RAYTHEON

TECHNICAL INFORMATION

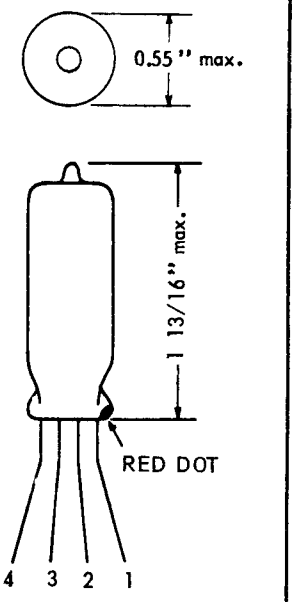
THYRATRON

TYPE CK1054

Excellence in Electronics

The CK1054 is a small size 3-element thyratron useful in applications requiring extreme economy of space, weight, and battery drain. It is designed for use as a self-quenching super-regenerative detector in a two stage receiver which will operate a high resistance relay in the anode circuit of the 2nd stage upon reception of a radio signal in the 1st (detector) stage. The flexible terminal leads may be soldered or welded directly to the terminals of circuit components without the use of sockets. Standard inline subminiature sockets may be used by cutting the leads to a suitable length.

Type CK1054 is rated for operation of 27.225 Mc. for amateur and intermittent service and it is recommended for those applications in which circuit adjustments are available or in which variations of tube characteristics that will occur during life, can be tolerated.



MECHANICAL DATA

ENVELOPE: T-4½ Glass

BASE: None (0.016" tinned flexible leads. Length: 1.5" min. Spacing: 0.048" center-to-center)

TERMINAL CONNECTIONS: *(Red Dot is adjacent to lead 1)*

Lead 1 Anode
Lead 2 Filament, negative
Lead 3 Grid
Lead 4 Filament, positive

MOUNTING POSITION: Any

ELECTRICAL DATA

DIRECT INTERELECTRODE CAPACITANCES: (approx.) *

Grid to Anode	1.7 μμfd
Grid to Filament	1.2 μμfd
Filament to Anode	1.3 μμfd

DESIGN CENTER MAXIMUM RATINGS:

Filament Voltage (dc)	1.4+ 10%-15% Vdc
DC Anode Voltage	45 Vdc
DC Anode Current	700 μAdc

CHARACTERISTICS AND TYPICAL OPERATION (See Figure 1)

Filament Voltage (dc)	1.4 Vdc
Filament Current	50 mAdc
Anode Supply Voltage	45 Vdc
Average Tube Voltage Drop (at 500 μAdc)	27 Vdc
Anode Current (No Signal)	350-450 μAdc
Anode Current, maximum (With Signal)	80 μAdc

* *With no external shield.*

APPLICATION DATA

A circuit typical of the one shown in Figure 1 is recommended for use with the CK1054 for remote control purposes. The tube must always be operated with sufficient series resistance in the anode circuit to limit the anode current to the maximum rated value. If the anode idling current without signal is adjusted to less than 300 μAdc (by L_1 and R_3 adjustments) difficulty may be experienced in some equipments due to excessive anode idling current flutter.

When operating properly, the tube should be oscillating at an audible audio-frequency except during reception of a radio-frequency whereupon the audio-frequency oscillation should disappear. The average anode current may be increased by increasing the antenna coupling, by decreasing the L/C ratio of the tank circuit, by decreasing the value of R_3 or a combination of all three. The maximum controllable current may be increased by increasing the anode by-pass capacitance, by decreasing the grid-leak resistance or both.

NOTE: The CK1054 is designed to operate at plate currents of 350 to 450 μAdc as is typical of the 1st (detector) stage of the two stage receiver.

These data identify a particular developmental tube design and the descriptive data or type designation may be subject to change or abandonment.

Objective Data

Printed in U.S.A.

RAYTHEON MANUFACTURING COMPANY

RECEIVING AND CATHODE RAY TUBE OPERATIONS

January 30, 1958 NEWTON 58, MASS.

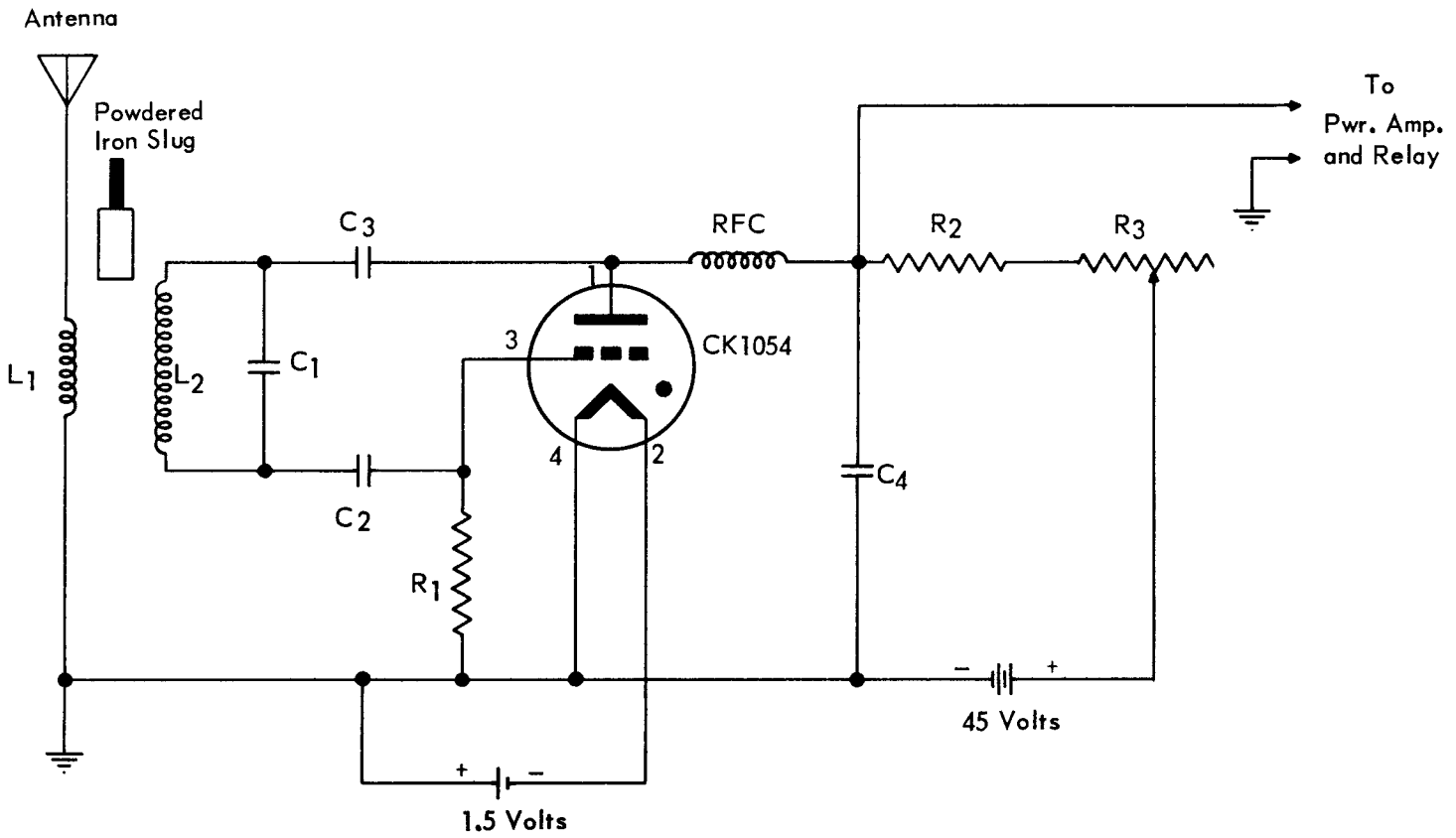


FIGURE 1

R_1 – 4.7 Megohms
R_2 – 5 Kilohms
R_3 – 100 Kilohms
C_1 – 15 $\mu\mu$fd
C_2 – 120 $\mu\mu$fd
C_3 – 47 $\mu\mu$fd
C_4 – .02 μfd
RFC – 15 μh Choke

L_1 – Antenna Coil Primary – 3 turns #22 standard copper insulated wire – close wound around L_2

L_2 – Antenna Coil Secondary – 18 turns #22 solid copper wire spaced one wire diameter between turns and wound on 3/8" O.D. Phenolic Tubing.