

HYTRON Engineering NEWS RELEASE

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HYTRON TYPE 5812 INSTANT-HEATING R-F BEAM PENTODE

The 5812 is an instant-heating, 10-watt, miniature beam-pentode power tube for use in r-f and a-f service. Its versatility permits its use in all stages, r-f and a-f, of an entire low-power transmitter. The low plate voltage requirement makes it especially adaptable to portable and mobile applications. In this type of service its instant-heating filament can be turned off during transmitting standby periods. The 5812 provides significant power savings in portable and mobile receivers as an a-f output tube which is turned on only during active reception periods by a signal-actuated relay. Thus a tremendous saving in battery drain (over that possible with cathode-type tubes) can be gained when the transmitting or receiving time is a small percentage of the total time. The 5812 in properly designed circuits requires no neutralization at frequencies up to 165 megacycles and can be used at full ratings at that frequency.

The 5812 has been designed and constructed in accordance with transmitting tube practices, and the characteristics in both the negative and positive grid regions are carefully controlled by suitable tests on each tube. All ratings are for continuous commercial service (CCS).

GENERAL CHARACTERISTICS

Filament	center-tapped oxide-coated
Potential, a-c or d-c	6.0±10% volts
Current	0.65 ampere
Heating time (note 1)	2 approx. seconds
Average amplification factor (G1 to G2)	5.5
Direct interelectrode capacitances (measured without shield)	
Grid to plate (maximum)	0.2 uuf
Input	9.0 uuf
Output	7.4 uuf
Bulb	Miniature T-5- $\frac{1}{2}$
Maximum over-all length	2-5/8 inches
Effective bulb length	2-3/32 inches
Bulb diameter	3/4 inch
Weight	0.5 ounce
Base	Miniature 7-pin button
Mounting position	filament plane must be vertical

For further information write Commercial Engineering Department, Hytron Radio & Electronics Corp.,
 Salem, Mass., or telephone Salem 2260

HYTRON RADIO AND ELECTRONICS CORPORATION

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General characteristics cont'd.

Terminal Connections:

Pin 1:	Control grid	Pin 5:	Plate
Pin 2:	Beam plates *	Pin 6:	Screen grid
Pin 3:	Filament	Pin 7:	Filament c.t.
Pin 4:	Filament		

AVERAGE STATIC CHARACTERISTICS

Filament potential	6.0 d-c	volts
D-c plate potential	250	volts
D-c screen grid potential	250	volts
D-c control grid bias	-24.5	volts
D-c plate current	40	ma
D-c screen current	1.8	ma
Plate resistance	63,000	ohms
Transconductance	43,000 ~~μ~~	umhos

R-F POWER AMPLIFIER AND OSCILLATOR

Class C Telegraph and Frequency Modulation

Key-Down Conditions Per Tube Without Amplitude Modulation

Maximum ratings - absolute values

D-c plate potential	300 max	volts
D-c screen grid potential	250 max	volts
D-c control grid bias	-150 max	volts
Control grid resistor	100,000 max	ohms
D-c plate current	60 max	ma
D-c control grid current	3 max	ma
Peak positive r-f control grid potential	30 max	volts
D-c plate input power	18 max	watts
D-c screen input power	2.5 max	watts
Plate dissipation	10 max	watts

Typical Operation and Average Characteristics (160 megacycles)

D-c plate potential	300	volts
D-c screen grid potential	200	volts
D-c control grid bias # (a)	-45	volts
(b)	60,000	ohms
Peak r-f control grid potential	---	volts
D-c plate current	55	ma
D-c screen grid current	3	ma
D-c control grid current	0.75	ma
Control grid driving power (approx.)	1.5	watts
Useful power output (approx.)	7	watts

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Note 1. The plate supply must be switched off before or simultaneously with the filament in all applications. When the 5812 is used as an r-f driver for a tube having a thoriated-tungsten filament, provision must be made so that the driven tube (s) is not operated with plate and screen potentials applied but without a bias voltage during the time interval required for the 5812 to come up to operating temperature.

* Beam plates should be connected directly to ground or filament center tap. In vhf circuit, the center tap should be by-passed to or grounded to a common point to provide lowest effective filament inductance.

Obtained from (a) fixed supply (b) control-grid resistor (c) cathode resistor or by a combination of these methods.

Tube conservation: When the standby period is generally less than 15 minutes, additional tube life can be obtained by reducing the filament potential to 80% of the nominal operating voltage. For longer standby periods, the filament should be turned off.