

ENGINEERING DATA

CBS-HYTRON

TUBES AND SEMICONDUCTORS

A Division of Columbia Broadcasting System, Inc.
 Danvers, Massachusetts

CBS 3D21A-3D21B

BLOCKING OSCILLATOR AND PULSE MODULATOR

The 3D21A and 3D21B are for high-vacuum blocking oscillator and pulse modulator service. Satisfactory pulse operation is assured by many tests including the following performed on every tube: pulse grid, screen, and plate characteristics, high voltage pulse operation and high voltage plate current cutoff. These tubes are small in diameter and light in weight and use a regular octal socket.

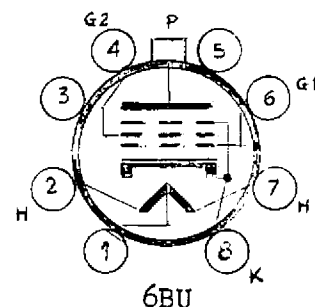
The 3D21A and 3D21B are recommended as the pulse modulator in applications requiring as high as 20kw power in the pulse. They are also suitable for use as deflection amplifiers, regulators and/or passing tubes in high-voltage power supplies.

MECHANICAL DATA

	3D21A	3D21B	
Bulb	ST-14	T-12	
Maximum diameter	1 13/16	1 9/16	inches
Maximum overall length	4 13/16	4 19/32	inches
Maximum seated height	4 1/4	4 1/16	inches
Basing	6BU		
Base	Medium shell octal 8-pin, B8-11		
Cap	Skirted miniature, C1-2		
Mounting position	Any		

PIN CONNECTIONS

Pin 1	Heater Center Tap
Pin 2	Heater
Pin 3	No Connection
Pin 4	Grid 2
Pin 5	No Connection
Pin 6	Grid 1
Pin 7	Heater
Pin 8	Cathode
Cap	Plate



ELECTRICAL DATA

HEATER CHARACTERISTICS

	Parallel	Series	
Heater voltage, a-c or d-c	6.3	12.6 $\pm 10\%$	volts
Heater current	1.7	0.85	amp
Peak heater-cathode voltage, max.	150	---	volts
Cathode preheating, min.	30	30	sec

MAXIMUM RATINGS (Absolute Maximum Values)*

Plate voltage /	3500	volts
Peak plate voltage including transient /	5000	volts
Grid 2 voltage /	850	volts
Negative grid 1 voltage, instantaneous /	-500	volts
Positive grid 1 voltage	+220	volts
Plate dissipation	15	watts
Grid 2 dissipation	3	watts
Grid 1 dissipation	0.5	watt

CHARACTERISTICS

Plate voltage	600	volts
Grid 2 voltage	300	volts
Grid 1 voltage	-30	volts
Plate current	30	ma
Grid 2 current	2.5	ma
Transconductance	5500	umhos

TYPICAL OPERATION

Plate voltage	3500	2500	1500	volts
Grid 2 voltage	800	800	800	volts
Grid 1 voltage	-150	-150	-150	volts
Signal voltage (peak above ground)	150	150	150	volts
Load resistance	450	305	160	ohms
Power output (approx.)	21	14	7	kw

NOTES:

* Pulse lengths of 10 usec. Total pulse length in any 240 usec period shall not exceed 12 usec.

~~/~~ Series resistance must be inserted in the power supply sufficient to limit the short-circuit current to less than 0.5 ampere.

~~/~~ With a screen potential not exceeding 400 Vdc and when no instantaneous voltage due to transient is present (essentially resistance plate load) a maximum plate potential of 4500Vdc may be used.