

# TUNG-SOL

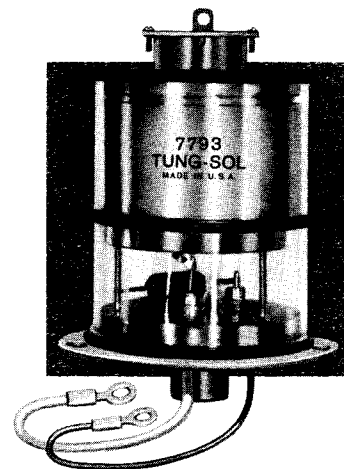
## PRODUCT BULLETIN

### HYDROGEN DIODE

**DESCRIPTION** — The 7793 is an indirectly heated, hydrogen filled, half-wave diode for use in high-voltage rectifier, clipper, or backswing diode applications. It has a hydrogen reservoir with external electrical connections to assure long life and stable operation.

The rugged 7793 can handle higher voltage than comparable xenon tubes. The range of ambient operating temperatures and the variety of mounting positions are greater for the 7793 than is possible with mercury vapor tubes. This diode has a greater safety factor for voltage and current surges than is practical in semi-conductor stacks.

The 7793 employs flange mounting for minimum overall height, good electrical connections, and ease of installation.



See Page 2  
for Outline  
Drawing

#### ELECTRICAL DATA

	Min	Bogey	Max	
Heater Voltage .....	4.75	5.0	5.25	Volts
Heater Current — E <sub>r</sub> = 5.0 Volts .....	18	21.5	25	Amperes
Reservoir Voltage .....	4.75	5.0	5.25	Volts
Reservoir Current — E <sub>r</sub> = 5.0 Volts.....	3.0	4.0	5.0	Amperes
Cathode Heating Time.....	3	—	—	Minutes
Anode Voltage Drop.....	30	—	60	Volts
Initial Firing Voltage.....	—	—	100	Volts
Recurrent Firing Voltage.....	30	—	75	Volts

#### MECHANICAL DATA

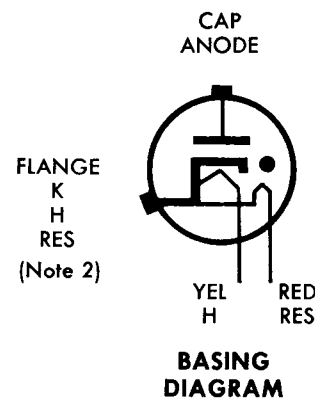
Type of Cooling.....	Forced Air — 50 cfm directed into anode stem—See Mounting Data Drawing
Mounting Position .....	Horizontal or Vertical (Base Down)
Average Net Weight.....	1 Pound 13 Ounces
Dimensions .....	See Outline Drawing
Mounting Data .....	See Mounting Data Drawing
Anode Connection .....	See Outline Drawing
Heater Connection.....	8 ± ½-inch long yellow lead with yellow lug for ¼-inch diameter screw
Reservoir Connection.....	8 ± ½-inch long red lead with red lug for ¼-inch diameter screw

#### RATINGS, ABSOLUTE VALUES

	SHUNT DIODE SERVICE		RECTIFIER SERVICE		Volts
	Minimum	Maximum	Minimum	Maximum	
Peak Inverse Anode Voltage—Note 1	—	30,000	—	30,000	
Cathode Current .....					
Peak .....	—	1,500	—	16	Amperes
Average .....	—	1.0	—	4	Amperes
RMS .....	—	40	—	—	Amperes
Fault — 0.1 Second					
Maximum Duration .....	—	2,000	—	90	Amperes
Averaging Time .....	—	—	—	15	Seconds
Ambient Temperature .....	—55	+75	—55	+75	Degrees Centigrade
Altitude .....	—	10,000	—	10,000	Feet

#### NOTES:

1. See Rectifier Rating Graph on page 2.
2. **CAUTION** — In order to avoid damage to tube, the cathode connection must be made to the base flange only.



# TYPE 7793

## MAXIMUM RATING CHART FOR INFINITE INDUCTANCE CHOKER INPUT FILTER

FIG.	CIRCUIT	TRANSFORMER	NO. OF TUBES	*	A-C SECONDARY VOLTAGE $E_{RMS}$ Kilovolts	D-C OUTPUT — APPROX		RIPPLE	
						$E_{DC}$ Kilovolts	$I_{DC}$ AMPS	KILOVOLTS RMS	FREQ
2	Full-wave 1-phase	1-phase C-T	2	A B	8.85 10.6	7.95 9.56	8.00 6.00	3.75 4.50	2f
3	Bridge circuit 1-phase	1-phase	4	A B	17.7 21.2	15.9 19.1	8.00 6.00	7.50 9.00	2f
4	Half-wave 3-phase	Delta-Wye	3	A B	10.2 12.2	11.9 14.3	12.0 9.00	2.11 2.54	3f
5	Full-Wave 3-phase	Delta-Wye	6	A B	10.2 12.5	23.8 28.6	12.0 9.00	0.915 1.16	6f
6	Full-wave 3-phase	Delta-Delta	6	A B	17.6 21.2	23.8 28.6	12.0 9.00	0.915 1.16	6f

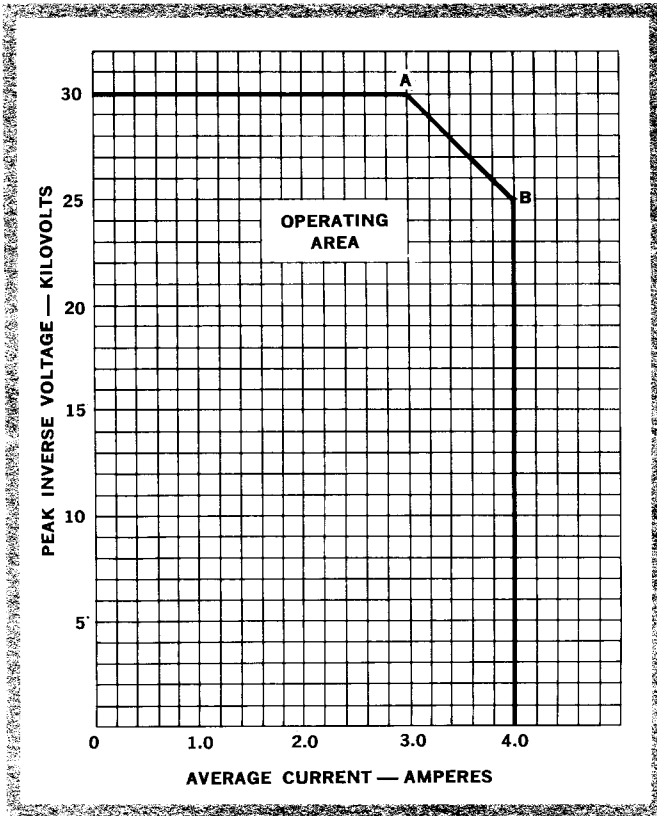
\* See RATING GRAPH

A: Forced air cooled at maximum current rating.  
B: Forced air cooled at maximum voltage rating.

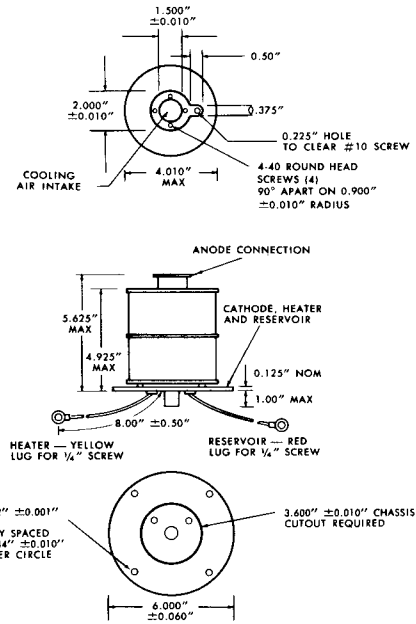
For figure references see STANDARD RECTIFIER CIRCUITS AND RATINGS sheet.

The 7793 should be protected from transient voltages in excess of the maximum rating by spark gaps installed either directly across the tube or across each plate transformer secondary leg.

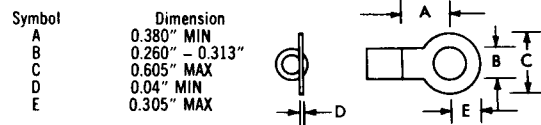
### RECTIFIER RATING GRAPH



### OUTLINE DRAWING AND MOUNTING DATA



### HEATER AND RESERVOIR LUG DETAIL



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