

6227/E80L

Characteristics Range Value for Equipment Design

	Initial		End of Life ³		
	Min	Max	Min	Max	
Heater Current ($E_f = 6.3V$)	0.71	0.79	0.71	0.79	amps
Plate Current ($E_{bb} = E_{cc2} = 204.5V$, $E_{c3} = 0V$, $R_k = 130\Omega$)	2.65	33.5	21		mA
Grid No. 2 Current ($E_{bb} = E_{cc2} = 204.5V$, $E_{c3} = 0V$, $R_k = 130\Omega$)	2.7	5.5	2		mA
Transconductance ($E_{bb} = E_{cc2} = 204.5V$, $E_{c3} = 0V$, $R_k = 130\Omega$)	7400	10,600	6000		micromhos
Negative Grid No. 1 Current ($E_{bb} = E_{cc2} = 204.5V$, $E_{c3} = 0V$, $R_k = 130\Omega$)		0.5			$1.0\mu A$
Plate current ($E_b = E_{c2} = 200V$, $E_{c3} = 0V$, $E_{c1} = -14V$)		0.2			mA
Power Output ($E_b = E_{c2} = 200V$, $E_{c3} = 0V$, $I_b = 30mA$)	2.0				watts
Hum. Voltage (referred to Grid No. 1) ⁴ ($E_b = E_{c2} = 200V$, $R_k = 130\Omega$, $R_b = 1K\Omega$)		0.25			millivolts
Heater-Cathode Leakage Current ($E_{hk} = 120V$, K pos., $R_{series} = 1M\Omega$)		15			$20\mu A$
Insulation Resistance (between 2 Arbitrary Electrodes) ($E = 300V$, Cathode Positive)	50		10		megohms

Direct Interelectrode Capacitances

	Min	Max
Input	10.2	11.8 $\mu\mu f$
Output	6.5	7.5 $\mu\mu f$
Plate to Grid No. 1		0.1 $\mu\mu f$
Grid No. 1 to Heater		0.25 $\mu\mu f$

3 Conditions of life test operation are:

Heater Voltage	6.3 volts
Plate Voltage	200 volts
Grid No. 2 voltage	200 volts
Grid No. 3 voltage	0 volts
Cathode resistor	130 ohms
Cathode-heater voltage (cathode positive)	120 volts
Life expectancy	10,000 hours

⁴ Measured with flat response filter. Frequency of filament supply 50 c/s. Center tap of filament transformer grounded.

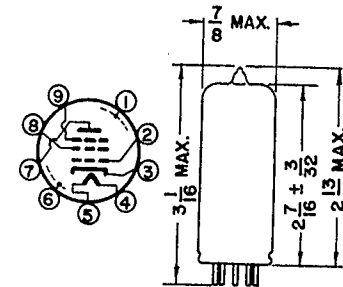
AMPEREX TUBE TYPE 6227/E80L

The Amperex tube 6227/E80L is a rugged pentode designed for industrial equipment and instrumentation in which resistance to shock and vibration, long-life and reliability of performance are of prime importance.

The 6227/E80L is one of the Amperex "Premium Quality 10,000 Hour" tubes.

PIN CONNECTIONS

PIN #1 = INTERNAL SHIELD
PIN #2 = GRID #1
PIN #3 = CATHODE
PIN #4 = HEATER
PIN #5 = HEATER
PIN #6 = INTERNAL SHIELD
PIN #7 = PLATE
PIN #8 = GRID #2
PIN #9 = GRID #3



GENERAL CHARACTERISTICS

MECHANICAL

- Base
- Dimensions
- Mounting position
- Bulb
- Shock and Vibration

Noval with gold plated pins
see outline drawing
any
T6½
see note 1

ELECTRICAL

- Cathode
- Heater voltage²
- Heater current at 6.3 volts²

coated, unipotential
6.3 volts
0.75 amps

Direct Interelectrode Capacitances

→ Input	11.0 $\mu\mu f$
→ Output	7.0 $\mu\mu f$
Plate to Grid No. 1	0.1 $\mu\mu f$ max
Grid No. 1 to Heater	0.25 $\mu\mu f$ max
Heater to Cathode	7.0 $\mu\mu f$

1 Shock rating = 500 g (approx)

Forces as applied by the NRL impact machine for electronic devices caused by 5 blows of the hammer lifted over an angle of 30° in each of four different directions.

Fatigue rating = 2.5 g

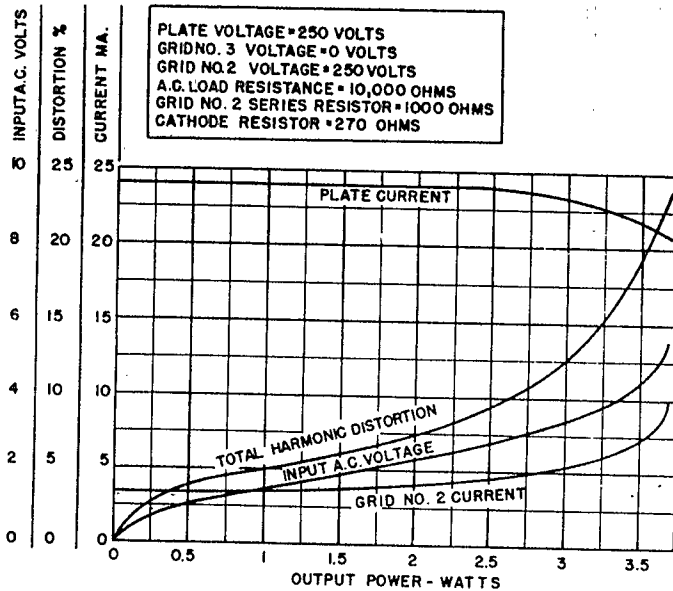
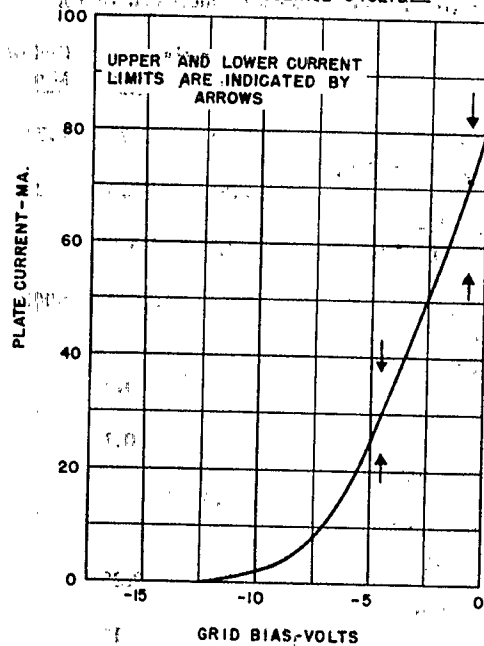
Vibrated forces for a period of 32 hours at a frequency of 50 cycles per second in each of the three planes.

These test conditions are given only for evaluation of the ruggedness of the tube. They are by no means to be interpreted as suitable operating conditions.

² In order to obtain a useful tube life of 10,000 hours in the case of parallel supply, the maximum variation of the heater voltage should be less than ±5% (absolute maximum rating). In order to obtain a useful tube life of 10,000 hours in a series connection the maximum variation of the heater current due to voltage fluctuations and tolerances in the circuit components should be less than ±1.5% (absolute maximum ratings).

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PLATE VOLTAGE = 200 VOLTS
GRID NO. 2 VOLTAGE = 200 VOLTS
GRID NO. 3 VOLTAGE = 0 VOLTS



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Maximum Ratings, Absolute Values

→ Heater Voltage (parallel supply)	6.3 volts ± 5%
→ Heater Current (series supply)	0.75 amps ± 1.5%
Plate Voltage	300 volts max
Plate Voltage Cutoff Condition	600 volts max
Plate Dissipation	8 watts max
Grid No. 2 Voltage	300 volts max
Grid No. 2 Voltage Cutoff Condition	600 volts max
Grid No. 2 Dissipation	2.6 watts max
Negative Grid No. 1 Bias	100 volts max
Negative Grid No. 3 Bias	100 volts max
Cathode Current	50 mA max
Voltage Between Heater and Cathode	120 volts max
Bulb Temperature	225°C max

For Circuit Design

Grid No. 1 Resistor (Cathode Bias)	1 megohm max
External Resistance between Cathode and Heater	20,000 ohms max

Class A₁ Amplifier
Typical Operation

Plate Voltage	200	250	volts
Grid No. 3 Voltage	0	0	volts
→ Grid No. 2 Voltage	200	-	volts
→ Grid No. 2 Supply Voltage	-	250	volts
→ Grid No. 2 Series Resistor	-	1000	ohms
Cathode Resistor	130	270	ohms
Plate Current	30	24	mA
Grid No. 2 Current	4.1	3.3	mA
→ Plate Resistance	90	-	Kohms
AC Load Resistance	7000	10,000	ohms
→ Power Output (at total distortion = 10%)	2.7	2.8	watts
→ Transconductance	9000	-	micromhos
Amplification Factor of Grid No. 2 with Respect to Grid No. 1	21.5	-	

Two Tubes Class AB - Amplifier
Typical Operation

Plate Voltage	200	250	volts				
Grid No. 3 Voltage	0	0	volts				
Grid No. 2 Voltage	200	250	volts				
Cathode Resistor	130	150	ohms				
AC Load Resistance (plate to plate)	9000	9000	ohms				
→ Input AC Voltage	0	0.31	5.2	0	0.32	7.8	volts rms
Plate Current	2x20.6	-	2x24.6	2x23.5	-	2x29.5	mA
Grid No. 2 Current	2x2.8	-	2x4.9	2x3.2	-	2x6.6	mA
→ Power Output	-	0.05	5.7	-	0.05	9.0	watts
Distortion	-	-	3.0	-	-	4.5	%

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