

SPECIAL QUALITY, SHOCK AND VIBRATION RESISTANT TRIODE, nuvistor type

HEATING

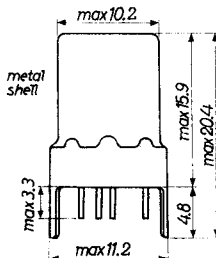
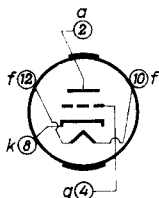
Indirect by A.C. or D.C.; parallel supply

Heater voltage $V_f = 6.3 \text{ V}$

Heater current $I_f = 135 \text{ mA}$

Dimensions in mm

Base: TWELVAR 5 pin



LIMITING VALUES (Absolute limits)

Anode voltage in cold condition	V_{a0}	= max. 330 V
Anode voltage	V_a	= max. 110 V
Anode dissipation	W_a	= max. 1 W
Negative grid voltage	$-V_g$	= max. 55 V
Peak positive grid voltage	$+V_{gp}$	= max. 2 V
Grid current	I_g	= max. 2 mA
External grid resistance with fixed bias	R_g	= max. 0.5 MΩ
External grid resistance with automatic bias.	R_g	= max. 1 MΩ
Cathode current	I_k	= max. 15 mA
Peak voltage between heater and cathode	V_{kfp}	= max. 100 V
Shell temperature	t_{bulb}	= max. 150 °C
Altitude		any

CHARACTERISTICS

Column I: Setting of the tube and average measuring results of new tubes

II: Characteristics range values for equipment design

Heater current	I	II
Heater voltage	$V_f = 6.3$	V
Heater current	$I_f = 135$	125-145 mA

CHARACTERISTICS (continued)

Capacitances

	I	II
Grid to all other elements except anode	$C_g = 4.2$	3.4-5.0 pF
Anode to all other elements except grid	$C_a = 1.7$	1.3-2.1 pF
Anode to grid	$C_{ag} = 0.9$	0.8-1.0 pF
Anode to cathode	$C_{ak} = 0.22$	0.16-0.28 pF
Cathode to heater	$C_{kh} = 1.3$	1.0-1.6 pF

Typical characteristics

	I	II
Heater voltage	$V_f = 6.3$	V
Anode supply voltage	$V_{ba} = 110$	V
Cathode resistor	$R_k = 150$	Ω
Anode current	$I_a = 7.0$	5.5-8.8 mA
Internal resistance	$R_i = 6.8$	k Ω
Amplification factor	$\mu = 64$	54-74
Mutual conductance	$S = 9.4$	7.9-10.9 mA/V ¹⁾

Cut-off voltage

	I	II
Heater voltage	$V_f = 6.3$	V
Anode voltage	$V_a = 110$	V
Anode current	$I_a = 10$	μA
Negative grid bias	$-V_g = 4$	V

Grid current

	I	II
Heater voltage	$V_f = 6.3$	V
Anode voltage	$V_a = 150$	V
Grid supply voltage	$V_{bg} = -1.7$	V
Grid resistor	$R_g = 0.5$	M Ω
Negative grid current	$-I_g =$	< 0.1 μA 2)

¹⁾ Mutual conductance at underheating ($V_f = 5.7$ V) = min.
6.9 mA/V

Decrease of mutual conductance by underheating
($V_f = 6.3$ V $\rightarrow$ 5.7 V) = max. 15 %

²⁾ Metal shell connected to earth

CHARACTERISTICS (continued)

Insulation

		I	II
Heater voltage	V_f	= 6.3	V
Voltage between heater and cathode (cathode positive)	V_{kf}	= 100	V
Current from cathode to heater	I_{kf}	=	< 5 μ A

		I	II
Heater voltage	V_f	= 6.3	V
Voltage between heater and cathode (cathode negative)	V_{kf}	= 100	V
Current from heater to cathode	I_{kf}	=	< 5 μ A

		I	II
Heater voltage	V_f	= 6.3	V
Voltage between grid and cathode + anode + metal shell	$V_{g-(a+k+s)}$	= 100	V
Insulation resistance between grid and cathode + anode + metal shell	$R_{g-(a+k+s)}$	=	> 1000 M Ω

		I	II
Heater voltage	V_f	= 6.3	V
Voltage between anode and cathode + grid + metal shell	$V_{a-(g+k+s)}$	= 300	V
Insulation resistance between anode and cathode + grid + metal shell	$R_{a-(g+k+s)}$	=	> 1000 M Ω

CHARACTERISTICS (continued)Vibrational noise output

		I	II
Heater voltage	$V_f =$	6.3	V
Anode supply voltage	$V_{ba} =$	110	V
Cathode resistor	$R_k =$	150	Ω
Cathode capacitor	$C_k =$	1000	μF
Anode resistor	$R_a =$	2	k Ω
Vibrational acceleration	$a =$	1	g
(Vibrational frequency	$f =$	50-3000	c/s
(Noise output	$V_o =$		< 35 mV
(Vibrational frequency	$f =$	3-6	kc/s
(Noise output	$V_o =$		< 60 mV
(Vibrational frequency	$f =$	6-15	kc/s
(Noise output	$V_o =$		< 500 mV

Shock resistance: 1000 g ¹⁾

20 shocks as produced by the NRL impact machine, lifting the hammer over an angle of 60°

Vibration resistance: 2.5 g ¹⁾

Vibrational acceleration of 2.5 g during 48 hours at a frequency of 60 c/s

¹⁾ The specified conditions are test conditions for evaluation of the ruggedness of the tube and should not be interpreted as suitable operating conditions



	7895	
page	sheet	date
1	1	1962.07.07
2	2	1962.07.07
3	3	1962.07.07
4	4	1962.07.07
5	FP	1999.12.30