



RECEIVING TUBES

JEDEC DATA JOINT ELECTRON DEVICE ENGINEERING COUNCIL COMMITTEE ON RECEIVING TUBES

JEDEC TYPES: 3BU8A, 6BU8A

TWIN PENTODE

The 3BU8A and 6BU8A are miniature multisection tubes which have separate plates and number three grids for the two sections, but common screen, number one grid and cathode. The tubes are intended for use as a combined sync separator-clipper and AGC tube in television receivers. They have an advantage over similar tubes of this type in that the section one grid three has a high positive current in the region below 50 Volts: Therefore, when section one is used as the sync separator-clipper, the tubes do not block, as is common with tubes of this type, when switching channels, especially from weak to strong, or when aircraft cause flutter, resulting in much faster sync locking action. The 3BU8A and 6BU8A are unilaterally interchangeable with the 3BU8 and 6BU8 respectively.

The 3BU8A is controlled for heater warm-up time for series string operation.

MECHANICAL DATA

Mounting Position	Any
Envelope	T-6 $\frac{1}{2}$ Glass
Base	E9-1, Small Button 9-Pin
Outline drawing	6-3
Maximum Diameter	7/8"
Maximum Overall length	2 5/8"
Maximum Seated Height	2 3/8"
Pin Connections	
Pin 1 - Cathode	Pin 6 - Grid #3(Section 2)
Pin 2 - Grid #2(Screen) and	Pin 7 - Grid #1
Internal Shield	Pin 8 - Plate (Section 1)
Pin 3 - Plate (Section 2)	Pin 9 - Grid #3(Section 1)
Pin 4 - Heater	
Pin 5 - Heater	

ELECTRICAL DATA

Cathode	Coated Unipotential	<u>3BU8A</u>	<u>6BU8A</u>
Heater Voltage (ac or dc)		3.15	6.3 Volts
Heater Current		600	300 Ma
Heater Warm-up Time		11	- Seconds

ELECTRICAL DATA -- Cont'dDirect Interelectrode Capacitances, approximate(Without external shield)

Grid #3 to Plate (Section 1).....	2.0 pf
Grid #3 to Plate(Section 2)	1.9 pf
Grid #1 to All	6.0 pf
Grid #3 to All (Section 1)	4.0 pf
Grid #3 to All (Section 2)	3.6 pf
Plate to All (Each Section)	3.0 pf
Grid #3(section 1)to Grid #3(Section 2).	0.015 pf Max.

MAXIMUM RATINGSDesign-Maximum Values

Plate Voltage, Each Section	300 Volts
Screen Voltage	150 Volts
Positive DC Grid-Number 3 Voltage, Each Section	3.0 Volts
Negative DC Grid-Number 3 Voltage, Each Section	50 Volts
Peak Positive Grid-Number 3 Voltage, Each Section	50 Volts
Negative DC Grid-Number 1 Voltage	50 Volts
Plate Dissipation, Each Section	1.1 Watts
Screen Dissipation	0.75 Watts
DC Cathode Current	12 Milliamperes
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	
DC Component	100 Volts
Total DC and Peak	200 Volts
Heater Negative with Respect to Cathode	
Total DC and Peak	200 Volts
Grid-Number 1 Circuit Resistance	0.5 Megohms
Grid-Number 3 Circuit Resistance, Each Section.....	0.5 Megohms

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur. To obtain satisfactory circuit performance, therefore, the equipment designer must establish the circuit design so that no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

CHARACTERISTICS AND TYPICAL OPERATIONAverage Characteristics, Both Sections Operating

Plate Voltage, Each Section	100	100	Volts
Screen Voltage	67.5	67.5	Volts
Grid-Number 3 Voltage, Each Section	-10	0	Volts
Grid-Number 1 Voltage	#	#	
Plate Current, Each Section		2.2	Milliamperes
Screen Current	6.5	3.3	Milliamperes
Cathode Current	6.6	7.8	Milliamperes

Average Characteristics, Each Section Separately with Plate and Grid Number 3 of Opposite Section Grounded

Plate Voltage	100	100	Volts
Screen Voltage	67.5	67.5	Volts
Grid-Number 3 Voltage	0	0	Volts
Grid-Number 1 Voltage	0	#	Volts
Grid-Number 3 Transconductance		180	Micromhos
Grid-Number 1 Transconductance	1500	...	Micromhos
Plate Current		2.2	Milliamperes
Grid-Number 3 Voltage, approximate Ib = 100 Microamperes		-4.5	Volts
Grid-Number 1 Voltage, approximate Ib = 100 Microamperes		-2.3	Volts

Average Positive Grid Three Characteristics (Section 1)

Eb = Eg2 = 67.5 Volts DC

Grid #1 current adjusted for 100 microamperes d.c.

Grid #3 Current for Eg3 = +5 Volts 400 μ AGrid #3 Current for Eg3 = +50 Volts 1000 μ A

- With grid current adjusted for 100 microamperes d-c.