: Th	ori	ated	Tu	ngste	n				Min.	Nom.	Max.	
Voltage			¥	-		(4):	*	+		7.5		V
Current		(- .)	35		96	200			48		53	A
Amplification	F	actor	-75		2			-	4.3		5.6	
Direct Intere	lect	rode	Car	pacit	ance	28 (Avera	age)			
Grid-Plate			4					-		17		pF
Grid-Filam	ent	3 55 - 2		-	100	3383	22	5 11 2		29		pF
Plate-Filan	ien	t	-				-			2.5		pF
Transconduct	an	ce (I	,=	1.0A,	$\mathbf{E}_{\mathbf{b}}$	=30	000V)		11,000		umhos

MECHANICAL

Base	0.00	-	3.55	1975	355		-	35	-	::53	-	3 5 2	(* 2	- 8	See o	outl	ine drawing
Base Mounting Position	2	~	2	-		-11	2	-	2	4	2	-	Ve	rtica	l, ba	ase	down or up
Cooling	*	20	-	-	្ន		*	-	4		-		-	*	*	+	Forced Air
Maximum Temperatu	res:																
20 1 1 1 mm 10 1	2.00		22	8 1 5	-	823		38.5	**	at-	53		85.	377	-		250°C
Anode Cooler Core	19	12	-	1/2	2		0		2		2	1	200	2		**	250°C
Maximum Diameter		23	324	¥3	14	-	325		+	+	26	4	20	3.0	40	100	4.16 in.
Net Weight	199	40	-	4.5	10	2.43	199	3. 74 .5	360	(+ 3)	+0	(40)	363	98	80	26	7.5 lbs.
Shipping Weight -	27																A 1895 9 9

AUDIO FREQUENCY POWER AMPLIFIER OR MODULATOR

Class-AB,

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

Catalog a sast								
DC Plate V	oltag	(e	21 11	3	-	4.0	5.5	kV
DC Grid V	oltag	e (A	ppro	x)*	-	-750	-1070	Volts
Zero-Signal						500	500	mA
Max-Signal	DC I	Plate	Curi	ent		2.75	2.2	Amps
Effective L	oad,	Plat	e-to-I	Plat	e	2120	4000	Ohms
Peak AF G	rid Ir	put	Volta	age				
(per tube	2) -	٥,,	*6	-		750	1070	Volts
Max-Signal	Drivi	ing I	ower	-	-	0	0	Watts
Max-Signal	Plate	e Inj	out					
THE RESIDENCE OF THE PARTY OF T		SC		-		11.0	13.1	kW
Max-Signal	Plate	Dis	ssipat	ion				
(per tube	:) -	-	÷	-	-	2.75	2.55	kW
Max-Signal								
Power -	+	-	# 1	+	$\frac{1}{2}$	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.

Plate Dissipation (Watts)	MINI	MINIMUM COOLING AIR-FLOW REQUIREMENTS										
	BASE-TO-	ANODE FLOW	ANODE-TO-BASE FLOW									
	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.





