

**TUNG-SOL**

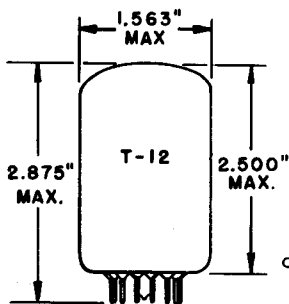
DIODE-PENTODE

COMPACTRON

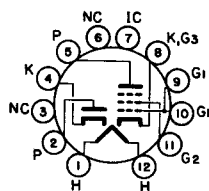
HIGH-PERVEANCE

DIODE  
AND BEAM POWER PENTODE  
FOR  
TELEVISION APPLICATIONS

COATED UNIPOTENTIAL CATHODE  
ANY MOUNTING POSITION



GLASS BULB  
BUTTON 12 PIN  
BASE E12-74  
OUTLINE DRAWING  
JEDEC 12-56



BOTTOM VIEW  
BASING DIAGRAM  
JEDEC 12 FN  
SOCKET TERMINALS  
3,6,7 SHOULD NOT  
BE USED AS TIE POINTS

THE 33GY7 IS A HIGH-PERVEANCE DIODE AND A BEAM-POWER PENTODE IN THE T-12 COMPACTRON CONSTRUCTION. IT IS DESIGNED FOR SERVICE AS THE DAMPING DIODE AND THE PENTODE AS THE HORIZONTAL-DEFLECTION AMPLIFIER IN TELEVISION RECEIVERS.

**DIRECT INTERELECTRODE CAPACITANCES**  
WITHOUT EXTERNAL SHIELD

**DIODE SECTION**

CATHODE TO PLATE AND HEATER: K TO ( P + H )	8.5	pf
PLATE TO CATHODE AND HEATER: P TO ( K + H )	5.5	pf
HEATER TO CATHODE: ( H TO K )	3.2	pf

**PENTODE SECTION**

GRID 1 TO PLATE: ( G1 TO P )	0.2	pf
INPUT: G1 TO ( H + K + G2 + G3 )	17	pf
OUTPUT: P TO ( H + K + G2 + G3 )	7.0	pf

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**HEATER CHARACTERISTICS AND RATINGS**

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	33.6 VOLTS	450	MA.
HEATER WARM-UP TIME		11	SECONDS
LIMITS OF SUPPLIED CURRENT		450 ± 30	MA.
HEATER-CATHODE VOLTAGE	DIODE SECTION	PENTODE SECTION	
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC COMPONENT	100	100	VOLTS
TOTAL DC AND PEAK	200	200	VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE			
DC COMPONENT	400		VOLTS
TOTAL DC AND PEAK	4,200	200	VOLTS

**MAXIMUM RATINGS**

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

BULB TEMPERATURE AT HOTTEST POINT		200	° C
	DIODE SECTION		
PEAK INVERSE PLATE VOLTAGE		4,200	VOLTS
PLATE DISSIPATION <sup>B</sup>		3.8	WATTS
STEADY-STATE PEAK PLATE CURRENT		810	MA.
DC OUTPUT CURRENT		135	MA.
	PENTODE SECTION		
DC PLATE-SUPPLY VOLTAGE (BOOST + DC POWER SUPPLY)		400	VOLTS
PEAK POSITIVE PULSE PLATE VOLTAGE		5,000	VOLTS
PEAK NEGATIVE PULSE PLATE VOLTAGE		0	VOLTS
GRID 2 VOLTS		150	VOLTS
NEGATIVE DC GRID 1 VOLTAGE		55	VOLTS
PEAK NEGATIVE GRID 1 VOLTAGE		330	VOLTS
PLATE DISSIPATION		9.0	WATTS
GRID 2 DISSIPATION		3.0	WATTS
DC CATHODE CURRENT		155	MA.
PEAK CATHODE CURRENT		540	MA.
GRID 1 CIRCUIT RESISTANCE		1.0	MEGOHMS

A- FOR OPERATION IN A 525-LINE, 30-FRAME TELEVISION SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE CONCERNING TELEVISION BROADCAST STATIONS," FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE MUST NOT EXCEED 15 PERCENT OF ONE SCANNING CYCLE.

B- 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.

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AVERAGE CHARACTERISTICS  
PENTODE SECTION

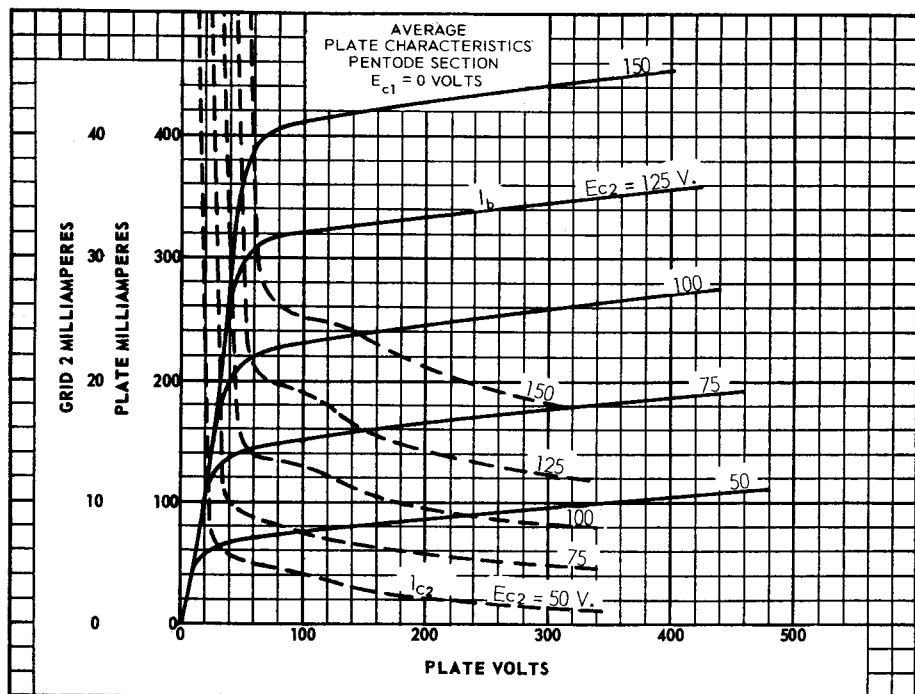
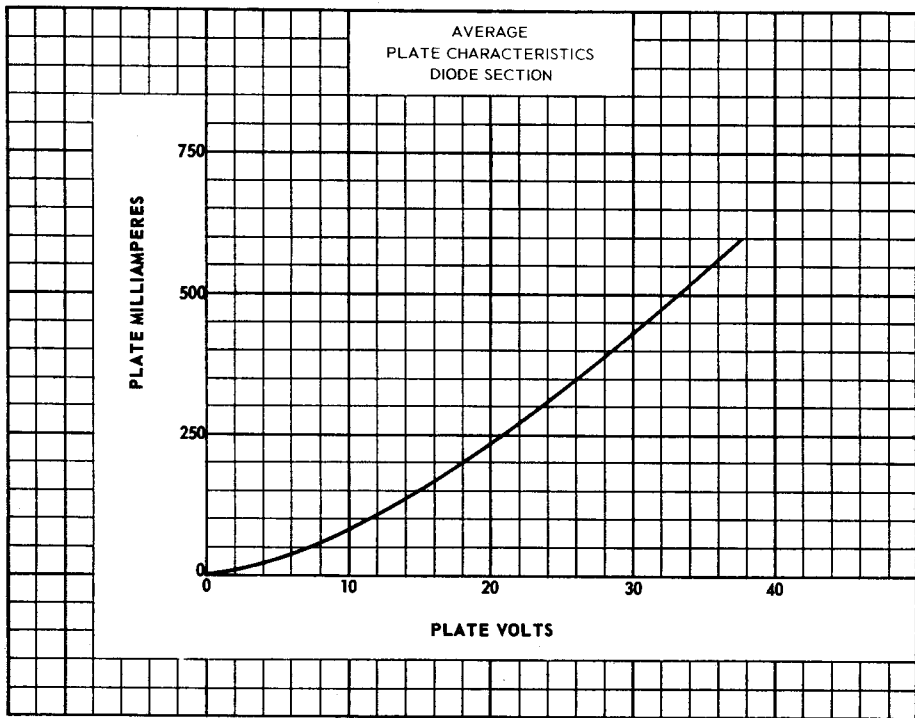
PLATE VOLTAGE	5,000	60	130	VOLTS
GRID 2 VOLTAGE	130	130	130	VOLTS
GRID 1 VOLTAGE	-	0 <sup>C</sup>	-22.5	VOLTS
PLATE CURRENT	-	320	48	MA.
GRID 2 CURRENT	-	22	2.9	MA.
TRANSCONDUCTANCE	-	-	6,500	$\mu$ MHOS
PLATE RESISTANCE	(Approx.) -	-	10,000	OHMS
GRID 1 VOLTAGE FOR $I_b = 1.0$ MA. (Approx.)	-80	-	-40	VOLTS
TRIODE AMPLIFICATION FACTOR <sup>D</sup>	-	-	4.0	

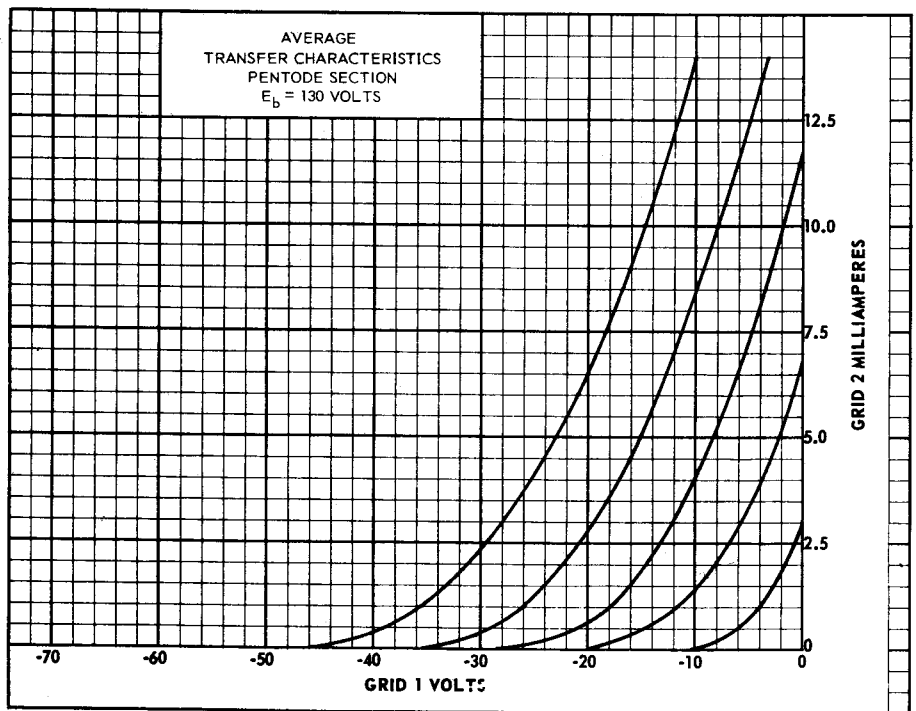
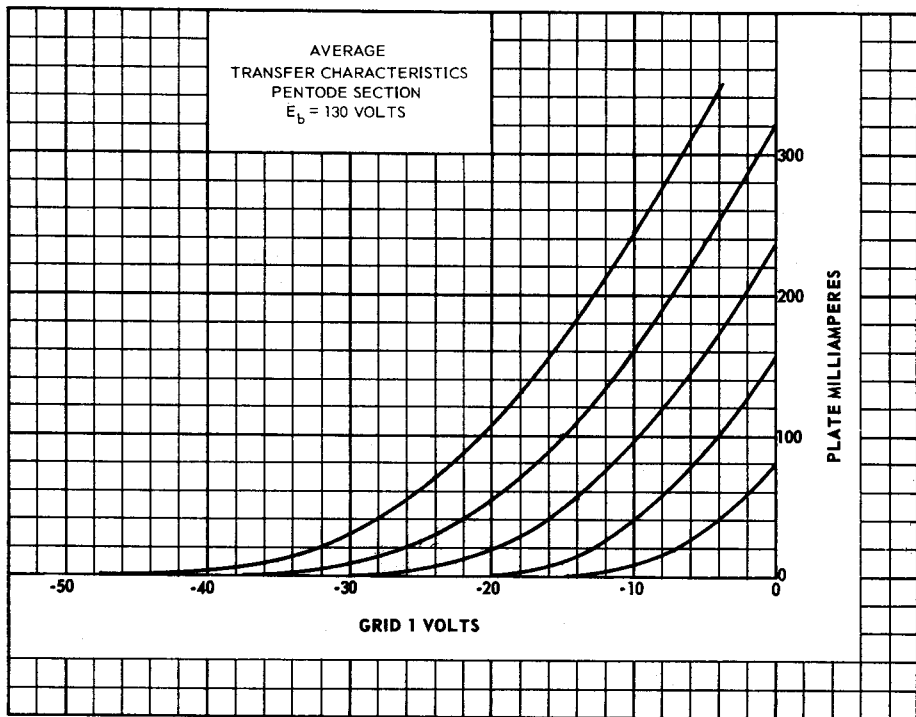
## DIODE SECTION

TUBE VOLTAGE DROP FOR $I_b = 250$ MA.			21	VOLTS
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C- APPLIED FOR SHORT INTERVAL ( TWO SECONDS MAXIMUM ) SO AS NOT TO DAMAGE TUBE.

D- TRIODE CONNECTION ( GRID 2 TIED TO PLATE ) WITH  $E_b = E_{c2} = 130$  VOLTS AND  $E_{c1} = -22.5$  VOLTS.





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