



# 6CL6

## Description and Rating

### PENTODE

The 6CL6 is a miniature power pentode designed primarily for use as the video output amplifier in television receivers. The tube exhibits high transconductance, high power sensitivity, and low interelectrode capacitances. These characteristics make the 6CL6 suitable for driving large television picture tubes at low distortion levels. The tube is also useful as a wide-band amplifier in industrial and laboratory equipment.

#### GENERAL

Cathode - Coated Unipotential  
 Heater Voltage, A-C or D-C . . . . . 6.3 Volts  
 Heater Current . . . . . 0.65 Ampere  
 Envelope - T-6½, Glass  
 Base - E9-1, Small Button 9-Pin  
 Mounting Position - Any

Direct Interelectrode Capacitances\*

|   |      |     |
|---|------|-----|
| Grid-Number 1 to Plate, maximum . . . . . | 0.12 | μμf |
| Input . . . . .                           | 11   | μμf |
| Output . . . . .                          | 5.5  | μμf |

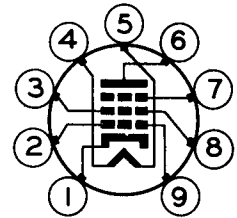
#### MAXIMUM RATINGS

DESIGN-CENTER VALUES

|  |      |            |
|--|------|------------|
| Plate-Supply Voltage . . . . .               | 300  | Volts      |
| Plate Voltage . . . . .                      | 300  | Volts      |
| Suppressor Voltage . . . . .                 | 0    | Volts      |
| Screen-Supply Voltage . . . . .              | 300  | Volts      |
| Screen Voltage - See Screen Rating Chart     |      |            |
| Positive D-C Grid-Number 1 Voltage . . . . . | 0    | Volts      |
| Negative D-C Grid-Number 1 Voltage . . . . . | 50   | Volts      |
| Plate Dissipation . . . . .                  | 7.5  | Watts      |
| Screen Dissipation . . . . .                 | 1.7  | Watts      |
| Heater-Cathode Voltage                       |      |            |
| Heater Positive with Respect to Cathode      | 90   | Volts      |
| Heater Negative with Respect to Cathode      | 90   | Volts      |
| Grid-Number 1 Circuit Resistance             |      |            |
| With Fixed Bias . . . . .                    | 0.1  | Megohm     |
| With Cathode Bias . . . . .                  | 0.5  | Megohm     |
| Bulb Temperature at Hottest Point . . . . .  | +200 | Centigrade |

\* Without external shield.

#### BASING DIAGRAM

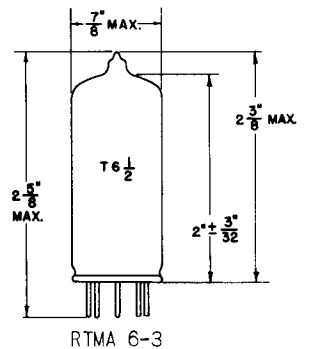


RTMA 9BV  
BOTTOM VIEW

#### TERMINAL CONNECTIONS

- Pin 1 - Cathode
- Pin 2 - Grid Number 1
- Pin 3 - Grid Number 2 (Screen)
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Plate
- Pin 7 - Internal Shield and Grid Number 3 (Suppressor)
- Pin 8 - Grid Number 2 (Screen)
- Pin 9 - Grid Number 1

#### PHYSICAL DIMENSIONS



CHARACTERISTICS AND TYPICAL OPERATION

CLASS A<sub>1</sub> AMPLIFIER

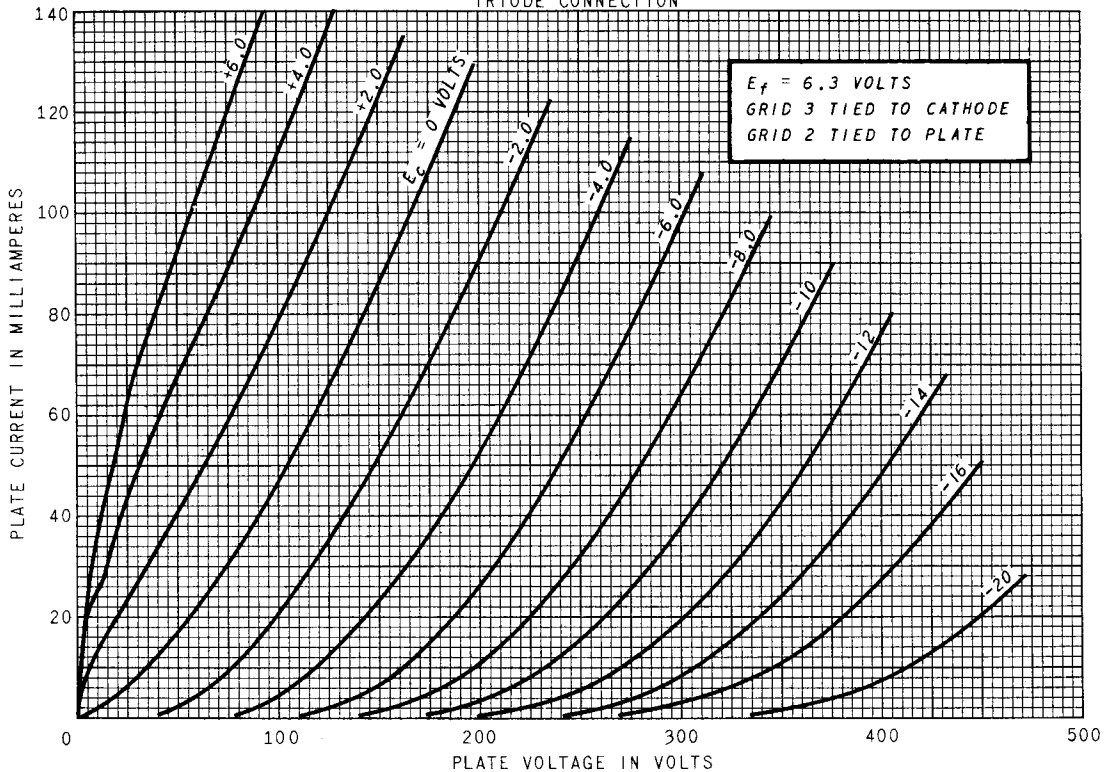
|  |       |              |
|--|-------|--------------|
| Plate Voltage . . . . .  | 250   | Volts        |
| Suppressor - Connected to Cathode at Socket                          |       |              |
| Screen Voltage . . . . .   | 150   | Volts        |
| Grid-Number 1 Voltage . . . . .                                      | -3.0  | Volts        |
| Peak AF Grid-Number 1 Voltage . . . . .                              | 3.0   | Volts        |
| Plate Resistance, approximate . . . . .                              | 15000 | Ohms         |
| Transconductance . . . . .   | 11000 | Micromhos    |
| Zero-Signal Plate Current . . . . .                                  | 30    | Milliamperes |
| Maximum-Signal Plate Current . . . . .                               | 31    | Milliamperes |
| Zero-Signal Screen Current . . . . .                                 | 7.0   | Milliamperes |
| Maximum-Signal Screen Current . . . . .                              | 7.2   | Milliamperes |
| Load Resistance . . . . .  | 7500  | Ohms         |
| Total Harmonic Distortion, approximate . . . . .                     | 8     | Percent      |
| Maximum-Signal Power Output . . . . .                                | 2.8   | Watts        |
| Grid-Number 1 Voltage, approximate, I <sub>b</sub> = 10 Microamperes | -14   | Volts        |

VIDEO AMPLIFIER, 4 MEGACYCLE BANDWIDTH

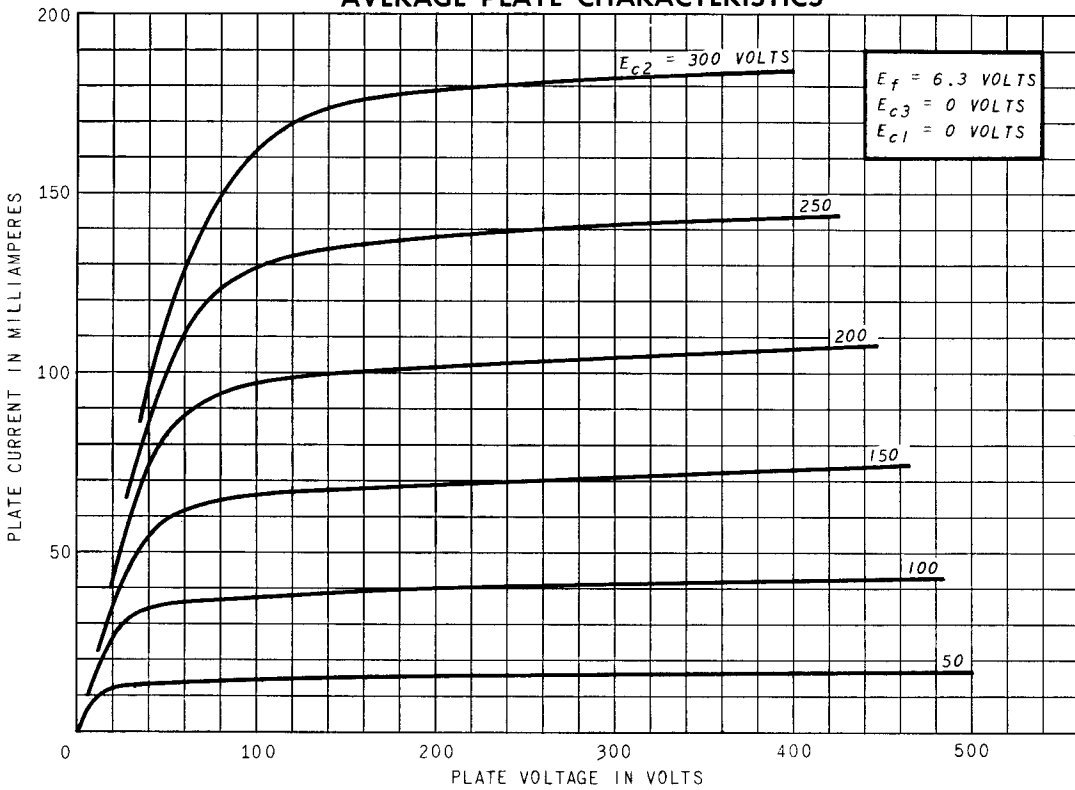
|   |       |              |
|---|-------|--------------|
| Plate-Supply Voltage . . . . .              | 300   | Volts        |
| Suppressor - Connected to Cathode at Socket |       |              |
| Screen-Supply Voltage . . . . .             | 300   | Volts        |
| Screen Resistor . . . . .                   | 24000 | Ohms         |
| Grid-Number 1 Voltage . . . . .             | -2    | Volts        |
| Grid-Number 1 Resistance . . . . .          | 0.1   | Megohm       |
| Grid-Number 1 Signal Voltage, Peak-to-Peak  | 3.0   | Volts        |
| Zero-Signal Plate Current . . . . .         | 30    | Milliamperes |
| Zero-Signal Screen Current . . . . .        | 7.0   | Milliamperes |
| Load Resistance . . . . .                   | 3900  | Ohms         |
| Voltage Output, Peak-to-Peak . . . . .      | 132   | Volts        |

AVERAGE PLATE CHARACTERISTICS

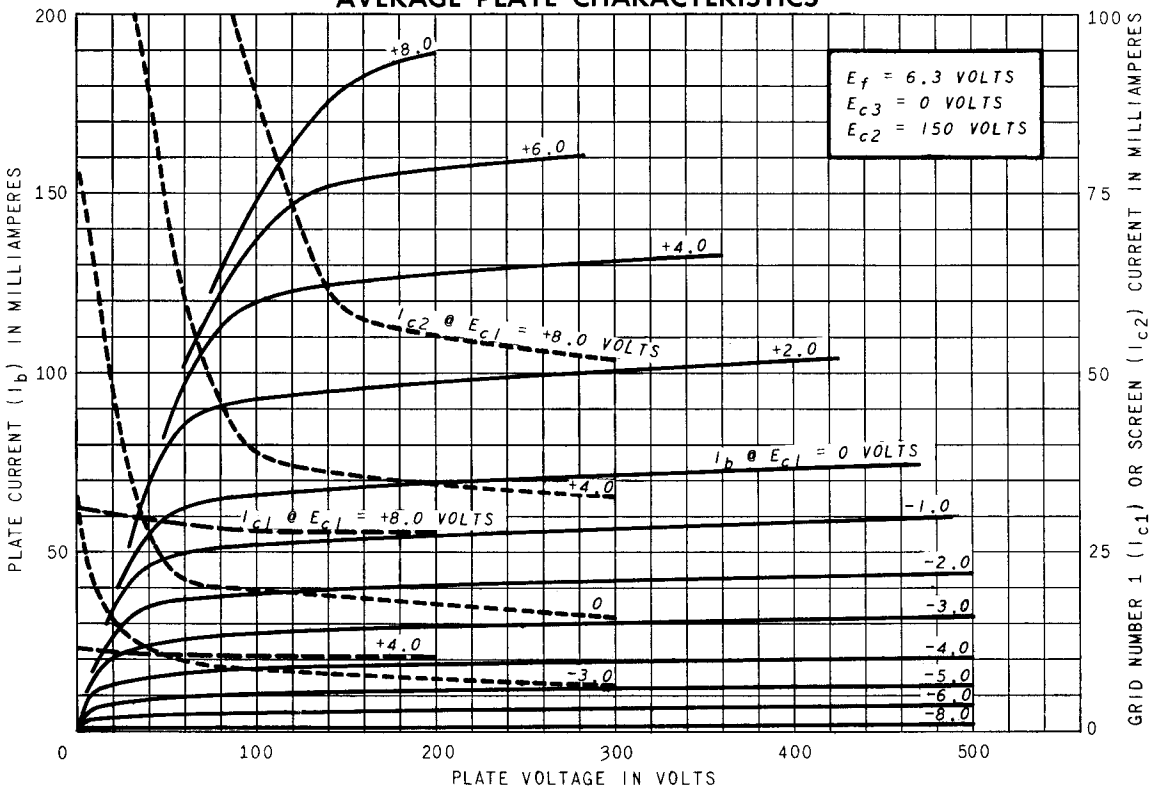
TRIODE CONNECTION



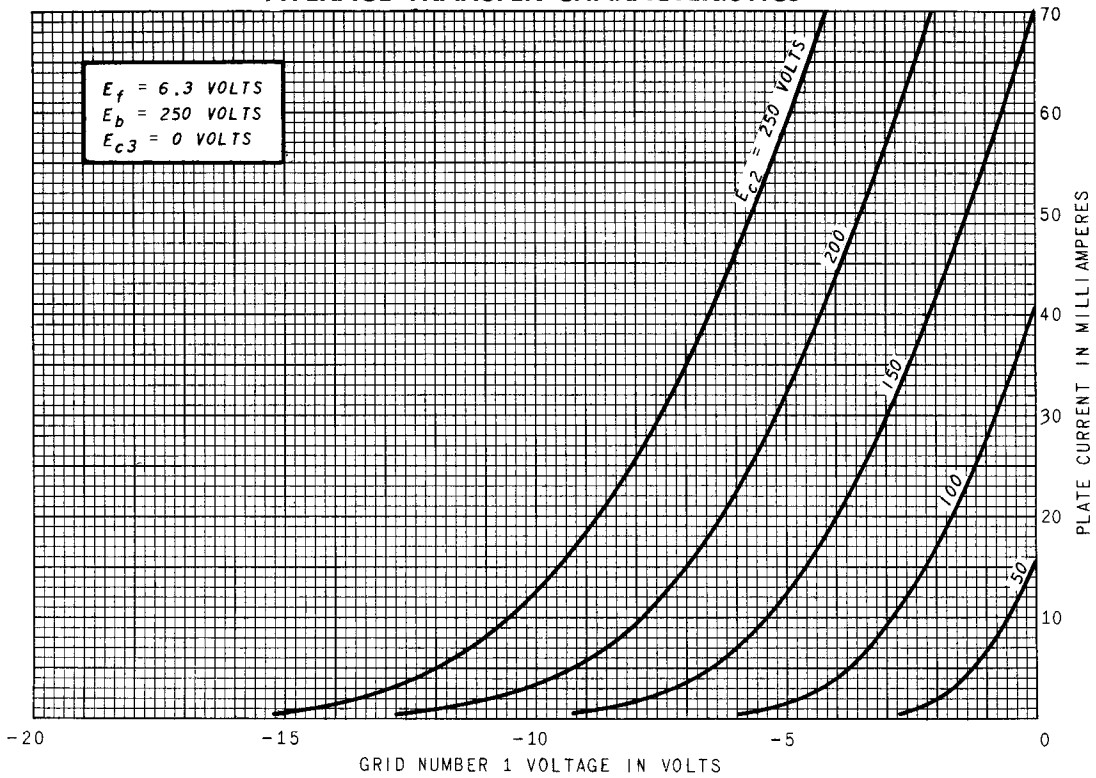
AVERAGE PLATE CHARACTERISTICS



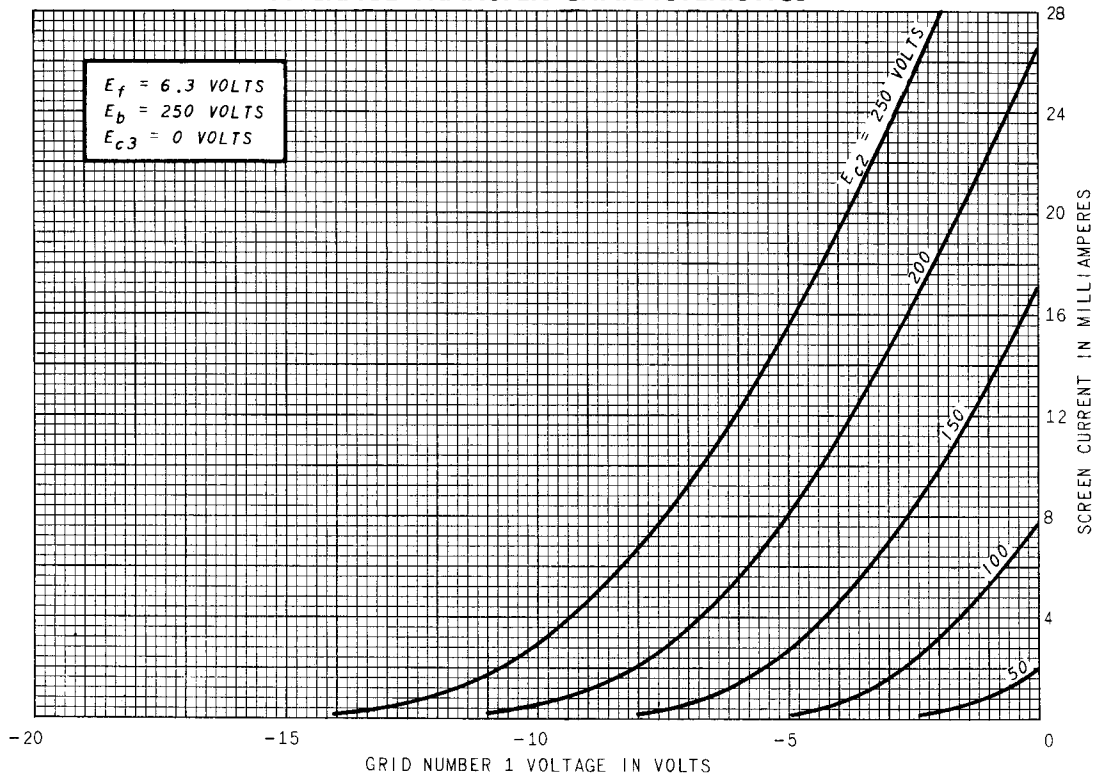
AVERAGE PLATE CHARACTERISTICS



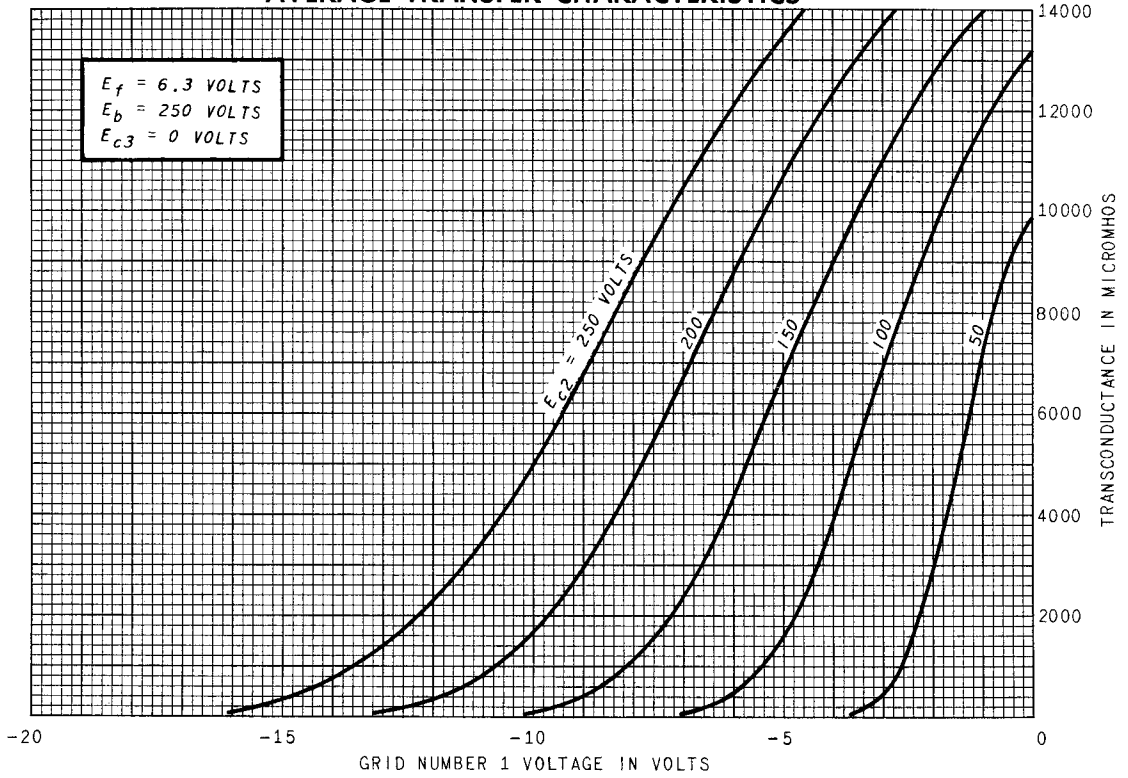
### AVERAGE TRANSFER CHARACTERISTICS



### AVERAGE TRANSFER CHARACTERISTICS



**AVERAGE TRANSFER CHARACTERISTICS**



**SCREEN RATING CHART**

