RAYTHEON

TECHNICAL INFORMATION SERVICE

Technical Information

CK1047

COLD CATHODE HALF-WAVE RECTIFIER

The CK1047 is a ruggedized, instant starting, cold cathode, gas-filled, half-wave rectifier of miniature construction suitable for high voltage, low current power supplies up to 12 mAdc output. Several tubes can be operated in cascode to produce very high voltages. The CK1047 is designed for use in high vibration environmental conditions such as found in mobile and aircraft equipments.

MECHANICAL RATINGS: (Absolute Maximum)

Fatigue (Vibrational Acceleration for Extended Periods)	35G
Bulb Temperature	−55 to +90°C
Altitude	10,000 Ft.

ELECTRICAL DATA

RATINGS: (Absolute Maximum Values)

Peak Inverse Voltage	2800 v
Plate Supply Voltage (Minimum)	500 Vac
Peak Plate Current (Steady State)	100 ma
Output Current	12 mAdc
Peak Surge Current	300 ma
Plate Circuit Impedance (Minimum, Note A)	6000 ohms

CHARACTERISTICS AND TYPICAL OPERATION

	60~ Half Wave Rectifier
Plate Supply Voltage	1200 Vac
Plate Supply Impedance	7500 ohms
Load Current	12 mAdc
Load Resistor	90,000 ohms
Load Capacitor	2.0 μf
Anode to Cathode Drop (Approx.)	100 Vdc

APPLICATION NOTES

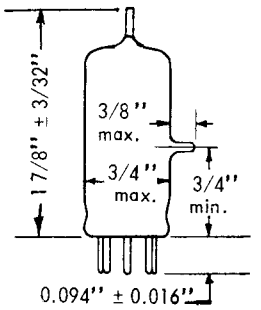
NOTE A: To avoid damage to the equipment or tube, it is recommended that the anode supply impedance be adjusted to limit forward currents and intermittent reverse peak currents to stated values. Typical resistance is 7500 ohms minus the effective equivalent transformers loss, but never less than 2000 ohms dc resistance. For voltage multiplier circuits, a separate limiting resistor should be connected in series with the anode or cathode of each tube. In the event of a reverse arc, the absence of a surge limiting resistor causes all of the energy of the filter condensor to be dissipated in the tube.

CAUTION: To Electronic Equipment Design Engineers: Special attention should be given to the temperature at which the tubes are to be operated. Reliability will be seriously impaired if maximum bulb temperature is exceeded. The life expectancy may be reduced if conditions other than those specified for life test are imposed on the tube and will be reduced appreciably if absolute maximum ratings are exceeded.

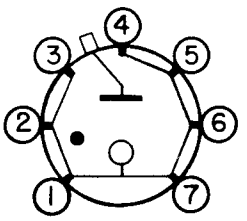
MECHANICAL DATA

ENVELOPE T–5½
BASE ..... 7 Pin Miniature (with cut pins)
CATHODE ..... Glow Discharge
MOUNTING POSITION ..... Any

PHYSICAL DIMENSIONS



BASING



BOTTOM VIEW

TERMINAL CONNECTIONS:

Pin 1	Cathode
Pin 2	Cathode
Pin 3	Cathode
Pin 4	Cathode
Pin 5	Cathode
Pin 6	Cathode
Pin 7	Cathode
Cap	Anode

Printed in U.S.A.

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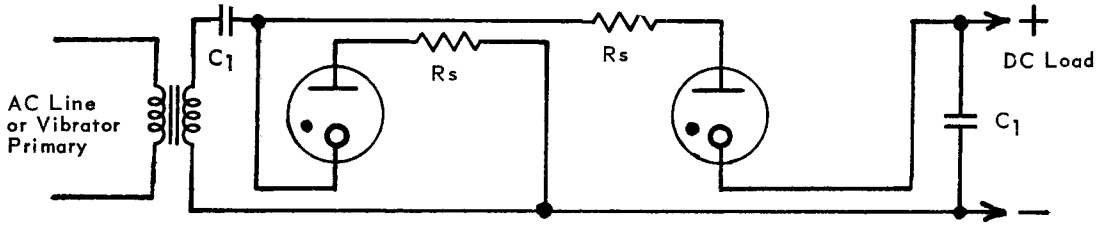
VOLTAGE DOUBLER HIGH VOLTAGE POWER SUPPLY
TYPICAL CIRCUIT FOR AC LINE OR BATTERY OPERATION



Rs = Surge Resistor. Adjust to keep Peak Cathode Current (steady state) and Peak Cathode Current (surge) within ratings of 100 ma. and 300 ma., respectively. Rs should not be less than 2000 ohms in voltage doubler circuits regardless of transformer characteristics.

C1 = 1.0 μf, (Typical for 60 cycle operation).