



2K57*

REFLEX KLYSTRON

GENERAL CHARACTERISTICS

The 2K57 klystron is a velocity modulation tube of the reflex type, designed especially for use as a microwave radio relay transmitting tube. The resonant cavity and the tuner are both integral parts of the tube. The electron gun is electrostatically focused and requires no external focusing field.

The output power of the tube is fed through an iris coupling into a section of waveguide attached to the tube. This section of waveguide and a 3-5/8" diameter flange are an integral part of the tube, and they are designed to fit the choke joints used on standard RG-49/U (2"x 1") waveguide. Under the typical operating conditions described for the -300 volt reflector voltage mode, the input impedance of a matched 2"x 1" waveguide will provide nearly an optimum load for the tube. No additional matching devices are required for satisfactory operation. The integral plunger-type tuning mechanism covers the full frequency range of the 2K57.

Forced air cooling is recommended for all beam power inputs above ten watts. In any case sufficient forced air should be supplied to keep the envelope temperature below 100°C. At the maximum ratings of the tube, air cooling of about 15 cubic feet per minute will be required. The stream of forced air should be directed at the tube body.

ELECTRICAL DATA

Heater Voltage (a-c or d-c)	6.3 volts
Heater Current	1.5 amperes
Frequency	
Minimum	4320 megacycles
Maximum	5120 megacycles
R-F Output Characteristic (700v beam voltage)	
Reflector Voltage Mode	-300 volts -700 volts
R-F Output Power	1.0 to 1.8 w. 1.0 to 2.2 w.
Electronic Tuning Bandwidth	20 to 30 mc. 8 to 15 mc.

* This tube is now obsolete and has been superseded by RMA types 5817 and 5818.



MAXIMUM RATINGS (absolute maximum)

Beam Voltage	750 volts
Beam Current	75 milliamperes
Beam Power Input	45 watts
Reflector Voltage	0 to -1000 volts
Reflector Current (normally zero)	2 milliamperes
Heater-Cathode Voltage (peak)	±45 volts

MECHANICAL INFORMATION

Type of Cathode	Oxide coated, unipotential
Base	Shortened medium shell, octal, 8-pin (B8-11)
Physical Specifications	(See outline drawing)
Base Connections	(See outline drawing)
Mounting Position	Any
Weight	24 ounces (approx.)
Cap	Small, C1-1
R-F Output	For use with waveguide RG-49/U (2" x 1"), mates with Choke Flange UG-148A/U or Cover Flange UG-149A/U
Temperature Stability (-10° to +40°C)	2.5 megacycles
Tuner	Integral part of the tube (Range 300 mc min.)
Ground Connection	8-32 Machine screw on the side of the tube body

TYPICAL OPERATION (-300 volt reflector voltage mode)

Frequency	4840	5000	5085	megacycles
Heater Voltage	6.3	6.3	6.3	volts
Heater Current	1.5	1.5	1.5	amperes
Beam Voltage	700	700	700	volts
Beam Current	60	60	60	milliamperes
Reflector Voltage	-285	-320	-325	volts
R-F Output Power (best load)	1.5	1.7	1.4	watts
R-F Output Power (matched load)	1.2	1.7	1.2	watts
Bandwidth* (between 3 db power points)	27		27	megacycles
Modulation Sensitivity**	0.25		0.4	megacycles/volt

- - - - -

* For the matched load operating condition.

** At the center of the reflector voltage mode.



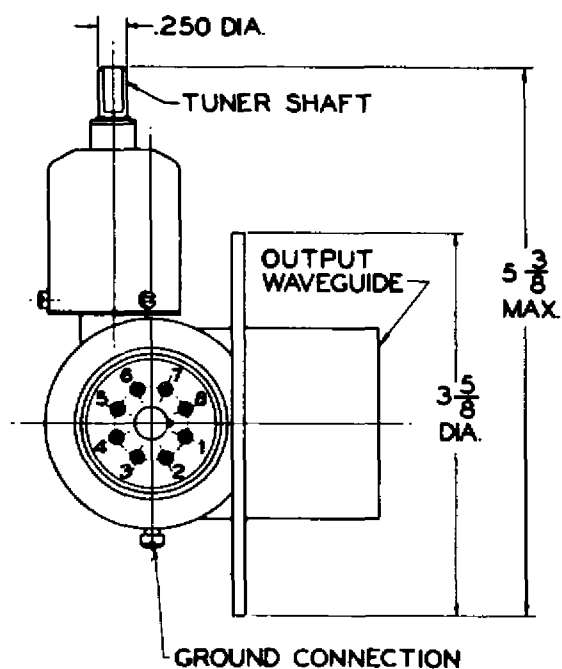
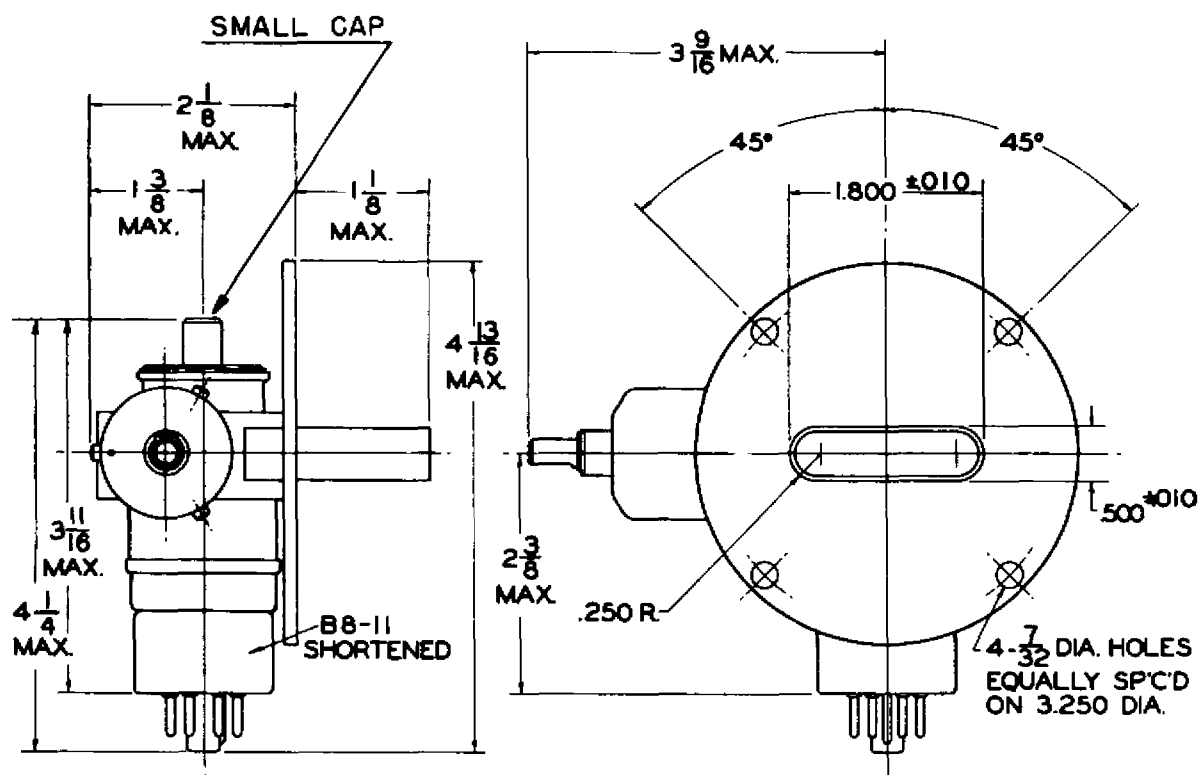
TYPICAL OPERATION (-700 volt reflector voltage mode)

Frequency	4820	4960	5090	megacycles
Heater Voltage	6.3	6.3	6.3	volts
Heater Current	1.5	1.5	1.5	amperes
Beam Voltage	700	700	700	volts
Beam Current	60	60	60	milliamperes
Reflector Voltage	-600	-745	-810	volts
R-F Output Power (best load)	2.2	2.1	1.1	watts
R-F Output Power (matched load)	2.2	1.7		watts
Bandwidth* (between 3 db power points)	15	12		megacycles
Modulation Sensitivity**	.09	.11		megacycles/volt

- - - - -

* For the matched load operating condition.

** At the center of the reflector voltage mode.



RMA TYPE 2K57

BASE CONNECTIONS

1. INTERNAL CONN. (I.C.)
2. HEATER
3. I.C.
4. I.C.
5. I.C.
6. I.C.
7. HEATER
8. CATHODE

SHELL-BEAM ELECTRODE
CAP - REFLECTOR

ALL DIMENSIONS NOMINAL UNLESS
OTHERWISE NOTED