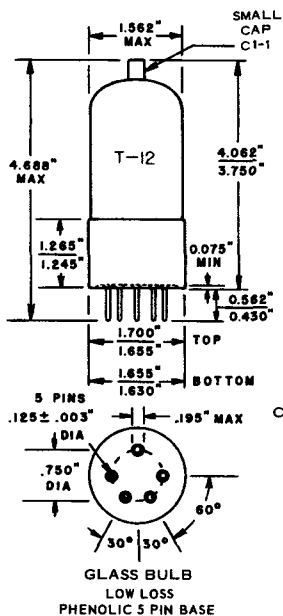


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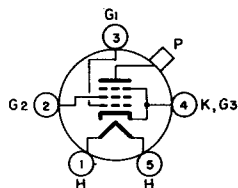


PENTODE

BEAM POWER

BEAM POWER PENTODE
FOR
AUDIO AND RF
AMPLIFIER APPLICATIONS

COATED UNIPOTENTIAL CATHODE
ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC SAW

THE 5933 IS A BEAM POWER PENTODE FOR AUDIO AND RF AMPLIFIER APPLICATIONS CONTAINED IN A T-12 ENVELOPE. IT IS INTENDED FOR APPLICATIONS WHERE CONDITIONS OF SEVERE SHOCK, VIBRATION, HIGH TEMPERATURE AND HIGH ALTITUDE PREVAIL.

DIRECT INTERELECTRODE CAPACITANCES

GRID 1 TO PLATE-SHIELD
INPUT-UNSHIELDED
OUTPUT-UNSHIELDED

MAX.	0.2	pf
	11	pf
	7	pf

HEATER CHARACTERISTICS AND RATINGS

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	6.3 VOLTS	900	MA.
LIMITS OF APPLIED VOLTAGE	6.3 ± 0.3		VOLTS
HEATER CATHODE VOLTAGE	135		VOLTS

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MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES-SEE STANDARD RS-239

DC PLATE VOLTAGE (CLASS B, RF OR AF)	600	VOLTS
DC PLATE VOLTAGE (CLASS C, CONTINUOUS SERVICE)	600	VOLTS
DC PLATE VOLTAGE (CLASS C, AM TELEPHONY)	475	VOLTS
DC PLATE CURRENT (CLASS B, AF)	120	MA.
DC PLATE CURRENT (CLASS B, RF)	80	MA.
DC PLATE CURRENT (CLASS C, CONTINUOUS SERVICE)	100	MA.
DC PLATE CURRENT (CLASS C, AM TELEPHONY)	83	MA.
DC GRID 2 VOLTAGE	300	VOLTS
DC GRID 1 VOLTAGE (CLASS C)	-200	VOLTS
DC GRID 1 CURRENT (CLASS C CONTINUOUS SERVICE)	5	MA.
DC GRID 1 CURRENT (CLASS C, AM TELEPHONY)	5	MA.
PLATE DISSIPATION (CLASS B, RF OR AF)	25	WATTS
PLATE DISSIPATION (CLASS C, CONTINUOUS SERVICE)	25	WATTS
PLATE DISSIPATION (CLASS C, AM TELEPHONY)	16.5	WATTS
GRID 2 DISSIPATION (CLASS B, AF)	3.5	WATTS
GRID 2 DISSIPATION (CLASS B, RF)	2.5	WATTS
GRID 2 DISSIPATION (CLASS C, CONTINUOUS SERVICE)	3.5	WATTS
GRID 2 DISSIPATION (CLASS C, AM TELEPHONY)	2.5	WATTS
PLATE INPUT (CLASS B, AF)	60	WATTS
PLATE INPUT (CLASS B, RF)	37.5	WATTS
PLATE INPUT (CLASS C, CONTINUOUS SERVICE)	60	WATTS
PLATE INPUT (CLASS C, AM TELEPHONY)	40	WATTS
FREQUENCY FOR 100 % RATING	60	MC
FREQUENCY FOR 75% RATING (CLASS B, CLASS C GRID OR SUPPRESSOR MODULATED)	125	MC
FREQUENCY FOR 55% RATING (CLASS C, OR PLATE MODULATED)	125	MC
BULB TEMPERATURE	160	°C
ALTITUDE	80,000	FEET
IF ALTITUDE RATING IS EXCEEDED REDUCTION OF INSTANTANEOUS VOLTAGES (EF EXCLUDED) MAY BE REQUIRED.		

CHARACTERISTICS AND LIMITS

PLATE VOLTAGE	600	VOLTS
GRID 2 VOLTAGE	300	VOLTS
GRID 1 VOLTAGE	-29	VOLTS
PLATE CURRENT	36	MA.
GRID 2 CURRENT (MAX.)	4	MA.
GRID VOLTAGE FOR $I_b = 0.5$ MA. MAX.	-100	VOLTS
MINIMUM POWER OUTPUT AT 15 MC		
$E_{cc} = 200$ VOLTS DC; $I_b = 100$ MA.		
$I_c = 5-7$ MA.; $R_L = .01$ MEG	33	WATTS

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TUNG-SOL

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TYPICAL OPERATION

AUDIO AMPLIFIER OR MODULATOR (CLASS AB₂) - TWO TUBES

	CCS			ICAS	
PLATE VOLTAGE	400	500	600	750	VOLTS
GRID 2 VOLTAGE	300	300	300	300	VOLTS
GRID 1 VOLTAGE	-25	-29	-30	-32	VOLTS
PEAK GRID TO GRID SIGNAL VOLTAGE	78	86	78	92	VOLTS
PLATE CURRENT (ZERO SIGNAL)	90	72	60	52	MA.
PLATE CURRENT (MAXIMUM SIGNAL)	240	240	200	240	MA.
GRID 2 CURRENT (ZERO SIGNAL)	5	5	5	5	MA.
GRID 2 CURRENT (MAXIMUM SIGNAL)	10	10	10	10	MA.
LOAD RESISTANCE (PLATE TO PLATE)	3200	4240	6400	6950	OHMS
DRIVING POWER (MAXIMUM SIGNAL) APPROX.	0.2	0.2	0.1	0.2	WATT
POWER OUTPUT APPROX.	55	75	80	120	WATTS

RF POWER AMPLIFIER (CLASS B TELEPHONY)

SINGLE TUBE - 100% MODULATION OF DRIVER STAGE

PLATE VOLTAGE	400	500	600	750	VOLTS
GRID 2 VOLTAGE	250	250	250	300	VOLTS
GRID 1 VOLTAGE	-25	-25	-25	-35	VOLTS
PEAK SIGNAL VOLTAGE	30	30	20	27	VOLTS
PLATE CURRENT	75	75	62.5	60	MA.
GRID 2 CURRENT	4	4	3	3	MA.
GRID 1 CURRENT APPROX.	0	0	0	0	MA.
DRIVING POWER APPROX.	0.25	0.25	0.2	0.12	WATT
POWER OUTPUT APPROX.	9	12.5	12.5	15	WATTS

RF POWER AMPLIFIER (CLASS C TELEPHONY)

SINGLE TUBE - 100% PLATE MODULATION

PLATE VOLTAGE	325	400	475	600	VOLTS
GRID 2 VOLTAGE	225	225	225	275	VOLTS
GRID 2 DROPPING RESISTOR	20000	30000	50000	50000	OHMS
GRID 1 VOLTAGE	-75	-80	-85	-90	VOLTS
GRID LEAK RESISTOR	25000	22800	21300	22500	OHMS
PEAK SIGNAL VOLTAGE	90	95	110	115	VOLTS
PLATE CURRENT	80	80	83	100	MA.
GRID 2 CURRENT	5	5.75	5	6.5	MA.
GRID CURRENT APPROX.	3	3.5	4	4	MA.
DRIVING POWER APPROX.	0.25	0.3	0.4	0.4	WATT
POWER OUTPUT APPROX.	17.5	22.5	27.5	42.5	WATTS

RF POWER AMPLIFIER OR OSCILLATOR (CLASS C TELEGRAPHY)

SINGLE TUBE KEY DOWN UNMODULATED CONDITION

PLATE VOLTAGE	400	500	600	750	VOLTS
GRID 2 VOLTAGE	250	250	250	250	VOLTS
GRID 2 DROPPING RESISTOR	20000	42000	50000	85000	OHMS
GRID 1 VOLTAGE	-45	-45	-45	-45	VOLTS
PEAK SIGNAL VOLTAGE	65	65	65	65	VOLTS
PLATE CURRENT	100	100	100	100	MA.
GRID 2 CURRENT	7.5	6.0	7.0	6.0	MA.
GRID CURRENT APPROX.	3.5	3.5	3.5	3.5	MA.
DRIVING POWER APPROX.	0.2	0.2	0.2	0.2	WATT
POWER OUTPUT APPROX.	25	30	40	50	WATTS