

## PRELIMINARY DATA

## QUICK REFERENCE DATA

*Forced-air cooled fixed frequency 'X' band pulsed magnetron, with high duty ratio. Suitable for airborne doppler navigation equipment.*

Frequency	8.80	Gc/s
Power output (pulsed)	25	W
Construction		Packaged

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—MICROWAVE DEVICES: INTRODUCTION and RADAR AND COMMUNICATION MAGNETRONS which precede this section of the handbook.

## CHARACTERISTICS

	Min.	Max.	
Frequency			
Fixed within the band	8.77	to 8.83	Gc/s
Pulse voltage ( $I_{\text{pulse}} = 150\text{mA}$ )	750	850	V
R.F. pulse power output ( $I_{\text{pulse}} = 150\text{mA}$ )	17	—	W
Frequency pulling factor (v.s.w.r. = 1.5)	—	15	Mc/s
Frequency pushing factor	—	0.125	Mc/s per mA
Frequency temperature coefficient	—	-0.25	Mc/s per °C
Input capacitance	—	9.0	pF

## CATHODE

Indirectly heated

$V_h$	6.3	V
$I_h$	1.2	A

**Heating time.** At ambient temperatures above 0°C the cathode must be heated for at least 2 minutes before the application of h.t. Below this temperature the heating time must be increased to at least 3 minutes.

## TYPICAL OPERATION

Heater voltage (running)	5.5	4.5	V
Pulse duration	4.0	4.0	$\mu\text{s}$
Pulse repetition frequency	100,000	100,000	p/s
Duty cycle	0.2	0.4	
Pulse current	150	150	mA
Pulse voltage	800	800	V
R.F. pulse output power	25	25	W
Mean input current	60	60	mA
Mean input power	48	48	W
Mean r.f. output power	10	10	W
Frequency pulling factor (v.s.w.r. = 1.5)	12	12	Mc/s
Rate of rise of pulse voltage	4.0	4.0	kV/ $\mu\text{s}$

### COOLING

It is necessary to direct a flow of cooling air between the radiator fins, in order to keep the temperature below the permitted maximum.

### ABSOLUTE MAXIMUM RATINGS

	<i>Min.</i>	<i>Max.</i>	
Pulse current	110	180	mA
Pulse duration	—	5.0	$\mu$ s
Duty cycle	—	0.5	
Mean input power	—	60	W
Rate of rise of voltage pulse	—	5.0	kV/ $\mu$ s
Load mismatch (v.s.w.r.)	—	1.5	
Temperature of anode block	—	140	$^{\circ}$ C

### END OF LIFE PERFORMANCE

R.F. pulse power output ( $I_{\text{pulse}} = 150\text{mA}$ )		15	W
	<i>Min.</i>	<i>Max.</i>	
Frequency			
Within the band	8.77	to 8.83	Gc/s
Pulse voltage ( $I_{\text{pulse}} = 150\text{mA}$ )	750	850	V

### MOUNTING POSITION

Any

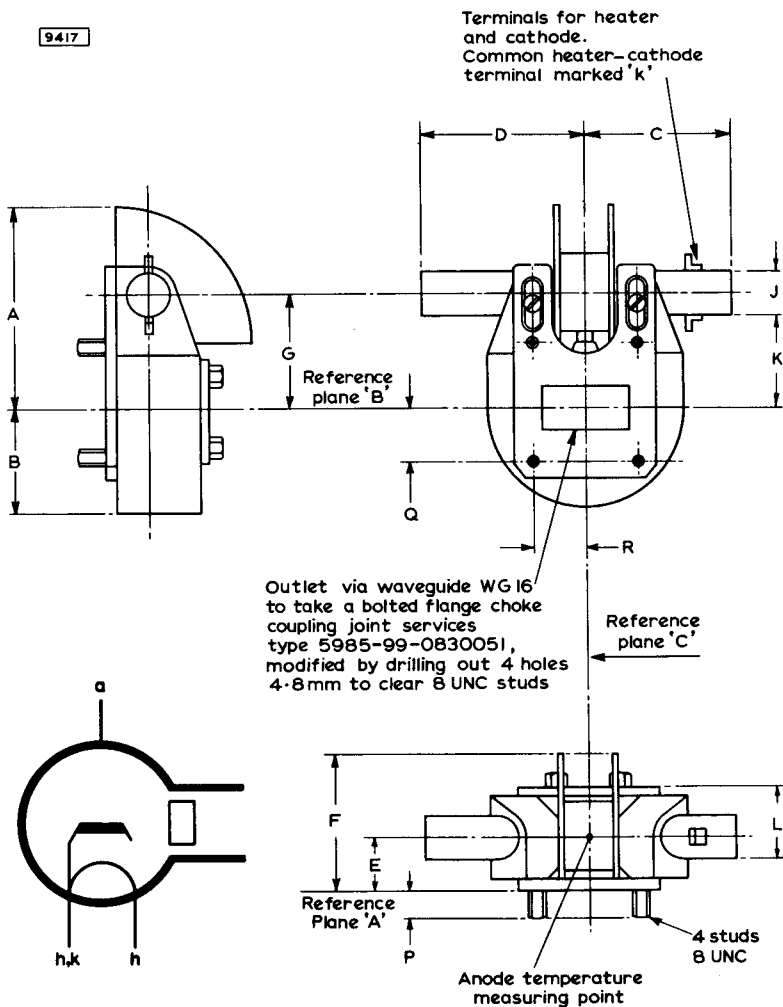
### PHYSICAL DATA

Weight of magnetron	{	1.0	lb
		454	g
Weight of magnetron in carton	{	2 lb	4 oz
		1.02	kg
Dimensions of storage carton	{	5.0 x 7.25 x 7.25	in
		127 x 184 x 184	mm

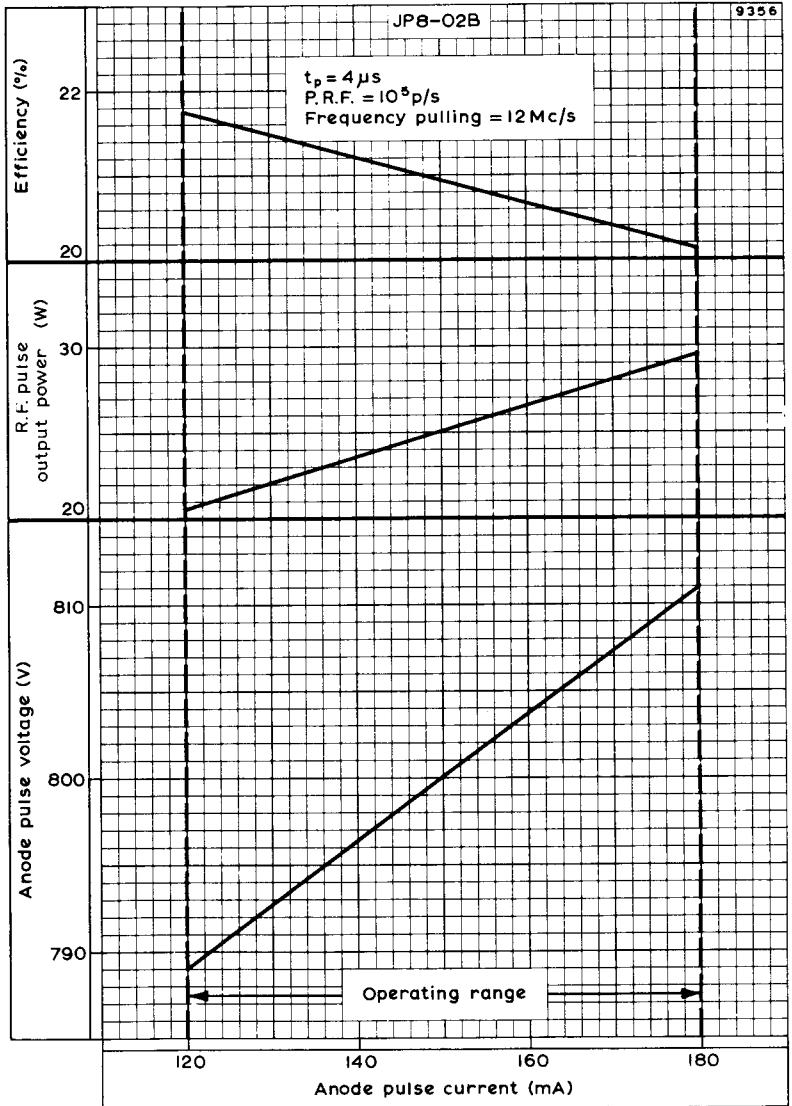
### DIMENSIONS

	Inches	Millimetres	
A	2.36	60	max
B	1.26	32	max
C	1.73	44	max
D	1.73	44	max
E	1.53 $\pm$ 0.02	13.5 $\pm$ 0.5	
F	1.77	45	max
G	1.22 $\pm$ 0.08	31 $\pm$ 2	
J	0.51	13	max
K	1.14	29	max
L	0.79	20	max
P	0.32 $\pm$ 0.04	8 $\pm$ 1	
Q	0.64	16.2	
R	0.61	15.5	

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ANODE CONNECTION IS TERMINATED AT THE BASE PLATE



ANODE PULSE VOLTAGE, R.F. PULSE OUTPUT POWER AND EFFICIENCY PLOTTED AGAINST ANODE PULSE CURRENT