HUGHES AIRCRAFT COMPANY

HUGHES

MICROWAVE TUBE DIVISION

11105 S. LA CIENEGA BLVD. • LOS ANGELES 9, CALIFORNIA • TELEPHONE: SPRING 6-1515 ORCHARD 0-1515

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

FORMAT FOR THE TWT DATA SHEET

ELECTRON TUBE TYPE: 7640/313H

All ratings are based on the ABSOLUTE system.

The 7640/313H traveling wave tube employing a helix type wave propagating structure is a power amplifier for operation in the 2000 to 4000 Mc frequency range. The power output is approximately 1000 watts with an average gain of 30 db and the tube is air cooled. It is designed for pulsed operation with a maximum duty cycle of .006. The input and output fittings are designed to mate with UG 19B/U type connectors. A permanent magnet provides the magnetic field and is integral with the tube.

ELECTRICAL DATA GENERAL	Units
Heater Voltage	6.3 Volts
Heater Current at 6.3 Volts	3.5 to 4.5 Amps
Cathode Pre-Heating Time (before application of beam voltages)	180 Sec.

MECHANICAL DATA GENERAL

Base and Physical Dimensions - See Outline Drawing
Mounting Information Any Position
Cooling Data 2 cfm of air
RF Input and Output Impedance and type connector 50-ohm, UG 19B/U
Weight - Approximately 17.5 lbs. (maximum)

ABSOLUTE RATINGS	Units
Heater Surge Current	10 Amps
Heater-Cathode Voltage	-8000 Volts Max.
Cathode Current	2.0 Amps Max.
Helix Voltage	Ground
Helix Current	0.8 Amps Max.
Collector Voltage	Ground
Collector Dissipation	100 Watts Max.
Bulb Temperature	150° C
Input RF Power	2 Watts Max.
Duty Cycle	.006 Max.
Altitude	10,000 Ft.

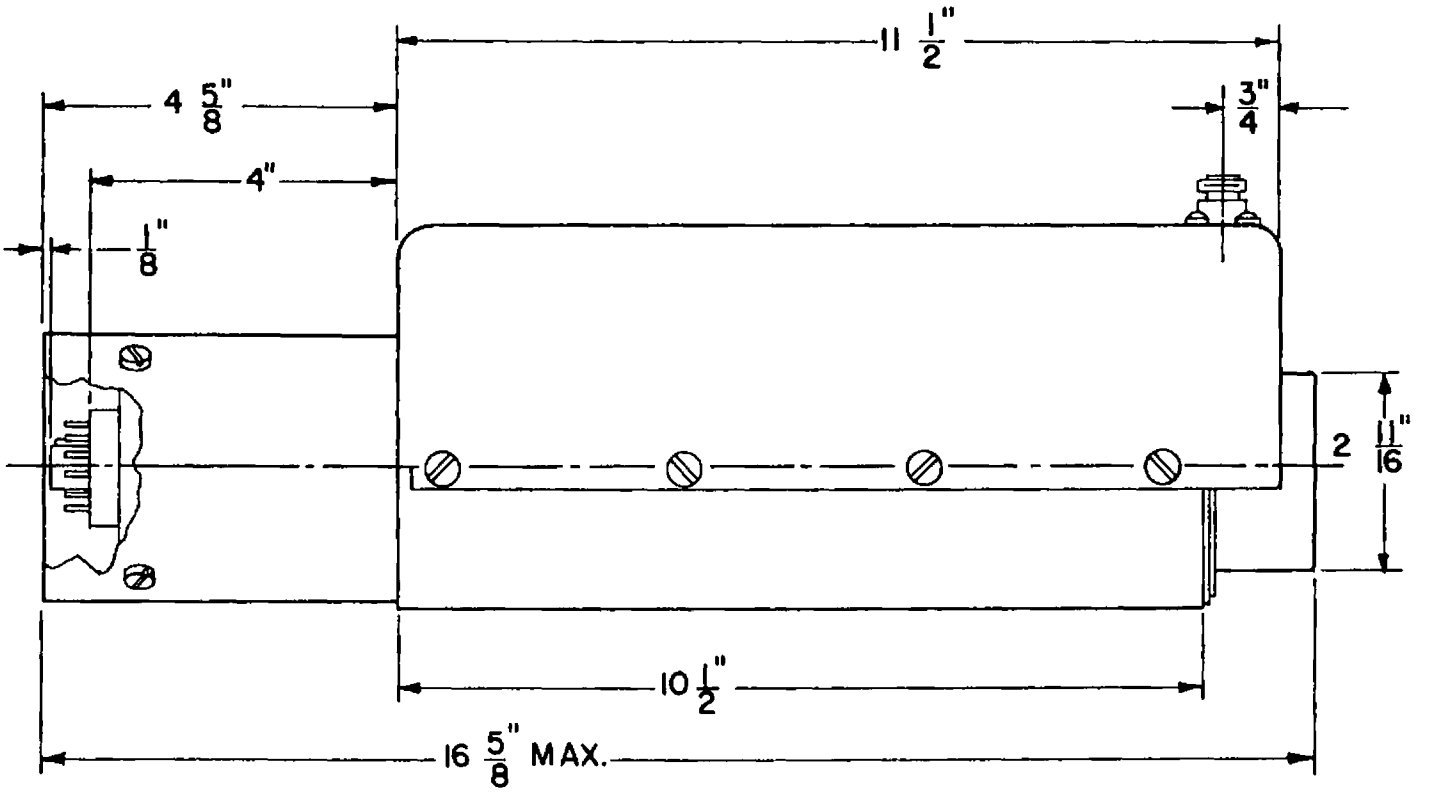
from JEDEC release #3733, May 21, 1962

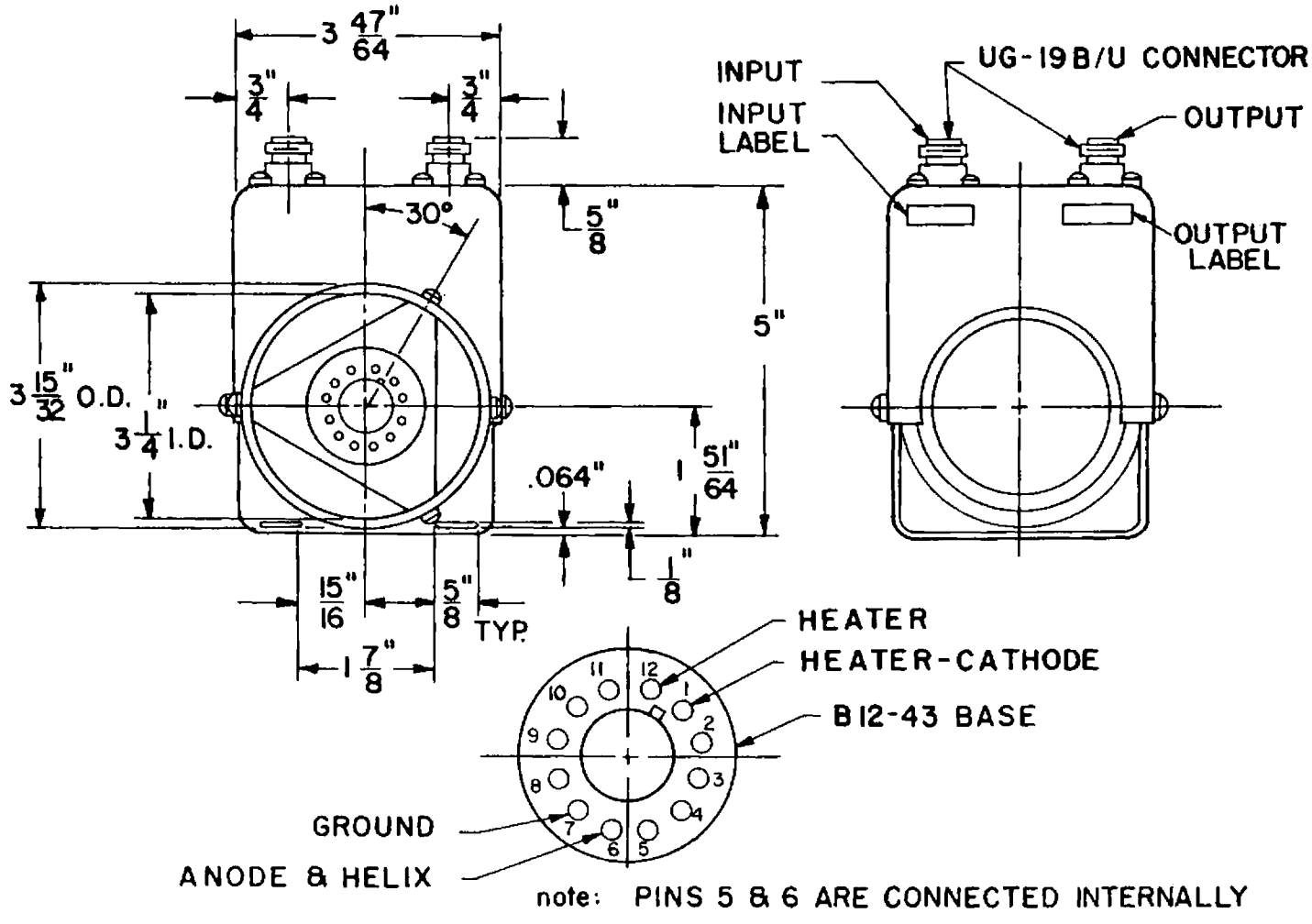
TYPICAL OPERATION PULSED	Units
Focusing Field Strength	1350 Gauss
Operating Frequency Range	2 to 4 kMc
Cathode Current	1.4 Amps
Helix Voltage	Ground
Helix Current	0.5 Amps
Collector Voltage	Ground
Collector Current	0.9 Amps
Pulse Modulation Voltage	-7300 Volts
Gain (Saturated)	30 db
Gain (Small Signal)	33 db
RF Output (Saturated)	1300 Watts
Gross Small Signal Gain Variation	3 db
Saturated Power Variation	3 db
Input VSWR Cold	2.2 to 1 Max.

TYPICAL OPERATION	Units
Output VSWR Cold	1.5:1

NOTE: All voltages are referenced to the cathode.

313-H/7640


11 1/2"
4 5/8"
3/4"
4"
1/8"
2 11/16"
10 1/2"
16 5/8" MAX.


3 47/64"
3/4"
3/4"
30°
5/8"
5"
3 15/32" O.D.
3 1/4" I.D.
.064"
1 51/64"
1/8"
15/16"
5/8" TYP.
1 7/8"
INPUT
INPUT LABEL
UG-19B/U CONNECTOR
OUTPUT
OUTPUT LABEL
HEATER
HEATER-CATHODE
B12-43 BASE
GROUND
ANODE & HELIX
note: PINS 5 & 6 ARE CONNECTED INTERNALLY