



ELECTRON TUBE DEPARTMENT ■ **COMPONENTS DIVISION**
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY

X-389*
BACKWARD WAVE
AMPLIFIER
TUBE

T E N T A T I V E

GENERAL CHARACTERISTICS:

The X-389 is a backward wave amplifier tube with a helical wave propagation structure employing continuous beam operation. The tube is designed for use as a narrow band medium noise r-f amplifier with a pass band that can be electronically tuned over the frequency range of 496 to 897 megacycles.

The X-389 is a glass envelope tube mounted in an aluminum capsule and requires a solenoid to focus the electron beam. Type "TNC" female r-f connectors are included as an integral part of the capsule.

ELECTRICAL DATA:

Frequency Range	496 - 897 megacycles
Pass Band (3 db)	1 - 5 megacycles
Small Signal Gain	20 db minimum
Noise Figure	15 db maximum

MECHANICAL DATA:

Mounting Position	Horizontal (preferred)
Capsule Length	45 inches
Capsule Diameter	3-1/4 inches
Net Weight	8 pounds
R-F Connectors	Type "TNC" Female
D-C Connections	Color Coded Flying Leads
Cooling	Not Required

* This number identifies a particular experimental tube design, such number and identification data being subject to change without notice. This tube is for experimental purposes only, carries no obligation for future manufacture and should not be used for design purposes without prior arrangement.

X-389
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AMPLIFIER TUBE

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MAXIMUM RATINGS:

Heater Voltage	7.5 Volts maximum	
Heater Current	4.5 Amperes maximum	
Cathode Voltage	-100 to -1200 Volts maximum	
Cathode Current	5.0 ma maximum	
Focus Voltage	-10 to +10 Volts maximum)	
Anode No. 1 Voltage	+5 to 80 Volts maximum	} With respect to cathode
Anode No. 2 Voltage	+5 to 100 Volts maximum	
Anode No. 3 Voltage	+20 to 200 Volts maximum	
Anode No. 4 Voltage	+70 to 400 Volts maximum)	
Anode No. 5 Voltage)		
Helix No. 1 Voltage)		
Helix No. 2 Voltage)		
Capsule Voltage)		
Collector Voltage	250 Volts maximum	
Focus Current	.2 ma maximum	
Anode No. 1 Current	.2 ma maximum	
Anode No. 2 Current	.2 ma maximum	
Anode No. 3 Current	.2 ma maximum	
Anode No. 4 Current	.2 ma maximum	
Anode No. 5 Current	.2 ma maximum	
Helix No. 1 Current)		
Helix No. 2 Current)	.3 ma maximum	
Capsule Current)		
Collector Current	5 ma maximum	
Solenoid Magnetic Field	500 Gauss maximum	

TYPICAL OPERATION:

Frequency (Center of Pass Band)	750 megacycles
Pass Band (3 db)	3 megacycles
Small Signal Gain	23 db
Noise Figure	13 db
Heater Voltage	7.0 Vdc
Heater Current	3.9 Adc
Cathode Voltage	-410 Vdc with respect to ground
Cathode Current	1.2 ma)
Focus Voltage	0 Vdc)
Anode No. 1 Voltage	19 Vdc)
Anode No. 2 Voltage	9 Vdc) with respect to cathode
Anode No. 3 Voltage	65 Vdc)
Anode No. 4 Voltage	180 Vdc)
Anode No. 5 Voltage)	
Helix No. 1 Voltage)	
Helix No. 2 Voltage)	
Capsule Voltage)	
	Zero Volts (Ground)

Collector Voltage	200 Volts with respect to ground
Focus Current	0 ma
Anode No. 1 Current	.03 ma
Anode No. 2 Current	.02 ma
Anode No. 3 Current	.01 ma
Anode No. 4 Current	.02 ma
Anode No. 5 Current	.01 ma
Helix No. 1 Current	.01 ma
Helix No. 2 Current	
Capsule Current	
Collector Current	1.1 ma
Magnetic Field	450 gauss

Additional Information For Specific Applications Can Be Obtained from
the:

Electron Tube Applications Section
ITT Components Division
P.O. Box 412
Clifton, New Jersey



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