

DESCRIPTION

Shock and vibration resistant special quality sharp cut-off R.F. pentode for use in industrial and mobile equipment.
 Heater voltage variations of $\pm 20\%$ are allowed during short periods.

MECHANICAL DATA

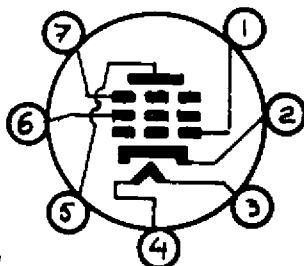
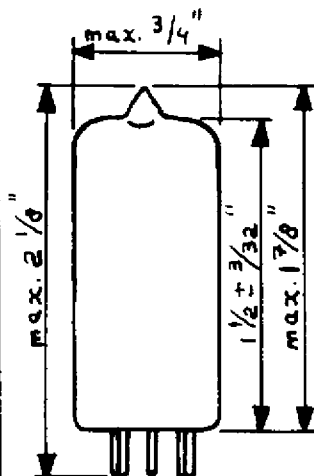
Cathode	coated, unipotential
Base	E7-1
Bulb	T5 1/2
Outline	5-2
Basing	7EN
Mounting position	any

TUBE OUTLINE

BOTTOM VIEW OF BASE

BASE PIN No.

ELEMENTS



1	grid No.1
2	cathode
3	heater
4	heater
5	plate
6	grid No.2
7	grid No.3, internal screen

HEATER DATA

Heater voltage	6.3 volts ¹⁾
Heater current	150 mamps

DIRECT INTERELECTRODE CAPACITANCES
 (measured without external shield)

	min.	avg.	max.	
Plate to all other elements except grid No.1	3.6	4.2	4.8	μuF
Grid No.1 to all other elements except plate	4.4	5.0	5.6	μuF
Plate to grid No.1		0.0035		μuF

¹⁾Heater voltage variations of 20% are allowed during short periods.

MAXIMUM RATINGS (absolute limits)

Plate voltage	330 volts max.
Plate voltage without current	600 volts max.
Grid No.2 voltage	see curve
Grid No.2 voltage without current	600 volts max.
Negative grid No.1 voltage	55 volts max.
Positive grid No.1 voltage	0 volt max.
Plate dissipation	2.6 watts max.
Grid No.2 dissipation	see curve
Cathode current	15 mamps max.
Heater to cathode voltage	100 volts max.
Grid No.1 circuit resistance	
fixed bias	0.5 megohm max.
automatic bias	1 megohm max.
Bulb temperature	140 °C max. ²⁾

TYPICAL CHARACTERISTICS ³⁾

Heater voltage	6.3 volts
Plate supply voltage	250 volts
Grid No.3 voltage	0 volt
Grid No.2 supply voltage	150 volts
Cathode resistor	100 ohms
Plate current	7.4 mamps
Grid No.2 current	2.9 mamps
Transconductance	4600 micromhos
Amplification factor of grid No.2 with respect to grid No.1	48
Plate resistance	1.3 megohm
Equivalent noise resistance	2500 ohms
Plate current at grid No.1 voltage = -6.5 volts	10 microamps

²⁾ Tube life and reliability of performance will be enhanced by operation at lower temperature

³⁾ Circuit operation with cathode bias is recommended.

⁴⁾ At heater voltage = 5.0 volts the typical value of transconductance will decrease to about 4000 micromhos.

CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

A. Measured at:

Heater voltage = 6.3 volts
 Plate supply voltage = 250 volts
 Grid No.3 voltage = 0 volt
 Grid No.2 supply voltage = 150 volts

	Range new tubes		Data indicating end point of life	
	min.	max.		
Heater current	142	158	142-158	mamps
Plate current (cathode resistor = 100 ohms)	5.4	9.4	4.6	mamps
Grid No.2 current (cathode resistor = 100 ohms)	2.2	3.6		mamps
Transconductance (cathode resistor = 100 ohms)	3500	5700	3200	micromhos
Plate current (grid No.1 voltage = -8.5 volts, plate series resistance = 0.25 megohm)		35		microamps
Grid No.1 current (cathode resistor = 100 ohms, grid No.1 supply voltage = -0.5 volt, grid No.1 series resistance = 0.5 megohm)		0.2	0.5	microamps

B. Measured at:

Heater voltage = 6.3 volts
 Heater to cathode voltage = 100 volts
 Series resistance = 1 megohm

Leakage current between heater and cathode		15	15	microamps
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C. Measured at:

Heater voltage = 6.3 volts
 Voltage between two
 arbitrary electrodes = 300 volts
 (is one of these electrodes the
 cathode than the polarity must
 be such that the cathode is
 positive)

Insulation resistance between two arbitrary electrodes	100		50	megohms
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LIFE EXPECTANCY

The life expectancy is 1000 hours under the following life test conditions

Heater voltage	=	6.3 volts
Plate supply voltage	=	250 volts
Grid No.3 voltage	=	0 volts
Grid No.2 supply voltage	=	150 volts
Cathode resistor	=	100 ohms
Grid No.1 circuit resistance	=	0.5 megohm
Heater cathode voltage (cathode negative)	=	135 volts ⁵⁾

SHOCK RESISTANCE ⁶⁾ about 500 g

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 positions of the tube.

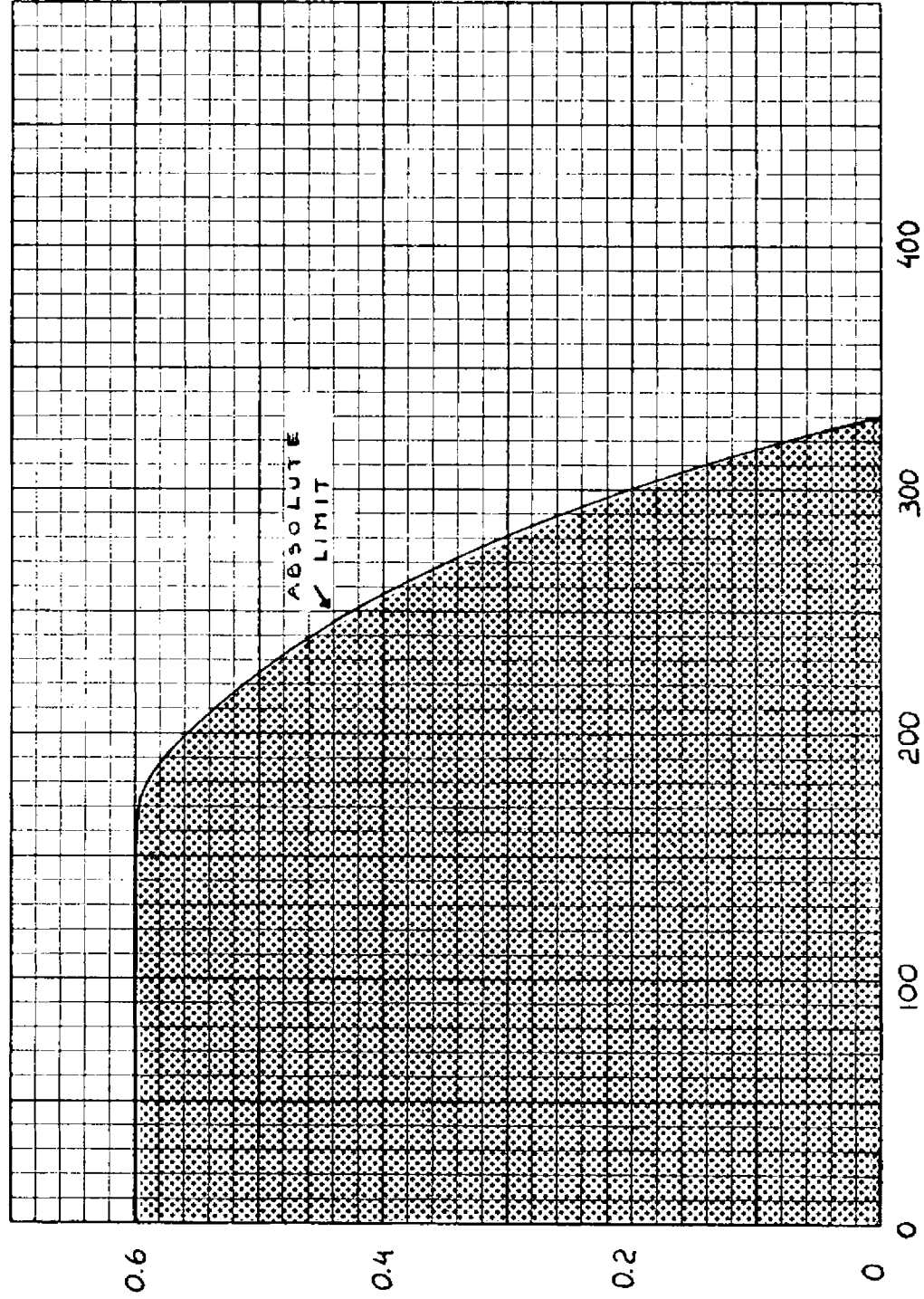
VIBRATION RESISTANCE ⁶⁾ 2.5 g

Vibrational forces for a period of 32 hours at a frequency of 25 c/s in each of 3 positions of the tube.

5) The value of 135 volts for the heater to cathode voltage should not be interpreted as a suitable operating condition.

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

GRID No 2 DISSIPATION (W)



GRID No 2 VOLTAGE (V)