SHARP-CUTOFF PENTODE TYPES 3BC5, 4BC5 AND 6BC5

The 3BC5, 4BC5 and 6BC5 are 7-pin miniature sharp-cutoff pentode types designed for service as high gain i-f or r-f amplifiers at frequencies up to 400 megacycles. They feature high transconductance and low grid 1-to-plate capacitance.

The 3BC5 and 4BC5 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 having the same heater current rating, heater voltage surges across individual tubes are minimized inasmuch as the heater warm-up characteristic is controlled.

ELECTRICAL

Cathode	Coated Unipotential			
Heater:	3BC5	4BC5	6BC5	
Voltage	3.15	4.2	6.3 ± 10%	Volts
Current	0.60 ± 6%	0.45 ± 6%	0.3	Ampere
Warm-Up Time (Note 1)	11	11	–	Seconds

Direct Interelectrode Capacitances:

	Unshielded		Shielded (Note 2)		
Pentode Connection:					
Grid 1 to Plate	0.03	max.	0.02	max.	pf
Input	6.5		6.6		pf
Output	1.8		2.6		pf
Triode Connection (Grid 2 connected to plate)					
Grid 1 to Plate	2.5		2.5		pf
Input	3.9		4.0		pf
Output	3.0		4.3		pf

MECHANICAL

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

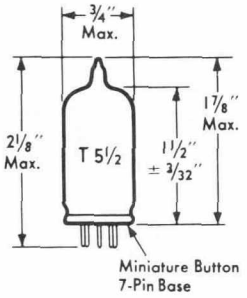
MAXIMUM RATINGS

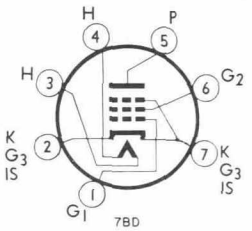
Design Maximum Values

Plate Voltage	330	max.	Volts
Grid 2 Supply Voltage	330	max.	Volts
Grid 2 Voltage	See Grid 2 Input Rating Curve		
Grid 1 Voltage:			
Positive Bias Value	0	max.	Volts
Plate Dissipation	2.3	max.	Watts
Grid 2 Input	0.55	max.	Watts
Heater-Cathode Voltage			
Heater Negative with Respect to Cathode			
Total DC + Peak	200	max.	Volts
Heater Positive with Respect to Cathode			
DC	100	max.	Volts
Total DC + Peak	200	max.	Volts

TYPICAL OPERATION AND CHARACTERISTICS

Plate Voltage	100	125	250	Volts
Grid 2 Voltage	100	125	150	Volts
Cathode Bias Resistor	180	100	180	Ohms
Plate Resistance (Approx.)	0.6	0.5	0.8	Megohm
Transconductance	4900	6100	5700	μmhos
Grid 1 Voltage (Approx.) for I_b = 10 μamp.	–5	–6	–8	Volts
Plate Current	4.7	8.0	7.5	Ma.
Grid 2 Current	1.4	2.4	2.1	Ma.





TRIODE CONNECTED (Note 3)

MAXIMUM RATINGS

Design Maximum Values

Plate Voltage	330	max.	Volts
Grid 1 Voltage:			
Positive Bias Value	0	max.	Volts
Plate Dissipation	2.9	max.	Watts
Peak Heater-Cathode Voltage			
Heater Negative with Respect to Cathode			
Total DC + Peak	200	max.	Volts
Heater Positive with Respect to Cathode			
DC	100	max.	Volts
Total DC + Peak	200	max.	Volts

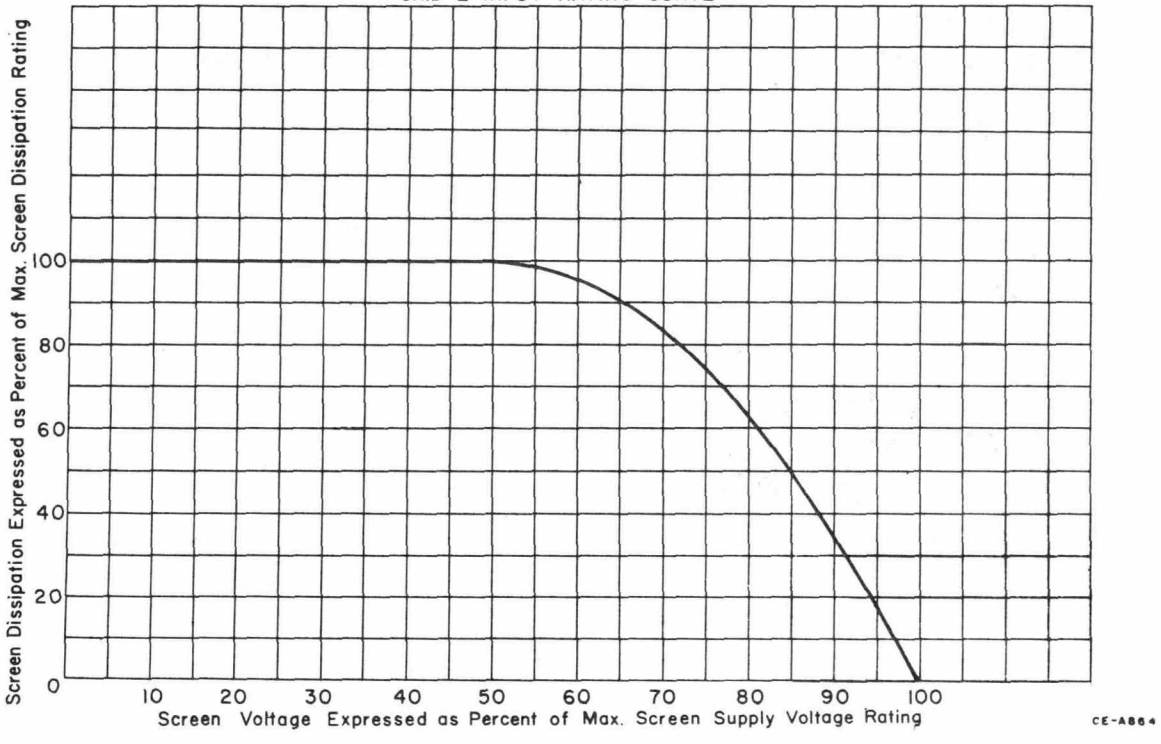
TYPICAL OPERATION AND CHARACTERISTICS

Plate Voltage	180	250	Volts
Cathode-Bias Resistor	330	820	Ohms
Amplification Factor	42	40	–
Plate Resistance (Approx.)	6000	9000	Ohms
Transconductance	6000	4400	μmhos
Plate Current	8	6	Ma.

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 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.
2. JEDEC Shield #315 connected to cathode.
3. Grid 2 connected to Plate.

GRID 2 INPUT RATING CURVE



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