



# 6SN7-GTA

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## MEDIUM-MU TWIN TRIODE

### GENERAL DATA

#### Electrical:

Heater, for Unipotential Cathodes:

Voltage . . . . . 6.3 . . . . . ac or dc volts  
Current . . . . . 0.6 . . . . . amp

Direct Interelectrode Capacitances (With no external shield):

	Unit No.1	Unit No.2	
Grid to plate . . . . .	4	3.8	$\mu\mu\text{f}$
Grid to cathode and heater . .	2.2	2.6	$\mu\mu\text{f}$
Plate to cathode and heater . .	0.7	0.7	$\mu\mu\text{f}$

#### Characteristics, Class A<sub>1</sub> Amplifier (Each Unit):

Plate Voltage . . . . .	90	250	volts
Grid Voltage . . . . .	0	-8	volts
Amplification Factor . . . . .	20	20	volts
Plate Resistance (Approx.) . . .	6700	7700	ohms
Transconductance . . . . .	3000	2600	$\mu\text{mhos}$
Plate Current . . . . .	10	9	ma
Plate Current for grid voltage of -12.5 volts . . . . .	-	1.3	ma
Grid Voltage (Approx.) for plate current of 10 $\mu\text{amp}$ . . . . .	-7	-18	volts

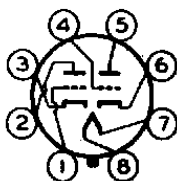
#### Mechanical:

Mounting Position . . . . . Any  
Maximum Overall Length . . . . . 3-5/16"  
Maximum Seated Length . . . . . 2-3/4"  
Maximum Diameter . . . . . 1-9/32"  
Bulb . . . . . T-9

Base . . . . . Short Intermediate-Shell Octal 8-Pin  
with External Barriers (JETEC No. B8-58)

Basing Designation for BOTTOM VIEW . . . . . 8B0

Pin 1 - Grid of  
Unit No.2  
Pin 2 - Plate of  
Unit No.2  
Pin 3 - Cathode of  
Unit No.2  
Pin 4 - Grid of  
Unit No.1



Pin 5 - Plate of  
Unit No.1  
Pin 6 - Cathode of  
Unit No.1  
Pin 7 - Heater  
Pin 8 - Heater

#### AMPLIFIER - Class A<sub>1</sub>

Values are for Each Unit

#### Maximum Ratings, Design-Center Values:

PLATE VOLTAGE . . . . . 450 max. volts  
CATHODE CURRENT . . . . . 20 max. ma

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PLATE DISSIPATION:

Either plate . . . . .	5 max.	watts
Both plates (Both units operating) . . . . .	7.5 max.	watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	200 max.	volts
Heater positive with respect to cathode	200 <sup>▲</sup> max.	volts

**Maximum Circuit Values:**

Grid-Circuit Resistance:

For fixed-bias operation . . . . .	1 max.	megohm
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**Typical Operation as Resistance-Coupled Amplifier:**  
 See RESISTANCE-COUPLED AMPLIFIER CHART No. 29  
 at front of this Section

HORIZONTAL DEFLECTION OSCILLATOR

Values are for Each Unit

**Maximum Ratings, Design-Center Values:**  
 For operation in a 525-line, 30-frame system<sup>□</sup>

DC PLATE VOLTAGE . . . . .	450 max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE <sup>▲</sup> . . . . .	600 max.	volts

CATHODE CURRENT:

Peak . . . . .	300 max.	ma
Average . . . . .	20 max.	ma

PLATE DISSIPATION:

Either plate . . . . .	5 max.	watts
Both plates (Both units operating) . . . . .	7.5 max.	watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	200 max.	volts
Heater positive with respect to cathode	200 <sup>▲</sup> max.	volts

**Maximum Circuit Values:**

Grid-Circuit Resistance:

For fixed-bias, grid-resistor bias, or cathode-bias operation . . . . .	2.2 max.	megohms
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VERTICAL DEFLECTION OSCILLATOR

Values are for Each Unit

**Maximum Ratings, Design-Center Values:**  
 For operation in a 525-line, 30-frame system<sup>□</sup>

DC PLATE VOLTAGE . . . . .	450 max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE <sup>▲</sup> . . . . .	400 max.	volts

CATHODE CURRENT:

Peak . . . . .	70 max.	ma
Average . . . . .	20 max.	ma

▲, □, ◆, #: See next page.



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**PLATE DISSIPATION:**  
 Either plate . . . . . 5 max. watts  
 Both plates (Both units operating) . . . 7.5 max. watts

**PEAK HEATER-CATHODE VOLTAGE:**  
 Heater negative with respect to cathode 200 max. volts  
 Heater positive with respect to cathode 200<sup>▲</sup> max. volts

**Maximum Circuit Values:**  
**Grid-Circuit Resistance:**  
 For fixed-bias, grid-resistor bias, or  
 cathode-bias operation . . . . . 2.2 max. megohms

### VERTICAL DEFLECTION AMPLIFIER

*Values are for Each Unit*

**Maximum Ratings, Design-Center Values Except as Noted:**  
*For operation in a 525-line, 30-frame system<sup>□</sup>*

DC PLATE VOLTAGE . . . . . 450 max. volts  
 PEAK POSITIVE-PULSE PLATE VOLTAGE<sup>‡</sup>  
 (Absolute Maximum) . . . 1500<sup>■</sup> max. volts  
 PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . . 250 max. volts

**CATHODE CURRENT:**  
 Peak . . . . . 70 max. ma  
 Average . . . . . 20 max. ma

**PLATE DISSIPATION:**  
 Either plate . . . . . 5 max. watts  
 Both plates (Both units operating) . . . 7.5 max. watts

**PEAK HEATER-CATHODE VOLTAGE:**  
 Heater negative with respect to cathode 200 max. volts  
 Heater positive with respect to cathode 200<sup>▲</sup> max. volts

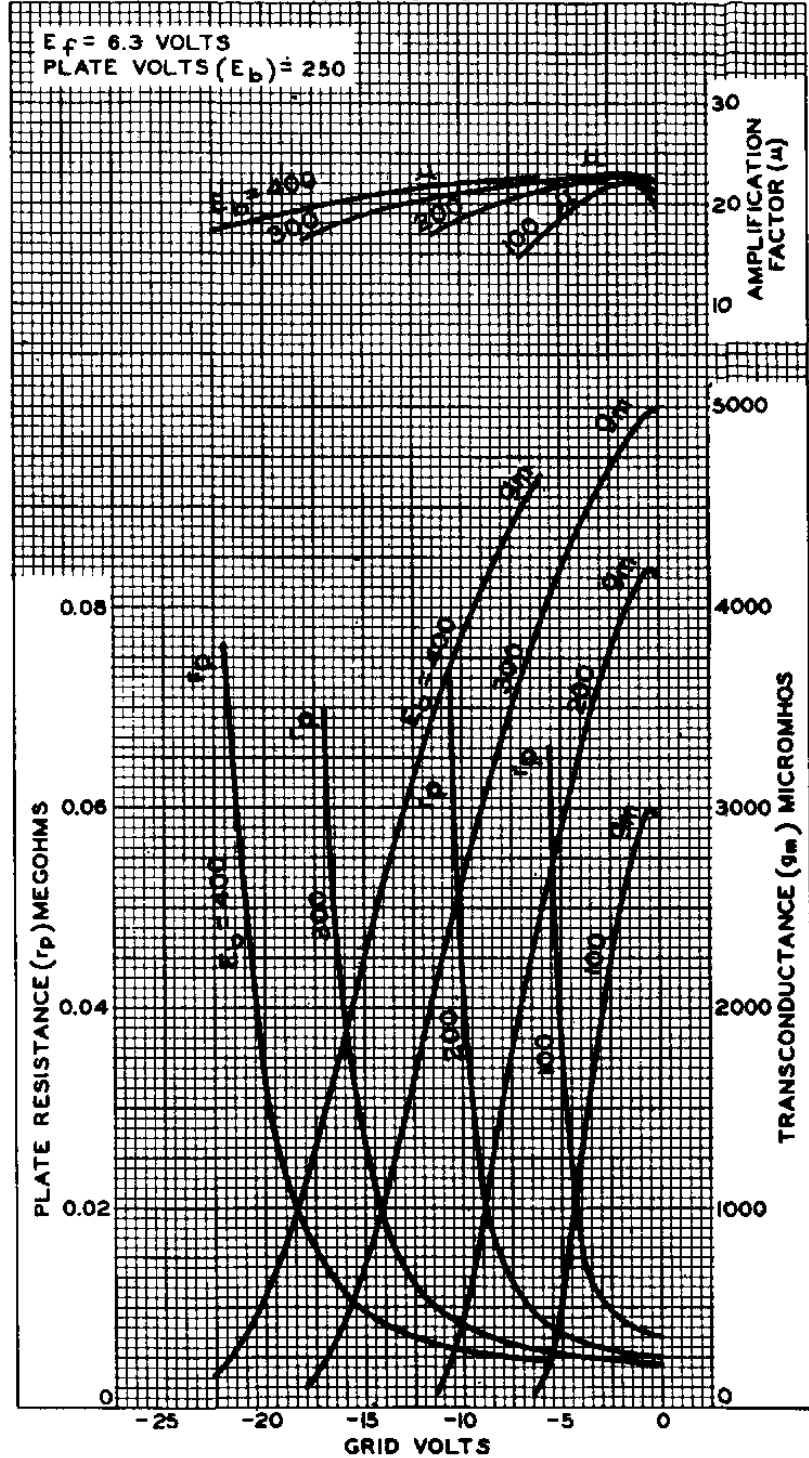
**Maximum Circuit Values:**  
**Grid-Circuit Resistance:**  
 For cathode-bias operation . . . . . 2.2 max. megohms

- <sup>▲</sup> The dc component must not exceed 100 volts.
- <sup>□</sup> As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
- <sup>‡</sup> This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.
- <sup>■</sup> This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 per cent of one vertical scanning cycle is 2.5 milliseconds.
- <sup>■</sup> Under no circumstances should this absolute value be exceeded.



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### 6SN7-GTA AVERAGE CHARACTERISTICS FOR EACH UNIT



OCT. 14, 1953

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-8122



## RESISTANCE-COUPLED AMPLIFIER CHARTS (Continued)

See Circuit Diagram 1									13
E <sub>bb</sub>	R <sub>p</sub>	R <sub>g</sub>	R <sub>g2</sub>	R <sub>k</sub>	C <sub>g2</sub>	C <sub>k</sub>	C	E <sub>o</sub>	V.G.
90	0.05	0.05	-	1650	-	2.80	0.06	11	11
		0.1	-	2070	-	2.66	0.029	14	12
		0.25	-	2380	-	1.95	0.012	17	13
	0.1	0.1	-	3470	-	1.85	0.035	12	13
		0.25	-	3940	-	1.29	0.012	17	13
		0.5	-	4420	-	1.0	0.007	19	13
	0.25	0.25	-	7860	-	0.73	0.0135	14	13
		0.5	-	9760	-	0.55	0.007	18	13
		1.0	-	10690	-	0.47	0.004	20	13
180	0.05	0.05	-	1190	-	3.27	0.06	24	13
		0.1	-	1490	-	2.86	0.032	30	13
		0.25	-	1740	-	2.06	0.0115	36	13
	0.1	0.1	-	2330	-	2.19	0.038	26	14
		0.25	-	2830	-	1.35	0.012	34	14
		0.5	-	3230	-	1.15	0.006	38	14
	0.25	0.25	-	5560	-	0.81	0.013	28	14
		0.5	-	7000	-	0.62	0.007	36	14
		1.0	-	8110	-	0.5	0.004	40	14
300	0.05	0.05	-	1020	-	3.56	0.06	41	13
		0.1	-	1270	-	2.96	0.034	51	14
		0.25	-	1500	-	2.15	0.012	60	14
	0.1	0.1	-	1900	-	2.31	0.035	43	14
		0.25	-	2440	-	1.42	0.0125	56	14
		0.5	-	2700	-	1.2	0.0065	64	14
	0.25	0.25	-	4590	-	0.87	0.013	46	14
		0.5	-	5770	-	0.64	0.0075	57	14
		1.0	-	6950	-	0.54	0.004	64	14

6F8-G, 6SN7-GT, 6J5, 12SN7-GT  
6CG7, 6FQ7, 8CG7, 7N7, 7A4, 12FQ7