



12BT

POWER PENTODE— GATED-BEAM DISCRIMINATOR

6Z10/6J10**10Z10, 13Z10/13J10**

Duodecar types used as a combined limiter, discriminator, and audio power-output tube in FM radio and television receivers. Outlines section, 8C; require duodecar 12-contact socket. Types 10Z10, and 13Z10/13J10 are identical with type 6Z10/6J10 except for heater ratings.

	6Z10/6J10	10Z10	13Z10/13J10	
Heater Voltage (ac/dc)	6.3	10	13.2	volts
Heater Current	0.95	0.6	0.45	ampere
Heater Warm-up Time (Average)	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value	±200 max	±200 max	±200 max	volts
Average value	100 max	100 max	100 max	volts

Direct Interelectrode Capacitances:

Pentode Unit:

Grid No.1 to Grid No.3	0.009	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, Plate, and Internal Shield	4.4	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield	3.2	pF

Beam Power Unit:

Grid No.1 to Plate	0.22	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3	11	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3	7.5	pF

Gated-Beam Unit as Limiter and Discriminator

MAXIMUM RATINGS (Design-Maximum Values)

Plate Supply Voltage	330	volts
Grid-No.2 Voltage	330	volts
Grid-No.1 Voltage, Peak positive value	60	volts
Average Cathode Current	13	mA

CHARACTERISTICS

Plate Voltage	135	135	135	volts
Grid-No.3 (Suppressor-Grid) Voltage	4	4	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	280	280	volts
Grid-No.2 Voltage	75	—	—	volts
Grid No. 1 (Control-Grid) Voltage	0	0	0	volts
Grid-No.2 Resistor	—	33	33	kohms
Transconductance, Grid No.1 to Plate	—	—	360	μmhos
Transconductance, Grid No.3 to Plate	—	—	700	μmhos
Average Plate Current	—	5	—	mA
Grid-No.2 Current	4.5	—	—	mA
Grid No.1 Voltage (Approx.) for plate current of 20 μA	—	—	—4	volts
Grid No.3 Voltage (Approx.) for plate current of 20 μA	—	—	—4	volts

Pentode Unit as Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	275	volts
Grid-No.2 (Screen-Grid) Voltage	275	volts
Plate Dissipation	10	watts
Grid-No.2 Input	2	watts

TYPICAL OPERATION

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	—8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	mA
Maximum-Signal Plate Current	39	mA
Zero-Signal Grid-No.2 Current	3	mA
Maximum-Signal Grid-No.2 Current	13	mA
Plate Resistance (Approx.)	0.1	megohm
Transconductance	6500	μmhos
Load Resistance	5000	ohms
Total Harmonic Distortion (Approx.)	8.5	per cent
Maximum-Signal Power Output	4.2	watts

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.25	megohm
For cathode-bias operation	0.5	megohm