



VHF  
NOISE GENERATOR DIODE

### BRIEF DATA

A VHF noise generator diode with a tungsten filament. The A2087 is a commercial equivalent of the CV2171.

### FILAMENT

*Filament voltage range . . . . .	0 – 4.3	V
Filament current (approx at $V_f = 4.3$ V)	0.6	A

\*The saturated anode current is regulated by variation of the filament voltage. With a 6.3 V filament supply, a variable series resistor of 10  $\Omega$  max. will be suitable for most purposes.

### MAXIMUM RATINGS

Anode voltage . . . . .	200	V
Anode current . . . . .	20	mA
Anode dissipation . . . . .	2	W
Filament voltage . . . . .	4.8	V

### CHARACTERISTICS

Anode voltage . . . . .	40	V
Saturated anode current (approx) . . . . .	7	mA
Filament voltage (approx) . . . . .	3.7	V

### CAPACITANCES (measured on a cold valve fitted with external shield)

Anode to filament (approx) . . . . .	1.35	pF
*Anode to all (approx) . . . . .	2.7	pF

\*Includes capacitance to filament, pins 2 & 7 and external shield.

## TYPICAL OPERATION

### Noise Diode for use up to 220 MHz

Anode voltage . . . . .	100	100	100	V
Saturated anode current range	0–20	0–20	0–20	mA
Filament voltage range (approx)	0–4.3	0–4.3	0–4.3	V
*Source resistance . . . . .	50	70	300	$\Omega$
*Noise factor measurement range (approx) . . . . .	0–13	0–14.5	0–20.8	dB

\*When measuring receiver noise factor, using with the diode a source resistance  $R_s$  (to match the receiver input) and the technique of setting the value of  $I_{a(sat)}$  to double the noise output power to the receiver detector, the range of noise factor that can be measured with a given value of  $R_s$  is as shown.

Then, noise factor =  $10 \log_{10} (20 I_a R_s)$  dB,

where  $I_a$  is the diode saturated anode current in amperes and  $R_s$  is the source resistance in ohms.

## INSTALLATION

The valve can be mounted in any position.

A screening canister, which also serves as a retainer, is necessary.

Free air circulation around the canister is preferable. The temperature of the hottest part of the bulb must not exceed 200 °C.

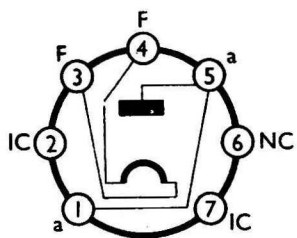
This valve has been designed to give a life of 1,000–2,000 hours operating at a saturated current of 5 mA. With a saturated current of 20 mA the life is approximately 100 hours.

No correction of the noise factor for electron transit time when measured as above is necessary for use up to 220 MHz.

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### BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base :	B7G
Bulb :	Tubular
Max. overall length :	55 mm
Max. seated length :	49 mm
Max. diameter :	19 mm

