SHARP-CUTOFF TRIODE TYPES 2HQ5, 3HQ5, 4HQ5 AND 6HQ5

The 2HQ5, 3HQ5, 4HQ5 and 6HQ5 are sharp-cutoff, seven-pin miniature triode types designed particularly for service in V.H.F. television tuners as grounded cathode r-f amplifiers.

The 2HQ5, 3HQ5 and 4HQ5 have been designed for use in receivers which employ series connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When each is employed in this type of circuit with other tubes similarly designed having the same heater current rating, heater voltage surges across individual tubes are minimized inasmuch as heater warm-up characteristic is controlled.

ELECTRICAL

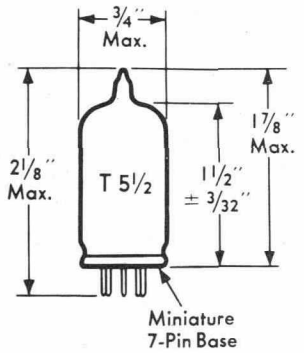
Heater Characteristics:	2HQ5	3HQ5	4HQ5	6HQ5	
Voltage (ac or dc)	2.4	3.0	4.2	6.3	Volts
Current	0.60	0.45	0.30	0.20	Ampere
Warm-up Time (Note 1)	11	11	11	–	Seconds

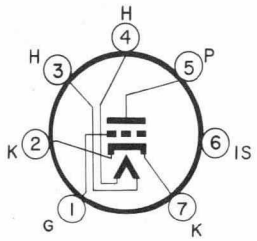
Direct Interelectrode Capacitance: (Shielded) (Note 2)

Grid 1 to Plate	0.52	pf
Input	5.0	pf
Output	3.5	pf
Heater to Cathode	2.5	pf

MECHANICAL

Cathode	Coated Unipotential
Bulb	T-5½
Base	Miniature 7-Pin (JEDEC E7-1)
Outline	5-2
Basing	7GM
Mounting Position	Any





7GM

RATINGS

Design Maximum Values

Plate Voltage	200 max.	Volts
Plate Dissipation	2.5 max.	Watts
Grid Voltage:		
Negative Value	50 max.	Volts
Cathode Current	22 max.	Ma.
Grid Circuit Resistance (Self Bias)	1.0 max.	Megohm

Heater Ratings:

Allowable Heater Voltage:	2HQ5	3HQ5	4HQ5	6HQ5		
Maximum	–	–	–	6.9	max.	Volts
Minimum	–	–	–	5.7	min.	Volts
Allowable Heater Current:						
Maximum	640	480	320	–	max.	Ma.
Minimum	560	420	280	–	Min.	Ma.
Heater-Cathode Voltage:						
Heater Negative with Respect to Cathode DC	100	100	100	100	max.	Volts
Heater Positive with Respect to Cathode DC	100	100	100	100	max.	Volts

CHARACTERISTICS & TYPICAL OPERATION:

Plate Voltage	135	Volts
Grid Voltage	–1	Volts
Plate Resistance	5400	Ohms
Transconductance	15000	μmhos
Grid Cutoff Bias	See Note 3	
Plate Current	11.5	Ma.
Amplification Factor	78	–
Hot Input Resistance (Note 4)	275	Ohms
Hot Input Capacitance (Note 4)	11.2	pf
Noise Figure (Note 5)	4.7	db

NOTES

1. Heater Warm-up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three times rated heater voltage divided by rated heater current.
2. With JEDEC shield No. 316 connected to Pin 2.
3. Grid Volts for gm = 150 μmhos: –4.2
   Grid Volts for gm = 1500 μmhos: –2.5
4. Measured at 200 Mc. with plate at signal ground.
5. In a 200 Mc. noise-matched, optimized, neutralized, grounded-cathode triode amplifier stage.