K311

OSCILLATOR KLYSTRON

Service Type CV9492

The data should be read in conjunction with the Oscillator Klystron Preamble.

ABRIDGED DATA

Low voltage reflex klystron for local oscillator service.

Frequency range	8500 to 9500	MHz
Typical output power	45	mW
Electronic tuning range	30	MHz
Output	to no. 16 waveguide (0.900 x 0.400 inch internal)	
Coupler	UG-39/U (154 I.E.C.-UBR100)	
Mechanical tuning (see note 1)	single shaft	

GENERAL

Electrical

Cathode	indirectly heated, oxide coated	
Heater voltage	6.3	V
Heater current	0.6	A

Mechanical

Overall dimensions	4.390 x 1.940 x 1.906 inches max 111.5 x 49.28 x 48.41mm max	
Net weight	10 ounces (280g) approx	
Mounting position	any	
Base	5-pin octal	
Reflector connection (see note 2)	top cap B.S.448-CT1	

Cooling (See note 3) natural

MAXIMUM AND MINIMUM RATINGS (Absolute values) (See note 4)

No individual rating to be exceeded.

	Min	Max	
Heater voltage	5.8	6.8	V
Resonator voltage	—	400	V
Resonator current	—	50	mA
Reflector voltage (see note 5)	−20	−500	V
Body temperature (see note 6)	—	140	°C

RANGE OF CHARACTERISTICS AND TYPICAL OPERATION

Operating Conditions

Heater voltage	6.3	V
Resonator voltage	350	V
Load v.s.w.r.	1.1:1	max

Range of Characteristics

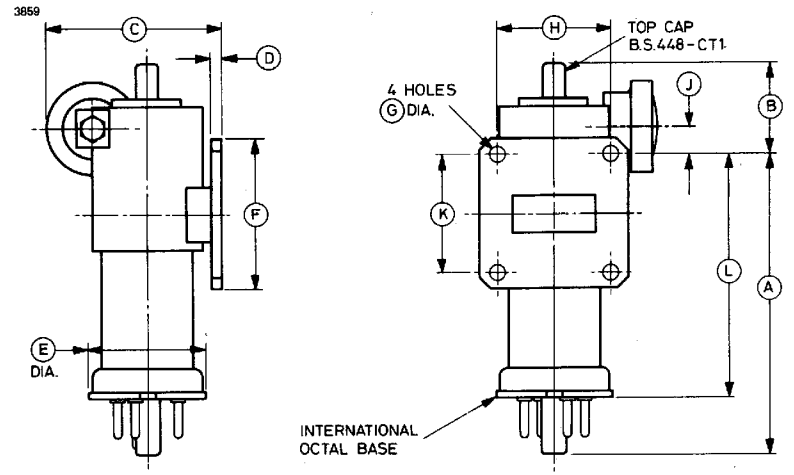
	Min	Typical	Max	
Heater current	0.52	0.58	0.61	A
Resonator current	20	35	44	mA
Reflector voltage	−165	—	−365	V
Output power	30	45	—	mW
Mechanical tuning range	8500	—	9500	MHz
Tuning rate	—	7.0	—	MHz/turn
Electronic tuning range to −3db points	20	30	—	MHz
Reflector modulation sensitivity	—	0.75	—	MHz/V
Frequency drift (see note 7)	—	3.0	5.0	MHz

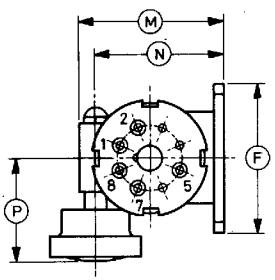
NOTES

1. Clockwise rotation of the tuner increases the frequency. The tuner torque is 20oz in (0.14Nm) max. **Warning** No stops are fitted to the tuner and tuning beyond the specified frequency range may damage the klystron.
2. The K311 is available to order with a flexible lead reflector connection.
3. The resonator is normally operated at earth potential and in good thermal contact with the waveguide system.

4. All voltages except the heater voltage are with respect to cathode.
5. The reflector circuit impedance must not exceed 0.5MΩ. The reflector must never become positive with respect to cathode.
6. For best life, the operating temperature of the klystron body should be kept as low as possible.
7. Measured between 4 and 15 minutes after switching on all supplies, at 9000 ± 20MHz.
8. When supplied as CV9492, the flexible lead reflector connection will be fitted.

OUTLINE (All dimensions without limits are nominal)





Base Connections

Pin	Element
1	No connection
2	Heater
3	Omitted
4	Omitted
5	Resonator
6	Omitted
7	Heater, cathode
8	No connection
Top cap	Reflector

Ref	Inches	Millimetres
A	3.350 max	85.09 max
B	1.000 ± 0.040	25.40 ± 1.02
C	1.906 max	48.41 max
D	0.125	3.18
E	1.300 max	33.02 max
F	1.625 ± 0.005	41.28 ± 0.13
G	0.169 ± 0.003	4.293 ± 0.076

Ref	Inches	Millimetres
H	1.220 ± 0.004	30.99 ± 0.10
J	0.280 ± 0.015	7.11 ± 0.38
K	1.280 ± 0.004	32.51 ± 0.10
L	2.632 ± 0.060	66.85 ± 1.52
M	1.625 max	41.28 max
N	1.394 ± 0.010	35.41 ± 0.25
P	1.125	28.58

Millimetre dimensions have been derived from inches.