

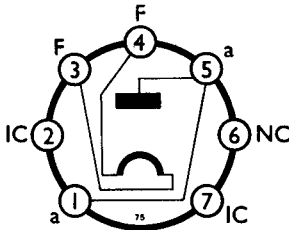


# VHF NOISE GENERATOR DIODE TUNGSTEN FILAMENT

**A2087**  
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The A2087 is a commercial equivalent of the CV2171.

## 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.

## FILAMENT

* $V_f$ (range)	0—4.3	V
$I_f$ (at $V_f=4.3V$ )	0.6 (approx)	A

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

## MAXIMUM RATINGS

$V_a$	200	V
$I_a$	20	mA
$P_a$	2	W
$V_f$	4.8	V

## CHARACTERISTICS

$V_a$	40	V
$I_a(\text{sat})$	7 (approx)	mA
$V_f$	3.7 (approx)	V

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

$C_{a-f}$  : 1.35pF (approx)                      \* $C_{a-\text{all}}$  : 2.7pF (approx)

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

# A2087

## TYPICAL OPERATION

### Noise Diode for use up to 220Mc/s

$V_a$	100	100	100	V
$I_{a(\text{sat})}$ (range)	0–20	0–20	0–20	mA
$V_f$ (range)(approx)	0–4·3	0–4·3	0–4·3	V
* $R_s$	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  $I_{a(\text{sat})}$  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 =  $10 \log_{10} (20 \cdot I_a \cdot R_s)$  dB,  
where  $I_a$  is the diode saturated anode current in amperes and  $R_s$  is the source resistance in ohms.

## INSTALLATION

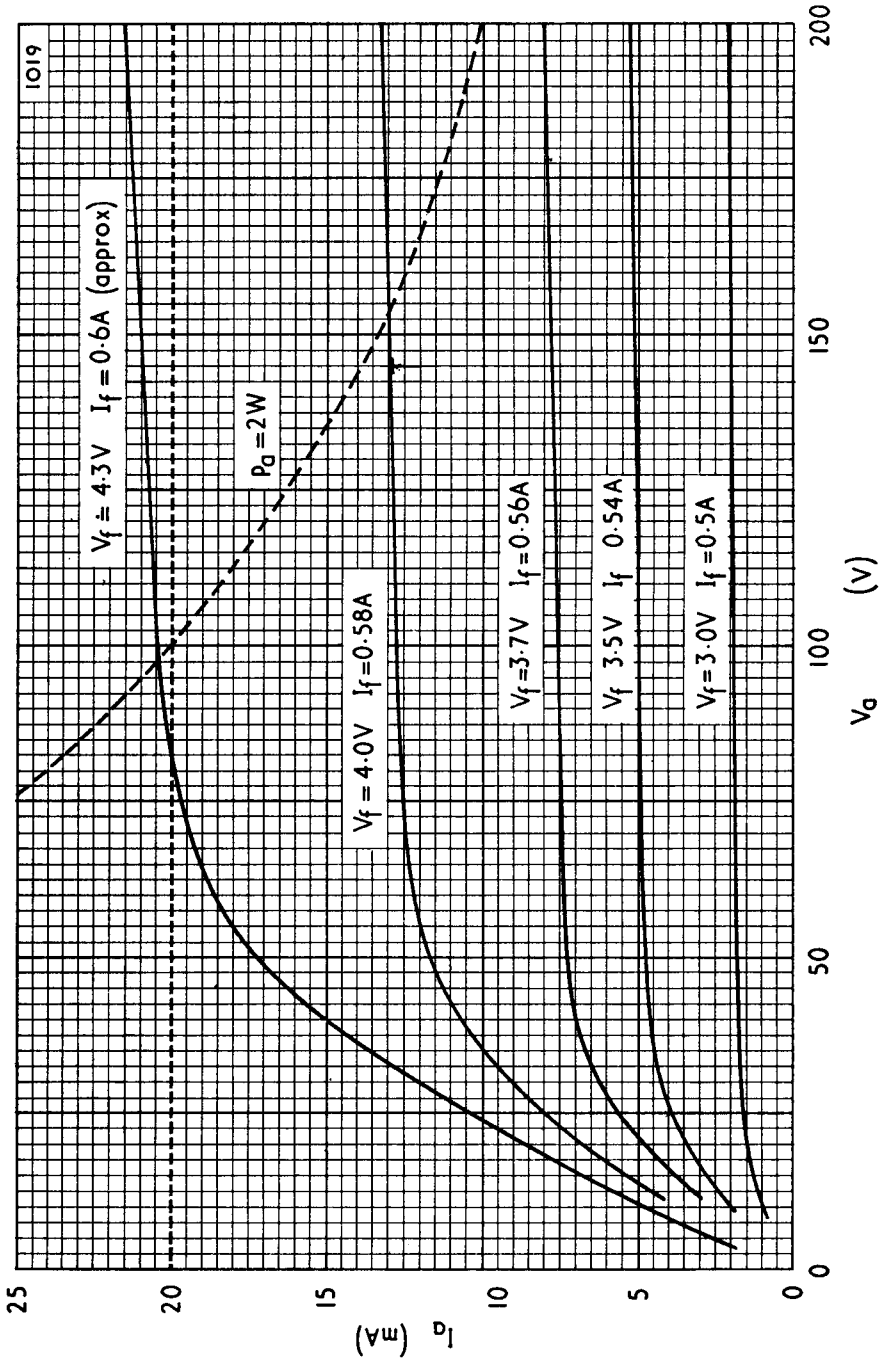
The valve can be mounted in any position.

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 1000–2000 hours operating at a saturated current of 5mA. With a saturated current of 20mA 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 220Mc/s.



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