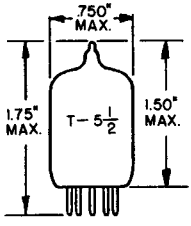
TUNG-SOL

PENTODE

MINIATURE TYPE

RUGGEDIZED FOR MILITARY

AND INDUSTRIAL APPLICATIONS

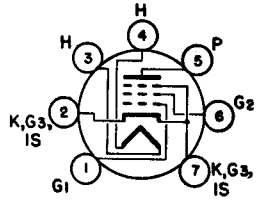


GLASS BULB

MINIATURE BUTTON
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-1

COATED UNIPOTENTIAL CATHODE

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM
JEDEC 7BD

THE 6968 IS A WIDE-BAND HIGH-FREQUENCY AMPLIFIER IN THE 7 PIN MINIATURE CONSTRUCTION. THE DESIGN OF THE HEATER CATHODE PERMITS INTERMITTENT OPERATION WITH LONG PERIODS OF CUTOFF IN ON-OFF CONTROL APPLICATIONS WITHOUT IMPAIRMENT TO EMISSION. THE ELECTRICAL CHARACTERISTICS OF THE 6968 ARE SIMILAR TO THOSE OF THE 6AK5.

DIRECT INTERELECTRODE CAPACITANCES

WITH SHIELD 316 CONNECTED TO CATHODE

GRID TO PLATE: G1 TO P, MAX.	0.02	pf
INPUT: G1 TO K+H+G2+G3+I.S.	4.0	pf
OUTPUT: P TO K+H+G2+G3+I.S.	2.85	pf

HEATER CHARACTERISTICS AND RATINGS

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	6.3	VOLTS	175	MA.
HEATER SUPPLY LIMITS:				
VOLTAGE/OPERATION			6.3 ± 0.6	VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:				
HEATER NEGATIVE WITH RESPECT TO CATHODE			135	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			135	VOLTS

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MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

PLATE VOLTAGE	200	VOLTS
GRID 2 VOLTAGE	155	VOLTS
GRID 1 VOLTAGE, NEGATIVE, DC	50	VOLTS
GRID 1 VOLTAGE, POSITIVE, DC	0	VOLTS
PLATE DISSIPATION	1.65	WATTS
GRID 2 DISSIPATION	0.55	WATT
CATHODE CURRENT, DC	20	MA.
GRID 1 CURRENT, DC	1.0	MA.
GRID 1 CIRCUIT RESISTANCE	0.1	MEGOHM
BULB TEMPERATURE AT HOTTEST POINT	165	°C
ALTITUDE[A]	60000	FEET

[A] INCREASE IN ALTITUDE OVER THIS VALUE MAY REQUIRE A DECREASE IN INSTANTANEOUS VOLTAGES (Ef EXCEPTED)

CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

CLASS A AMPLIFIER

	MIN.	AVG.	MAX.	
PLATE VOLTAGE		120		VOLTS
GRID 2 (SCREEN) VOLTAGE		120		VOLTS
GRID 1 (CONTROL-GRID) VOLTAGE		−2.0		VOLTS
TRANSCONDUCTANCE (1)	3800	5000	6200	μMHOS
PLATE CURRENT	5.0	7.5	11	MA.
GRID 2 CURRENT	0.8	2.5	4.0	MA.
GRID 1 VOLTAGE (APPROX.) FOR Ib = 10 μA.	------	−8.5	------	VOLTS
TRANSCONDUCTANCE PERCENTAGE CHANGE WITH Ef = 5.7 V. $\frac{\Delta Gm}{Gm\ (1)} \times 100$			15	PERCENT
CHARACTERISTICS WITH EF=6.3 VOLTS, Eb = Ec2 = 120 VOLTS				
PLATE CURRENT CUTOFF, Ec1 = −10V AND R_L = 0.1 MEG.	------	------	200	μA
PLATE CURRENT CUTOFF, Ec1 = − 5.5 V	5.0	------	200	μA
NEGATIVE GRID 1 CURRENT, Ecc1 = −2.0 V, Rg1 = 0.5 MEG.	0	------	0.1	μA
GRID 1 EMISSION CURRENT Ef = 7.5 V, Ecc1 = −45V, Rg1 = 0.1 MEG.	------	------	−0.5	μA.
TRIODE CONNECTED (GRID 2 TIED TO PLATE)[B]				
PLATE VOLTAGE	------	150	------	VOLTS
MAXIMUM PLATE CURRENT (Ec1 = −15.0 V)	------	------	100	μA
MINIMUM PLATE CURRENT (Ec1 = −7.0 V)	250	------	------	μA.

[B] MEASUREMENT OF CURRENT IN CATHODE CIRCUIT

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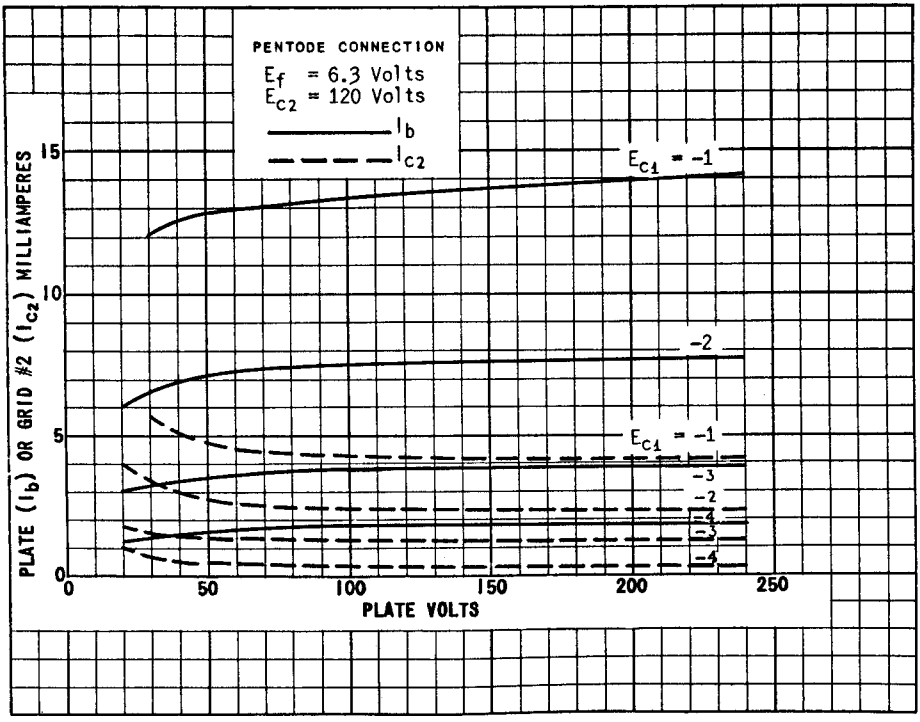
SPECIAL TESTS AND RATINGS

VIBRATION NOISE OUTPUT VOLTAGE, RMS (MIL-E-1C 4.9.19.1)
SHOCK RATING
FATIGUE RATING



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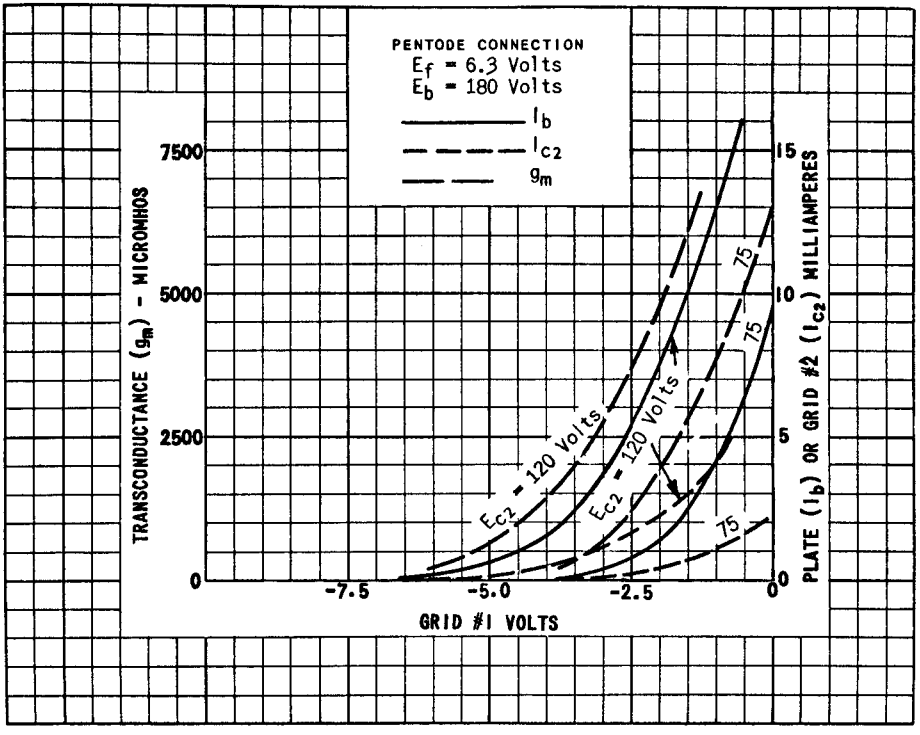
PENTODE CONNECTION
E_f = 6.3 Volts
E_b = 180 Volts
I_b
I_{c2}
g_m
TRANSCONDUCTANCE (g_m) - MICROMHOS
7500
5000
2500
0
PLATE (I_b) OR GRID #2 (I_{c2}) MILLIAMPERES
15
10
5
0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS
E_{c2} = 120 Volts
E_{c2} = 120 Volts
75
75
75