

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	μs
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/μs

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	μs
Duty cycle	—	0.5	
Mean input power	—	60	W
Rate of rise of voltage pulse	—	5.0	kV/μs
Load mismatch (v.s.w.r.)	—	1.5	
Temperature of anode block	—	140	°C

END OF LIFE PERFORMANCE

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

MOUNTING POSITION

Any

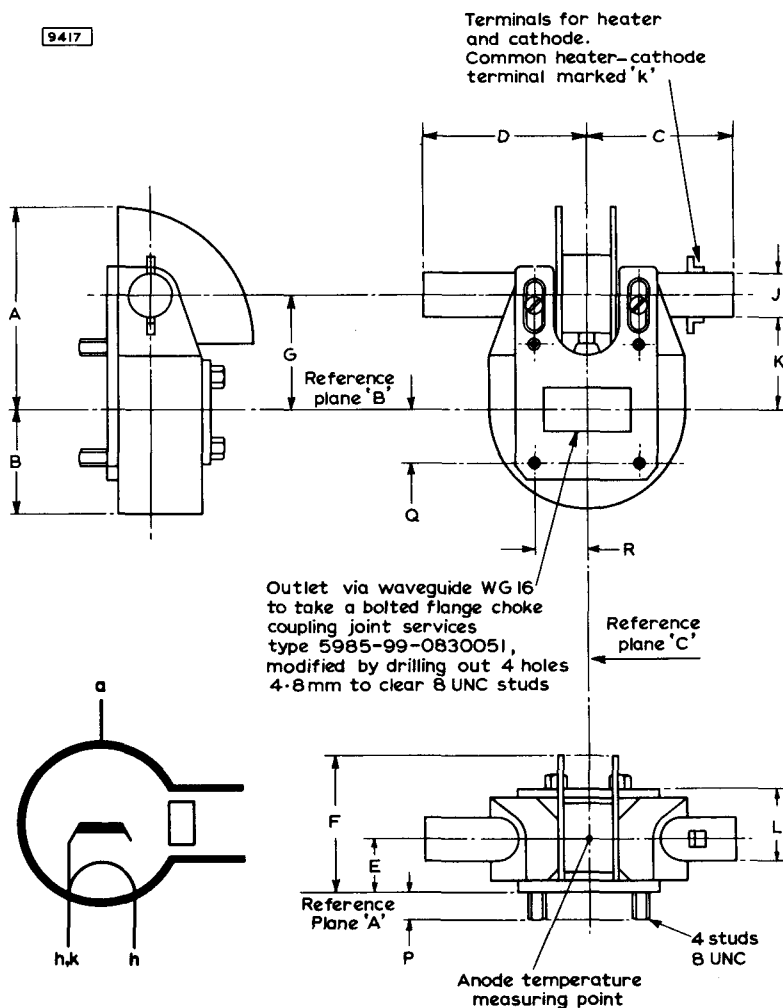
PHYSICAL DATA

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 × 7.25 × 7.25 in 127 × 184 × 184 mm

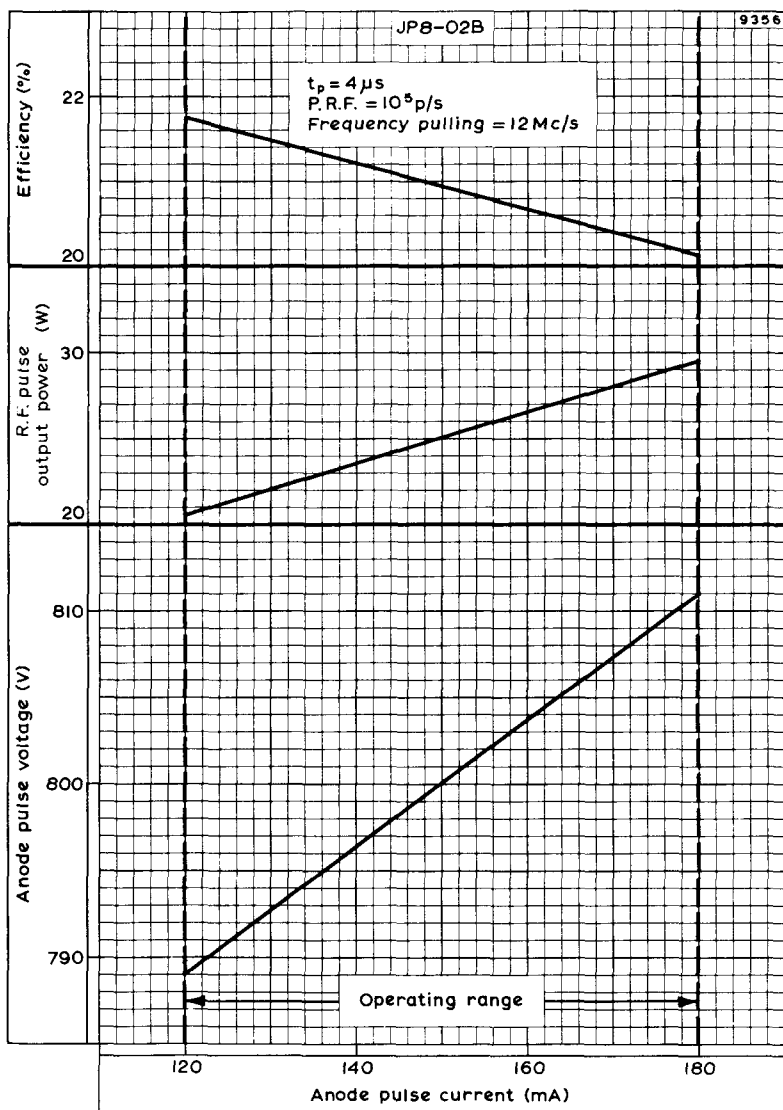
DIMENSIONS

	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 ± 0.02	13.5 ± 0.5	
F	1.77	45	max
G	1.22 ± 0.08	31 ± 2	
J	0.51	13	max
K	1.14	29	max
L	0.79	20	max
P	0.32 ± 0.04	8 ± 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