

# 6BH6 PENTODE

## DESCRIPTION AND RATING

The 6BH6 is a miniature sharp-cutoff pentode primarily designed for use as a high-gain radio-frequency or intermediate-frequency amplifier. Features include low grid-plate capacitance, relatively high transconductance, and low heater current.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential			
Heater Voltage, AC or DC	6.3	Volts	
Heater Current	0.15	Amperes	
Direct Interelectrode Capacitances	<b>With Shield*</b>	<b>Without Shield</b>	
Grid-Number 1 to Plate, maximum	0.0035	0.0035	$\mu\text{mf}$
Input	5.4	5.4	$\mu\text{mf}$
Output	4.4	4.4	$\mu\text{mf}$

#### MECHANICAL

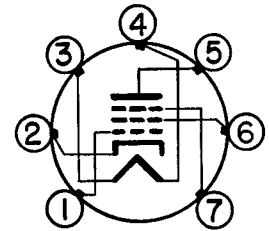
Mounting Position—Any  
Envelope—T-5½, Glass  
Base—E7-1, Miniature Button 7-Pin

### MAXIMUM RATINGS

#### DESIGN-CENTER VALUES

Plate Voltage	300	Volts
Screen-Supply Voltage	300	Volts
Screen Voltage—See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Negative DC Grid-Number 1 Voltage	50	Volts
Plate Dissipation	3.0	Watts
Screen Dissipation	0.5	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	90	Volts
Heater Negative with Respect to Cathode	90	Volts

#### BASING DIAGRAM

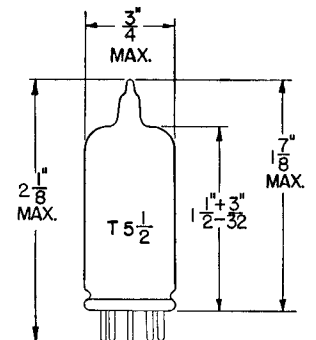


EIA 7CM

#### TERMINAL CONNECTIONS

- Pin 1—Grid Number 1
- Pin 2—Cathode
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grid Number 2 (Screen)
- Pin 7—Internal Shield and Grid Number 3 (Suppressor)

#### PHYSICAL DIMENSIONS



EIA 5-2

**CHARACTERISTICS AND TYPICAL OPERATION**

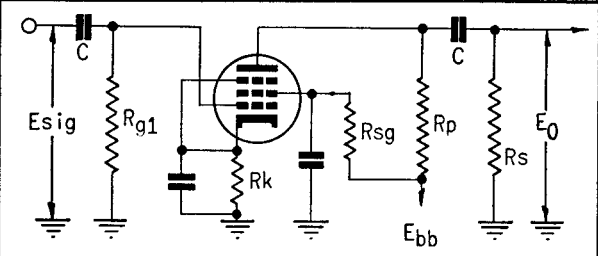
**CLASS A<sub>1</sub> AMPLIFIER**

Plate Voltage .....	100	250	Volts
Suppressor, Connected to Cathode			
Screen Voltage .....	100	150	Volts
Grid-Number 1 Voltage .....	-1.0	-1.0	Volts
Plate Resistance, approximate .....	0.7	1.4	Megohms
Transconductance .....	3400	4600	Micromhos
Plate Current .....	3.6	7.4	Milliamperes
Screen Current .....	1.4	2.9	Milliamperes
Grid-Number 1 Voltage, approximate			
I <sub>b</sub> = 10 Microamperes .....	-5	-7.7	Volts

\* With external shield (EIA 316) connected to pins 2 and 7.

**CLASS A RESISTANCE-COUPLED AMPLIFIER**

R <sub>p</sub> Meg.	R <sub>s</sub> Meg.	R <sub>g1</sub> Meg.	E <sub>bb</sub> = 90 Volts				E <sub>bb</sub> = 180 Volts				E <sub>bb</sub> = 300 Volts			
			R <sub>k</sub>	R <sub>sg</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	R <sub>sg</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	R <sub>sg</sub>	Gain	E <sub>o</sub>
0.10	0.10	0.1	1000	0.09	57	14	740	0.13	88	29	490	0.18	105	44
0.10	0.24	0.1	1100	0.10	78	18	740	0.15	109	36	440	0.21	144	57
0.24	0.24	0.1	2700	0.31	77	13	1500	0.46	128	27	1300	0.47	156	43
0.24	0.51	0.1	3200	0.34	97	17	1800	0.49	159	33	1000	0.59	220	53
0.51	0.51	0.1	6600	0.68	96	13	3400	0.99	154	25	2000	1.40	228	41
0.51	1.0	0.1	6300	0.82	115	14	3900	1.00	194	29	1900	1.30	292	46
0.24	0.24	10	0	0.54	96	9.2	0	0.55	154	26	0	0.64	214	43
0.24	0.51	10	0	0.48	117	15	0	0.61	214	32	0	0.66	286	53
0.51	0.51	10	0	1.10	123	10	0	1.20	196	22	0	1.30	306	39
0.51	1.0	10	0	1.10	139	13	0	1.40	259	26	0	1.50	373	44

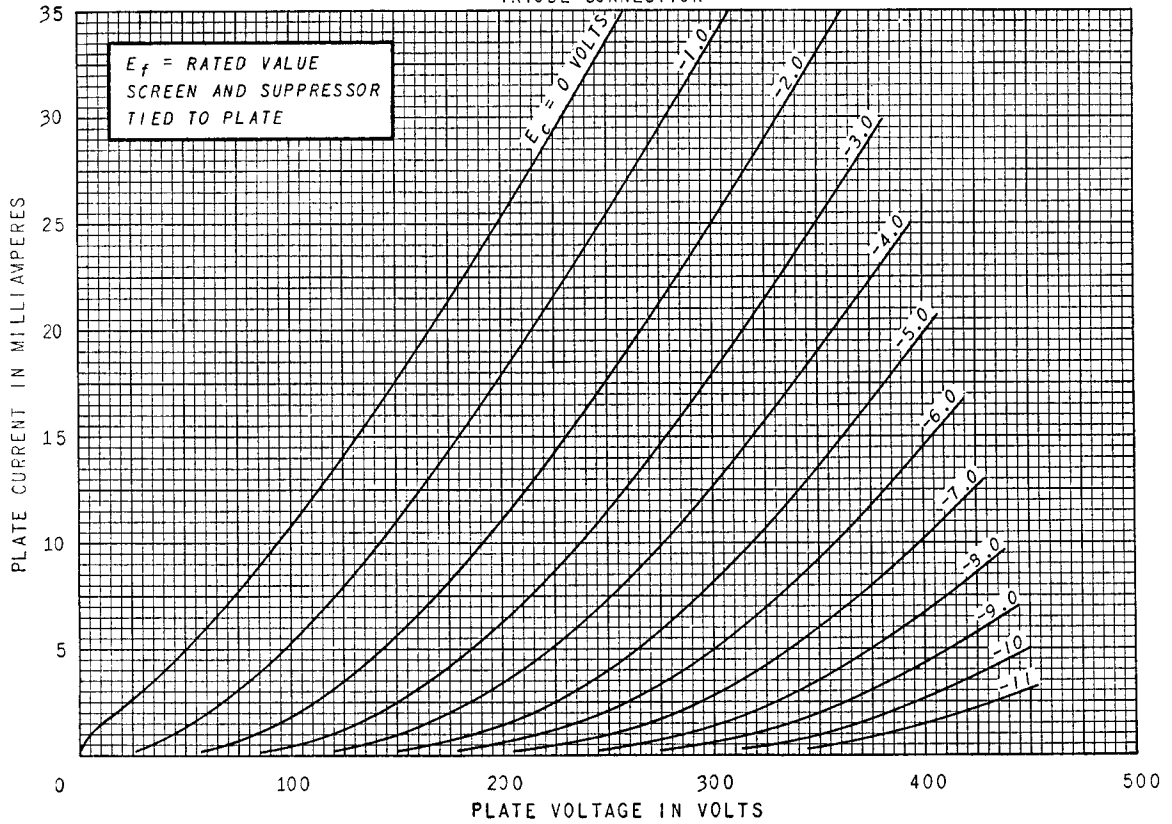


Note: Coupling capacitors (C) should be adjusted to give desired frequency response. R<sub>k</sub> and R<sub>sg</sub> should be adequately by-passed.

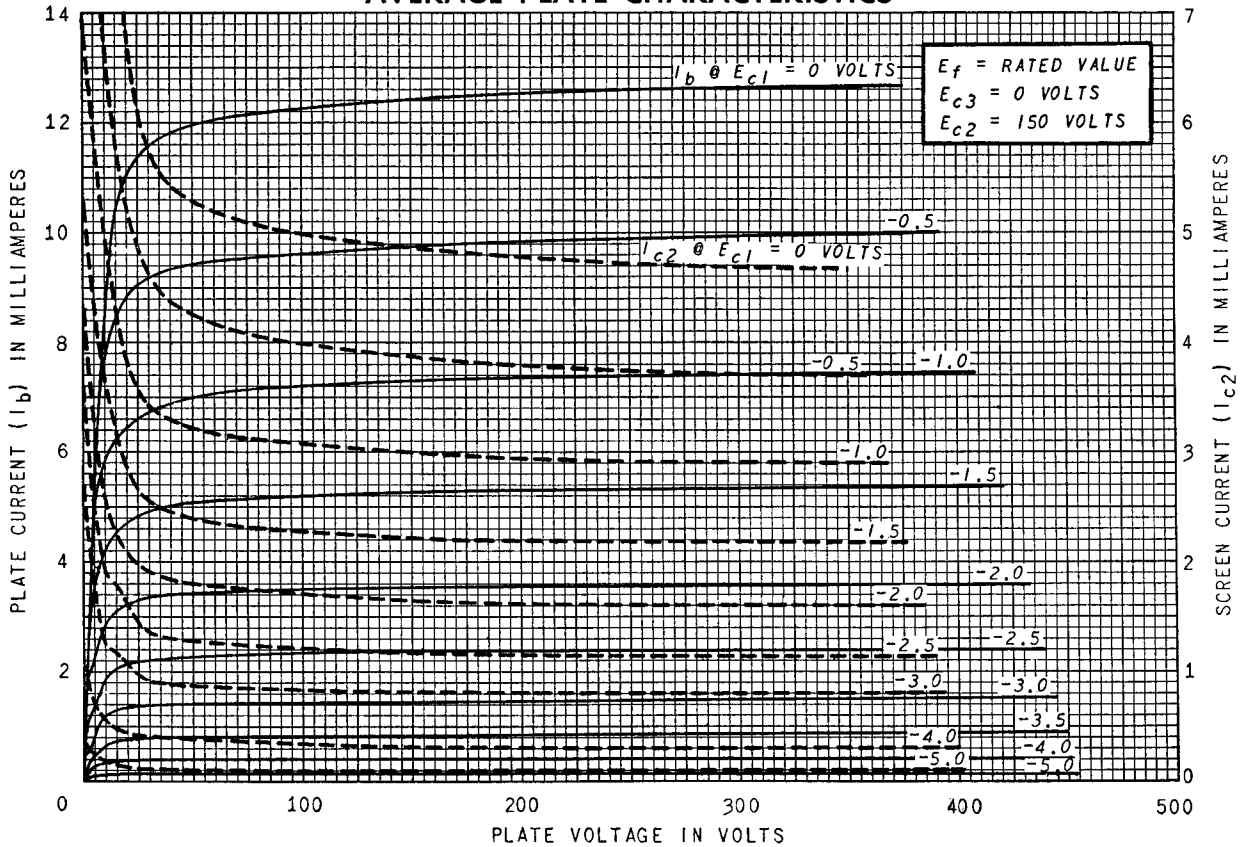
Notes: 1. E<sub>o</sub> is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

**AVERAGE PLATE CHARACTERISTICS**

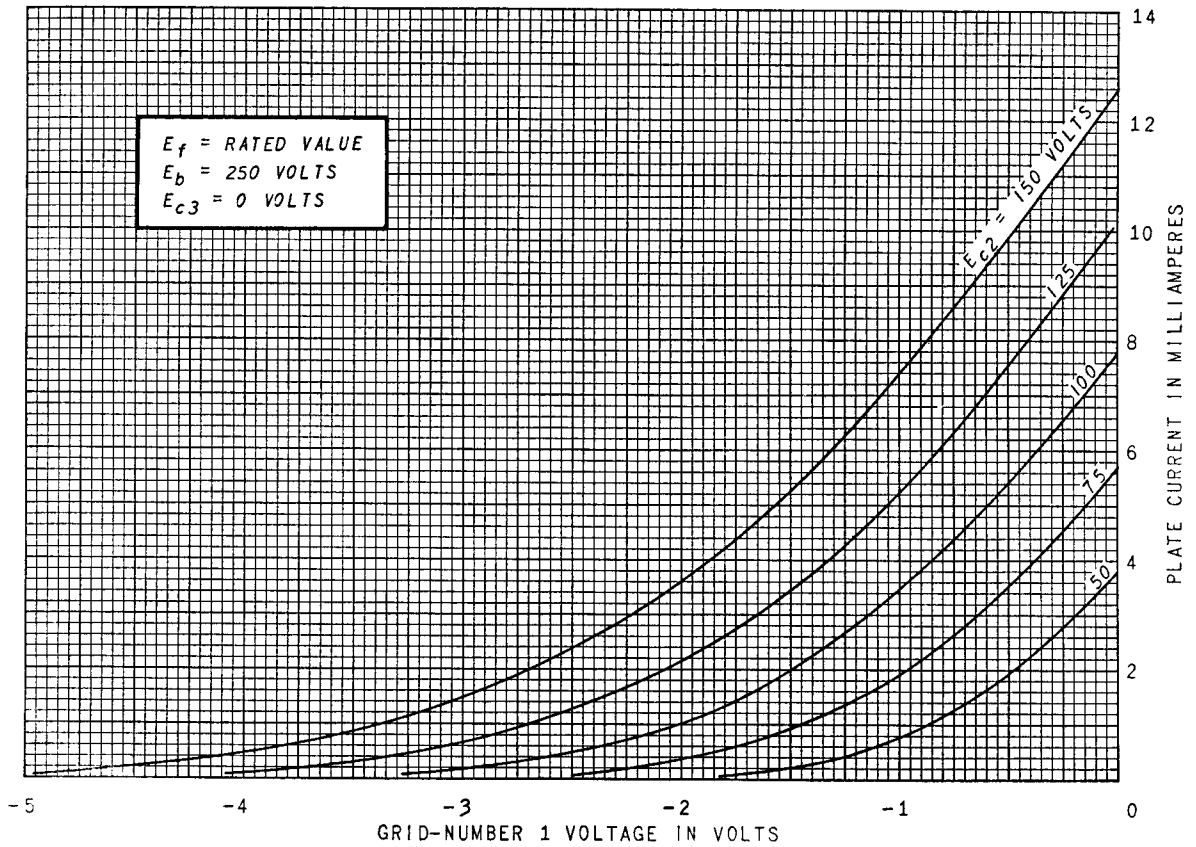
TRIODE CONNECTION



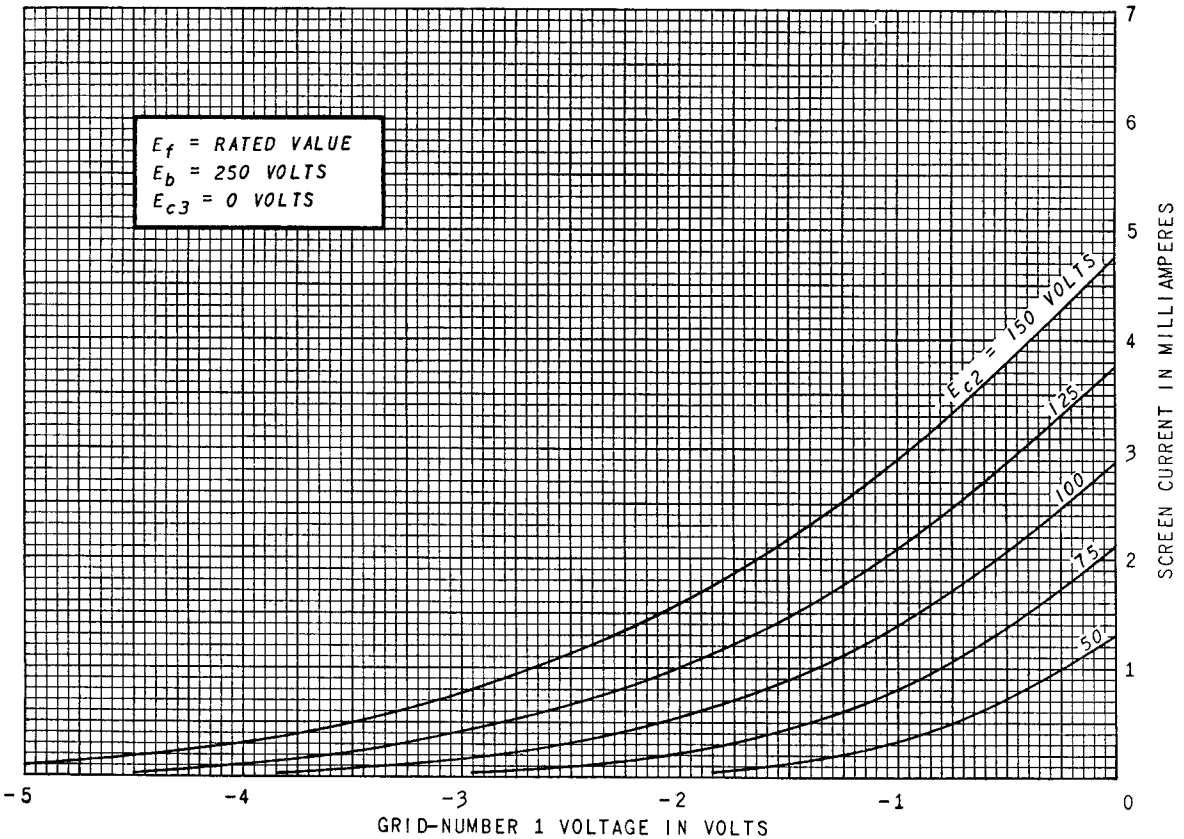
**AVERAGE PLATE CHARACTERISTICS**



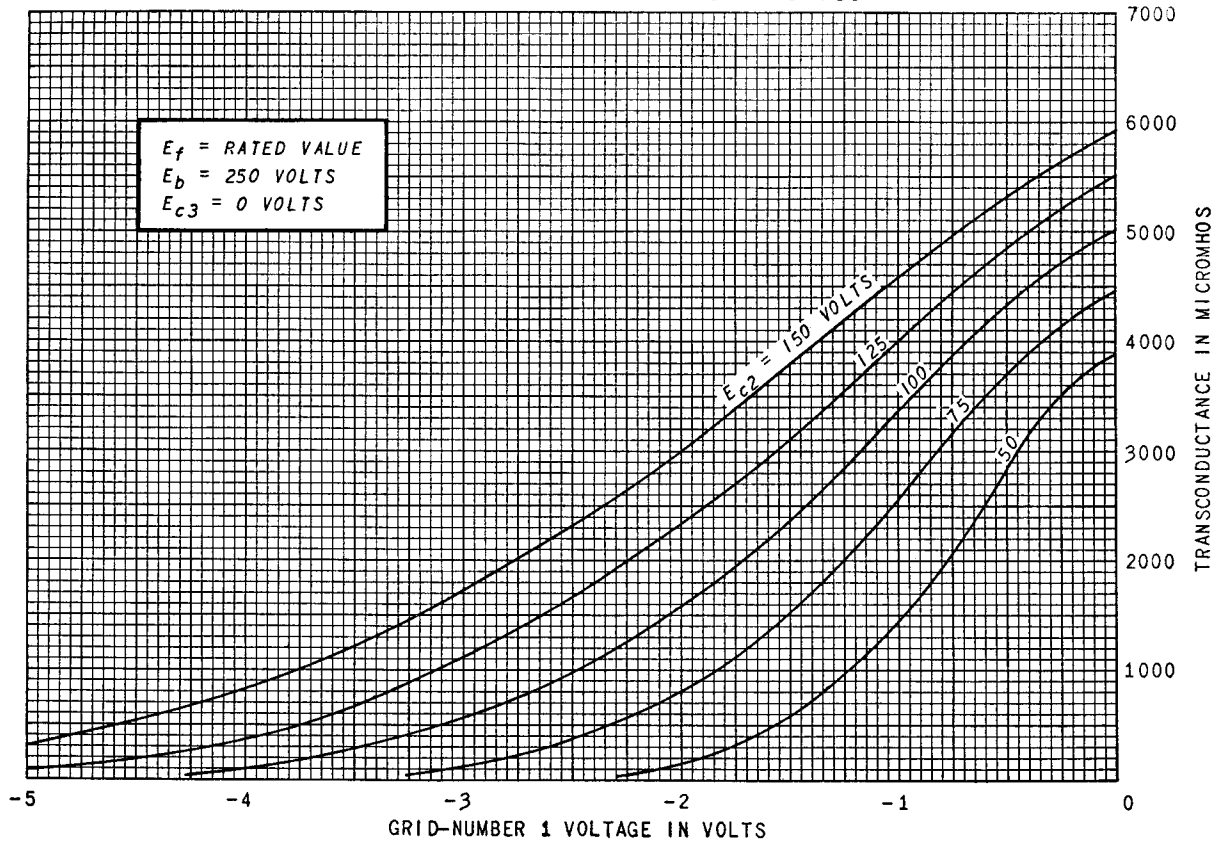
### AVERAGE TRANSFER CHARACTERISTICS



### AVERAGE TRANSFER CHARACTERISTICS



**AVERAGE TRANSFER CHARACTERISTICS**



**SCREEN RATING CHART**

