



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

**X-395\***  
**BACKWARD WAVE**  
**AMPLIFIER**  
**TUBE**

T E N T A T I V E

GENERAL CHARACTERISTICS

The X-395 is an S-band 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 2540 to 4050 megacycles.

The X-395 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	2540 - 4050 mcs
Pass Band (3 db)	6 - 22 mcs
Small Signal Gain	20 db minimum
Noise Figure	15 db maximum

MECHANICAL DATA

Mounting Position	Any
Capsule Length	24 inches
Capsule Diameter	1-3/8 inches
Net Weight	3-1/2 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.

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MAXIMUM RATINGS

Heater Voltage	6.5 Volts dc maximum
Heater Current	4 Amperes maximum
Cathode Voltage	-250 to -1400 Volts maximum
Cathode Current	4 ma maximum
Focus Voltage	-10 to +10 Volts maximum)
Anode No. 1 Voltage	+5 to +80 Volts maximum )
Anode No. 2 Voltage	+5 to 200 Volts maximum )
Anode No. 3 Voltage	+20 to 300 Volts maximum )
Anode No. 4 Voltage	+70 to 800 Volts maximum )
Anode No. 5 Voltage)	
Helix No. 1 Voltage)	
Helix No. 2 Voltage)	
Capsule Voltage )	
Collector Voltage	Zero Volts (Ground)
Focus Current	250 Volts 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	4 ma maximum
Solenoid Magnetic Field	750 Gauss maximum

TYPICAL OPERATION

Frequency (Center of Pass Band)	3500 megacycles
Pass Band (3 db)	14 megacycles
Small Signal Gain	24 db
Noise Figure	12 db
Heater Voltage	6.3 Vdc
Heater Current	3.5 Adc
Cathode Voltage	-820 Vdc with respect to ground
Cathode Current	2.0 ma
Focus Voltage	-7 Vdc )
Anode No. 1 Voltage	+18 Vdc )
Anode No. 2 Voltage	+15 Vdc )
Anode No. 3 Voltage	+200 Vdc )
Anode No. 4 Voltage	+300 Vdc )
Anode No. 5 Voltage)	
Helix No. 1 Voltage)	
Helix No. 2 Voltage)	
Capsule Voltage )	
Collector Voltage	Zero Volts (Ground)
	200 Volts with respect to ground

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Focus Current	0 ma
Anode No. 1 Current	.05 ma
Anode No. 2 Current	.02 ma
Anode No. 3 Current	.03 ma
Anode No. 4 Current	.05 ma
Anode No. 5 Current	.02 ma
Helix No. 1 Current)	
Helix No. 2 Current)	.03 ma
Capsule Current )	
Collector Current	1.8 ma
Magnetic Field	700 gauss

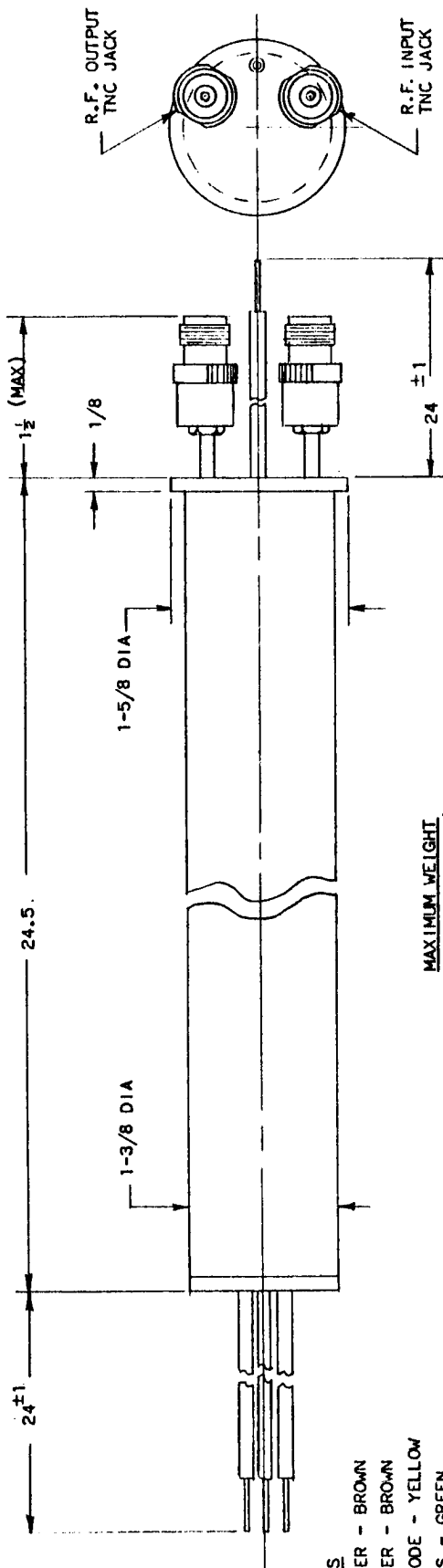
Additional information for specific applications can be obtained from the

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

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**LEADS**

- HEATER - BROWN
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- CATHODE - YELLOW
- FOCUS - GREEN
- ANODE #1 - BLUE
- ANODE #2 - GREY
- ANODE #3 - PURPLE
- ANODE #4 - WHITE
- ANODE #5
- AMPL. HELIX #1 - GROUND-BLACK
- AMPL. HELIX #2
- COLLECTOR - RED

MAXIMUM WEIGHT  
3.5 POUNDS

**BACKWARD WAVE AMPLIFIER**

**TYPE X-395**