

**TUNG-SOL**

**THYRATRON**  
 MINIATURE TYPE  
 PHYSICAL SPECIFICATIONS

EMITTER COATED UNIP. CATHODE	PIN CONNECTIONS	
BASE MIN. BUTTON 7-PIN	PIN 1 GRID	PIN 7 PLATE
CAP	PIN 2 NO CONNECTION	PIN 8 NONE
BULB T-5 $\frac{1}{2}$	PIN 3 HEATER	
MAX. DIAMETER 3/4"	PIN 4 HEATER	MOUNTING POS. ANY
MAX. SEATED HEIGHT 1 7/8"	PIN 5 CATHODE	
MAX. OVERALL LENGTH 2 1/8"	PIN 6 NO CONNECTION	

**RATINGS**

INTERPRETED ACCORDING TO RMA STANDARD M8-210

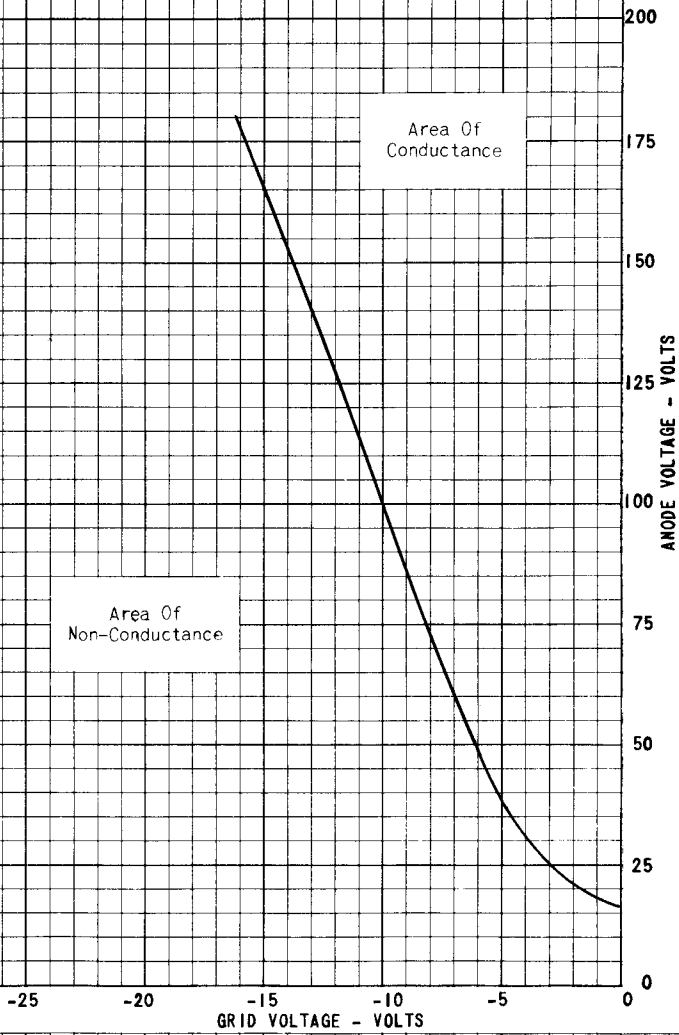
HEATER VOLTAGE (AC OR DC)	6.3	VOLTS
HEATER CURRENT	0.250	AMPERE
MINIMUM HEATING TIME	30	SECONDS
MAXIMUM VOLTAGE BETWEEN ELEMENTS	450	VOLTS
PEAK ANODE CURRENT	100	MA.
AVERAGE ANODE CURRENT <sup>A</sup>	25	MA.
TUBE VOLTAGE DROP AT 25 MA. (APPROX.)	16	VOLTS

<sup>A</sup>AVERAGED OVER PERIOD OF 30 SECONDS MAXIMUM.

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PLATE  
 1679  
 FEB. 15  
 1946

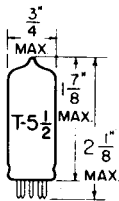
6D4  
 $E_f = 6.3$  Volts  
Approximate Control  
Characteristics



**TUNG-SOL**

**ARGON THYRATRON**

MINIATURE TYPE

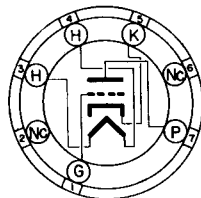


**GLASS BULB**

HEATER

6.3±10% VOLTS 0.25 AMP.

ANY MOUNTING POSITION



**BOTTOM VIEW**

SMALL MINIATURE BUTTON  
7 PIN BASE

5AY

THE 6D4 IS AN ARGON FILLED TRIODE THYRATRON WITH NEGATIVE CONTROL GRID CHARACTERISTICS. ALTHOUGH THE 6D4 HAS FOUND USE AS A RELAY TUBE AND SAW TOOTH OSCILLATOR, ITS PRINCIPAL APPLICATION HAS BEEN AS AN RF NOISE GENERATOR. BECAUSE OF ITS SMALL SIZE, LIGHT WEIGHT, AND RELATIVE FREEDOM FROM TEMPERATURE RESTRICTIONS, THIS TUBE IS SUITED PARTICULARLY FOR USE IN COMPACT OR PORTABLE EQUIPMENT.

**ELECTRICAL DATA**

HEATER VOLTAGE	6.3±10%	VOLTS
HEATER CURRENT ( $E_f = 6.3$ VOLTS)	0.25	AMP.
MINIMUM CATHODE HEATING TIME	30	SECONDS
ANODE TO CONTROL GRID CAPACITANCE	2.6	$\mu\mu\text{fd}$
CONTROL GRID TO CATHODE CAPACITANCE	1.2	$\mu\mu\text{fd}$
ANODE TO CATHODE CAPACITANCE	1.0	$\mu\mu\text{fd}$
HEATER TO CATHODE CAPACITANCE	2.9	$\mu\mu\text{fd}$
ANODE VOLTAGE DROP (AT 100 MA dc) (APPROX.)	12	VOLTS
NOISE OUTPUT (VIDEO BAND WIDTH 4 MC. FIG. 2 CONDITIONS WITH $E_{dc} = 250\text{V DC}$ AND $R = 33,000$ OHM) (P TO P) (MIN.)	9	VOLTS

**MECHANICAL DATA**

MOUNTING POSITION	ANY	
AVERAGE WEIGHT	0.3	OZ.
MAXIMUM VIBRATION RATING (D = .08", 25 CPS)	2.5	G.
BULB	T-5 1/2	
BASE	7 PIN MINIATURE BUTTON	

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**TUNG-SOL**

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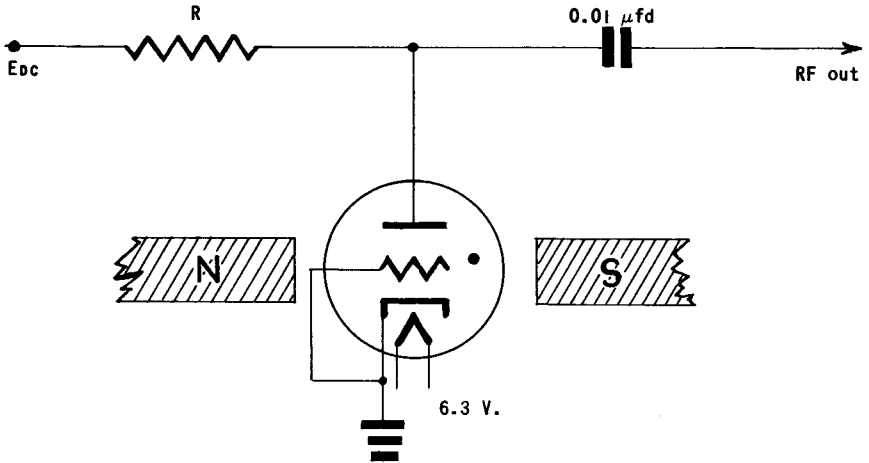
**RATINGS**  
ABSOLUTE VALUES

	MINIMUM	MAXIMUM	
PEAK ANODE VOLTAGE			
FORWARD		350	VOLTS
INVERSE		350	VOLTS
DC PLATE SUPPLY VOLTAGE		250	VOLTS
CATHODE CURRENT			
PEAK		110	MA.
AVERAGE		25	MA.
AVERAGING TIME		30	SECONDS
NEGATIVE CONTROL GRID VOLTAGE	-150		
HEATER CATHODE VOLTAGE	-110	0	
AMBIENT TEMPERATURE	-55	90	°C
CONTROL GRID CIRCUIT RESISTANCE		0.5	MEGOHM

**APPLICATION NOTES**

THE TUBE CAN BE USED IN CONJUNCTION WITH A 375 GAUSS MAGNET AS AN R.F. NOISE GENERATOR. THE MAGNETIC FIELD IS APPLIED PERPENDICULAR TO THE NORMAL ELECTRON PATH IN SUCH A WAY AS TO DEFLECT THE ELECTRONS UPWARD (NORTH POLE OF THE MAGNET AT PIN 7). MINIMUM OUTPUT FIGURES LISTED, ARE AS MEASURED THROUGH A TUNED FILTER, 1000 CPS BANDWIDTH AT 3 db POINTS, WITH  $R = 56,000$  OHMS,  $E_{dc} = 300$  V DC.

**TUNG-SOL**



FREQUENCY IN MEGACYCLES	MINIMUM NOISE VOLTAGE IN MICROVOLTS RMS
0.1	10,000
0.2	14,000
0.5	25,000
1.0	22,000
2.0	7,000
5.0	500.
10.0	70

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6D4  
 $E_f = 6.3$  Volts  
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