

**TUNG-SOL**

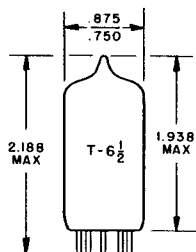
THIS DATA SHEET ALSO APPLIES TO ANOTHER  
MILITARY VERSION, DESIGNATED 6814WB

**TWIN TRIODE  
MINIATURE TYPE**

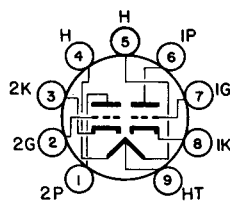
FOR MILITARY AND INDUSTRIAL  
GENERAL PURPOSE APPLICATIONS

COATED UNIPOTENTIAL CATHODE

ANY MOUNTING POSITION



GLASS BULB  
SMALL BUTTON  
9 PIN BASE E9-1  
OUTLINE DRAWING  
JEDEC 6-2



**BOTTOM VIEW**

**BASING DIAGRAM  
JEDEC 9A**

THE 5814A IS A 9 PIN MINIATURE MEDIUM-MU TWIN TRIODE, WITH INDIVIDUAL CATHODE CONNECTIONS. IT MAY BE USED FOR A WIDE VARIETY OF APPLICATIONS SUCH AS GENERAL PURPOSE AMPLIFIER, OSCILLATOR OR MULTI-VIBRATOR. THE 5814A IS A SPECIAL QUALITY TUBE WHICH IS RESISTANT TO SHOCK AND VIBRATION AND WILL TOLERATE LONG PERIODS OF OPERATIONS UNDER CUT-OFF CONDITIONS.

THIS TYPE IS SIMILAR TO THE ENTERTAINMENT TYPE 12AU7 EXCEPT FOR HEATER CURRENT.

**DIRECT INTERELECTRODE CAPACITANCES**

WITHOUT EXTERNAL SHIELD

GRID TO PLATE, EACH SECTION	1.5	pf
INPUT, EACH SECTION	1.6	pf
OUTPUT, SECTION 1	0.5	pf
OUTPUT, SECTION 2	0.4	pf

**HEATER CHARACTERISTICS AND RATINGS**

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

SUPPLY CONNECTED TO PINS	4 AND 5	9 AND 4 + 5	
AVERAGE VALUES - VOLTAGE	12.6	6.3	VOLTS
- CURRENT	0.175	0.35	MA.
HEATER SUPPLY LIMITS:			
VOLTAGE OPERATION	12.6 ± 1.2	6.3 ± 0.6	VOLTS
MAXIMUM HEATER CATHODE VOLTAGE:			
HEATER POSITIVE WITH RESPECT TO CATHODE		100	VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE		100	VOLTS

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## MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

EACH SECTION

PLATE VOLTAGE	330	VOLTS
POSITIVE DC GRID VOLTAGE	0	VOLTS
NEGATIVE DC GRID VOLTAGE	55	VOLTS
PLATE DISSIPATION	3.0	WATTS
DC GRID CURRENT	5.0	MA.
DC CATHODE CURRENT	22	MA.
BULB TEMPERATURE AT HOTTEST POINT	165	°C
GRID CIRCUIT RESISTANCE WITH FIXED BIAS	0.5	MEGOHMS
WITH CATHODE BIAS	1.0	MEGOHMS

## CLASS A RESISTANCE-COUPLED AMPLIFIER

EACH SECTION

LOW IMPEDANCE DRIVE (APPROXIMATELY 200 OHMS)

$R_L$	$R_{gf}$	$E_{bb} = 90$ Volts			$E_{bb} = 180$ Volts			$E_{bb} = 300$ Volts		
		$R_k$	$E_o$	Gain	$R_k$	$E_o$	Gain	$R_k$	$E_o$	Gain
0.10	0.10	3900	10	10	3600	20	11	3500	30	11
0.10	0.24	5000	14	11	4700	27	12	4400	41	12
0.24	0.24	9400	13	11	8700	25	11	8700	38	12
0.24	0.51	11000	17	11	11000	32	12	11000	48	12
0.51	0.51	19000	15	11	18000	29	12	18000	43	12
0.51	1.0	24000	19	11	23000	37	12	23000	54	12

HIGH IMPEDANCE DRIVE (APPROXIMATELY 100K OHMS)

$R_L$	$R_{gf}$	$E_{bb} = 90$ Volts			$E_{bb} = 180$ Volts			$E_{bb} = 300$ Volts		
		$R_k$	$E_o$	Gain	$R_k$	$E_o$	Gain	$R_k$	$E_o$	Gain
0.10	0.10	2600	11	12	2000	22	13	1800	31	13
0.10	0.24	3400	16	12	2800	32	13	2600	44	14
0.24	0.24	7200	15	12	5800	29	13	5000	41	13
0.24	0.51	9400	19	12	8400	37	13	7000	52	13
0.51	0.51	17000	16	12	15000	33	13	13000	46	13
0.51	1.0	22000	20	12	20000	42	13	18000	58	13

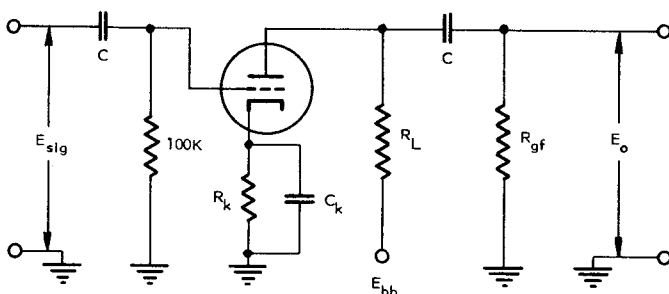
1.  $E_o$  IS MAXIMUM RMS VOLTAGE OUTPUT FOR APPROXIMATELY 5% TOTAL HARMONIC DISTORTION.

2. GAIN IS MEASURED FOR AN OUTPUT VOLTAGE OF TWO VOLTS RMS.

3.  $R_k$  IS IN OHMS;  $R_L$  AND  $R_{gf}$  ARE IN MEGOHMS.

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COUPLING CAPACITORS (C) SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE.  $R_k$  SHOULD BE ADEQUATELY BY-PASSED.

## TYPICAL OPERATING CHARACTERISTICS

PLATE VOLTAGE	100	250	VOLTS
GRID VOLTAGE	0	-8.5	VOLTS
PLATE CURRENT	11.8	10.5	MA.
TRANSCONDUCTANCE	3100	2200	$\mu$ MHOS
AMPLIFICATION FACTOR	19.5	17	
PLATE RESISTANCE, APPROXIMATE	6250	7700	OHMS
GRID VOLTAGE, APPROXIMATE			
$I_b = 10 \mu$ AMPS	-----	-22	VOLTS

## SPECIAL TESTS AND RATINGS

STABILITY LIFE TEST		
SURVIVAL RATE LIFE TEST		
PULSE EMISSION RATINGS		
HEATER-CYCLING LIFE TEST		
SHOCK RATING	40	G
FATIGUE RATING	2.5	G
ALTITUDE RATING	60,000	FEET

## NOTE:

THE CONDITIONS FOR SOME OF THE INDICATED TESTS HAVE DELIBERATELY BEEN SELECTED TO AGGRAVATE TUBE FAILURES FOR TEST AND EVALUATION PURPOSES. IN NO SENSE SHOULD THESE CONDITIONS BE INTERPRETED AS SUITABLE CIRCUIT OPERATING CONDITIONS.

IN THE DESIGN OF MILITARY EQUIPMENT EMPLOYING THIS TUBE, REFERENCE SHOULD BE MADE TO THE LATEST ISSUE OF MIL-E-1.

