GAS NOISE SOURCE, ARGON

RATINGS

DC

Filament Voltage........................................12 Vdc
Anode Current...........................................250 mA_dc
Filament Current........................................170 mA_d_c
Tube Dissipation.........................................11 watts
Tube Voltage Drop........................................44 Vdc

AC

Anode Current*...........................................250 mA_ac
Anode Current Striking Voltage..................2000 Vac max.
Tube Dissipation.........................................16 watts max.
Tube Voltage Drop*.......................................65 Vac

* These values are those read on RMS reading meters.

ENVIRONMENTAL

Ambient Temp. Range..............................−55°C to +85°C
Bulb Temp................................................+125°C max.

PHYSICAL CHARACTERISTICS

Max. overall length........................................93/16”
Max. diameter........................................... .565
Mounting position........................................Refer to Page 4

DESCRIPTION

This tube is designed for use as a noise source in super high frequency (SHF) measurements. It is constructed for use with a 90° H-plane mount in RG/48U waveguide to provide noise in the 7.6-11.5 cm waveband. When used in the suggested mount assembly it functions essentially as an untuned noise generator over the recommended transmission bandwidth of the mount.

THE Bendix CORPORATION

Red Bank Division, Eatontown, New Jersey
GAS NOISE SOURCE, ARGON

EXCESS NOISE RATIO VS.
D-C TUBE CURRENT

TUBE DROP VS.
D-C TUBE CURRENT

EXCESS NOISE RATIO VS.
A-C (60 CYCLES) TUBE CURRENT

TUBE DROP VS.
A-C (60 CYCLES) TUBE CURRENT

--- Rp = 9kΩ
--- X --- Rp = 6kΩ
--- O --- Rp = 3kΩ
GAS NOISE SOURCE, ARGON

SYMBOL DESIGNATION
E = 250 vdc
C1 = .002 µf - 2500 V
R1 = 800 - 50 W
R2 = 1000 - 25 W
L1 = 2 H 250 mA
S1 = (MOMENTARY)-NORMALLY OPEN

TYPICAL STARTING AND OPERATING CIRCUIT (DC)

SYMBOL DESIGNATION
E = 2000 V ac, @ 250 mA ac
R = 8 K, 500 WATTS
I = 0 - 300 mA ac

TYPICAL STARTING AND OPERATING CIRCUIT (AC)

OPERATING CHARACTERISTICS

The use of pure inert gas eliminates the dependence of noise output on the operating temperature. The noise source is available for measurement at zero warm-up time with little change due to ambient temperature variations.

The performance of the tube is non-critical with respect to variations in the discharge current.

This tube may be operated either in a d-c circuit which provides a starting filament current or in an a-c circuit without initial filament operation, in either case the operating circuit should have sufficient series resistance to limit the current through the tube to the rated value during operation.

When used in the suggested mount assembly, the average operating voltage standing wave ratio (VSWR) at the design center frequency of the mount is 2.50 (±0.5) db. In such a mount when the tube is operated at the rated d-c current, ±20%, the excess noise coupled into the wave guide over the recommended transmission bandwidth of the mount is 8.85 (±0.25)db above 290°C. When the tube is operated in an a-c circuit, there is a small correction to the available excess noise depending on the circuit components and the a-c frequency.

When used in a 90° H-plane mount which is terminated by a piston adjusted to match the susceptance of the tube and mount, the excess noise coupled into the guide is 15.3 (±0.3)db above 290°C.
NOTE:
DIMENSIONS "A" & "B" ARE DETERMINED
BY THE DESIGN CENTER FREQUENCY
OF OPERATION.

SUGGESTED TYPE OF WAVEGUIDE MOUNT ASSEMBLY, RG-48/U

OUTLINE DRAWING