May 15, 1958

HORIZONTAL AMPLIFIER BEAM-POWER PENTODE TYPES 6DQ6, 6DQ6-A, 12DQ6, 12DQ6-A, 17DQ6 and 17DQ6-A

The 6DQ6, 6DQ6-A, 12DQ6, 12DQ6-A, 17DQ6 and 17DQ6-A are octal based beam-power pentode types designed for service as output amplifier in horizontal deflection circuits in television receivers. These types are characterized by high zero bias plate current, high plate current to grid 2 current ratio and high DC plate supply voltage ratings. These features with a plate dissipation rating of 15 watts make this tube especially desirable for its designed service.

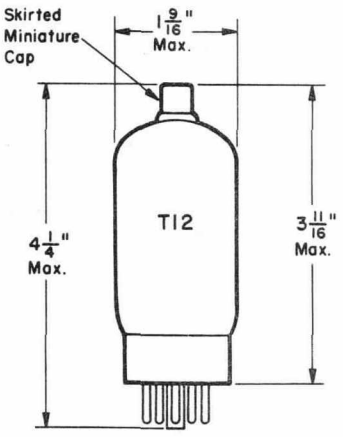
The 12DQ6, 12DQ6-A, 17DQ6 and 17DQ6-A have been designed for use in receivers which employ series connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When each is employed in this type of circuit with other tubes similarly designed having the same heater current ratings, heater voltage surges across individual tubes are minimized inasmuch as heater warm-up characteristic is controlled.

ELECTRICAL:

Cathode			Coated Unipotential	
Filament:	6DQ6 6DQ6-A	12DQ6 12DQ6-A	17DQ6 17DQ6-A	
Voltage (ac or dc)	6.3	12.6	16.8	Volts
Current	1.20	0.60 ± 6%	0.45 ± 6%	Ampere
Warm-up Time+	--	11	11	Seconds
Direct Interelectrode Capacitances (Unshielded):				
Grid to Plate			.55	uuf
Input			15.0	uuf
Output			7.0	uuf

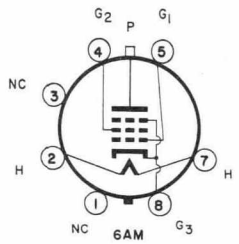
MECHANICAL:

Bulb	T-12
Base	Short Shell Octal
Basing	6AM
Top Cap	C1-3, Skirted Miniature
Mounting Position	Any



MAXIMUM RATINGS:

Design Center Values	6DQ6 6DQ6-A 12DQ6 12DQ6-A 17DQ6 17DQ6-A		
D.C. Plate Supply Voltage (Boost + D.C. Power Supply)	550	700	max. Volts
Peak Positive Plate Voltage	6000	6000	abs. max. Volts
Peak Negative Pulse Plate Voltage	1375	1375	max. Volts
Plate Dissipation▲	15	15	max. Watts
Peak Negative Grid 1 Voltage	300	300	max. Volts
D.C. Grid 2 Voltage	175	200	max. Volts
Grid 2 Dissipation	2.5	3	max. Watts
Average Cathode Current	120	140	max. Ma.
Peak Cathode Current	440	440	max. Ma.
Grid 1 Circuit Resistance♦	0.47	1.0	max. Megohm
Bulb Temperature (At Hottest Point)	220	220	max. °C
Heater-Cathode Voltage:			
Heater Negative with Respect to Cathode Total DC + Peak	200	200	max. Volts
Heater Positive with Respect to Cathode DC Component	100	100	max. Volts
Total DC + Peak	200	200	max. Volts



AVERAGE CHARACTERISTICS

PENTODE OPERATION

	6DQ6 12DQ6 17DQ6	6DQ6-A 12DQ6-A 17DQ6-A	
Plate Voltage	250	250	Volts
Grid 2 Voltage	150	150	Volts
Grid 1 Voltage	-22.5	-22.5	Volts
Plate Current	75	75	Ma.
Grid 2 Current	2.4	2.4	Ma.
Transconductance	6000	6600	umhos
Plate Resistance	20000	20000	Ohms

ZERO BIAS

Plate Voltage□	60	60	Volts
Grid 2 Voltage□	150	150	Volts
Plate Current⊕	300	300	Ma.
Grid 2 Current⊕	27	27	Ma.

CUTOFF

Plate Voltage	250	250	Volts
Grid 2 Voltage	150	150	Volts
Plate Current	1.0	1.0	Ma.
Grid 1 Voltage (Approx.)	-50	-46	Volts

TRIODE AMPLIFICATION FACTOR

Plate Voltage	150	150	Volts
Grid 2 Voltage	150	150	Volts
Grid 1 Voltage	-22.5	-22.5	Volts
Amplification Factor	4.1	4.1	

♦ For operation in a 525-line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcasting Stations; Federal Communications Commission." The duty cycle of the voltage pulse not to exceed 15% of the scanning cycle.

▲ In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

+ 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

♦ Using grid-leak bias

□ Applied for short interval (maximum of 2 seconds) so as not to damage tube.

⊕ These values can be measured by a method involving a recurrent waveform that such the plate and grid 2 dissipation will be kept within ratings to prevent damage to the tube.