

**12E12**  
**PULSE MODULATOR TETRODE**  
**TENTATIVE**

**GENERAL**

The 12E12 is a Pulse Modulator Tetrode, having a maximum anode dissipation of 60 watts, and a maximum peak anode current of 15 amps. It has an indirectly heated cathode, and is intended for use in Radar equipment.

**RATING**

Heater Voltage	(volts)	$V_h$	26
Heater Current	(amps)	$I_h$	1.6
Maximum Anode Voltage	(kV)	$V_a(\text{max})$	11.0
Maximum Screen Grid Operating Voltage	(kV)	$V_{g2}(\text{max})$	1.25
Maximum Screen Grid Voltage ( $I_a = 0$ )	(kV)	$V_{g2}(\text{max})$	1.35
Maximum Control Grid Voltage (Negative)	(volts)	$-V_{g1}(\text{max})$	-1,000
Maximum Control Grid Voltage (Positive Peak)	(volts)	$+V_{g1}(\text{pk})\text{max.}$	300
Maximum Anode Dissipation (watts)		$P_a(\text{max})$	60
Maximum Screen Dissipation (watts)		$P_{g2}(\text{max})$	8
Maximum Grid 1 Dissipation (watts)		$P_{g1}(\text{max})$	3
Maximum Peak Anode Current	(amps)	$I_a(\text{pk})\text{max.}$	15†
Maximum Grid 1 Series Resistance	(k $\Omega$ )	$R_{g1}$	100
Minimum Screen Grid Series Resistance	(k $\Omega$ )	$R_{g2}$	20*

\* The Screen Grid should be decoupled to earth with a condenser.

† For a duty cycle not greater than 0.001. With peak currents in excess of 5 amps the product of peak current in amps and pulse duration in microseconds should not exceed 30.

*Rating (Continued Overleaf)*

**12E12**  
**PULSE MODULATOR TETRODE**  
**TENTATIVE**

The current-time product limit still applies for currents less than 5 amps, the maximum duty cycle then being limited by the anode dissipation.

The valve should not operate for longer than 5  $\mu$ s in any 100  $\mu$ s period.

A minimum cathode heating time of three minutes should elapse before any cathode current is drawn.

All Maximum Ratings are Absolute values not Design Centres.

**INTER-ELECTRODE CAPACITANCES (pF)**

Anode/Grid 1 (max)	$c_{a-g1}$	2.0
Cathode/Grid 1	$c_{g-k}$	37
Anode/Cathode	$c_{a-k}$	7.5

**DIMENSIONS**

Maximum Overall Length	(mm)	150
Maximum Diameter	(mm)	65
Maximum Seated Height	(mm)	142
Approximate Nett Weight	(ozs)	5 $\frac{3}{4}$
Approximate Packed Weight	(ozs)	24

**MOUNTING POSITION**—Vertical preferred, but if horizontal the grid plane should be vertical.

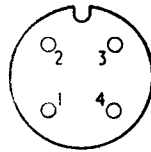
**TYPICAL OPERATION**—As Series Modulator.

Anode Voltage Supply	(kV)	$V_{a(b)}$	9.5
Screen Voltage	(kV)	$V_{g2}$	1.2
Grid No. 1 Bias	(volts)	$-V_{g1}$	—800
Grid No. 1 Pulse	(volts)	$+V_{g1}$	1,020
Anode Current Pulse	(amps)	$I_a(pk)$	10
Anode Load	(ohms)	$R_a$	800
Peak Pulse Power Input	(kW)	$P_{in(pk)}$	100
Peak Pulse Power Output	(kW)	$P_{out(pk)}$	80
Output Voltage	(kV)	$V_{out}$	8
Pulse Duration	( $\mu$ secs)	$t_p$	2
Pulse Repetition Frequency	(p/s)	P.R.F.	500

**12E12**  
**PULSE MODULATOR TETRODE**  
**TENTATIVE**

TOP CAP—CT3

BASE—B4A

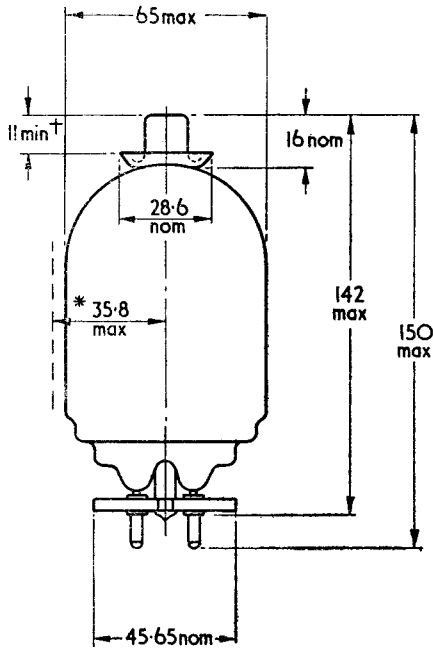


Viewed from free end of pins

**CONNECTIONS**

Pin 1	Heater	<b>h</b>
Pin 2	Screen Grid	<b>g2</b>
Pin 3	Control Grid	<b>g1</b>
Pin 4	Heater, Cathode	<b>h,k</b>
Top Cap	Anode	<b>a</b>

**12E12**  
**PULSE MODULATOR TETRODE**  
**TENTATIVE**



A-F&amp;N1-98-1

All Dimensions in mm.

\* Eccentricity with respect to centre line of base.

† Straight side of top cap.