

# MAGNETRON

Frequency: 'X' band, fixed  
Power output: 6kW.  
Construction: Packaged, natural cooling.

# JP9-5

## PRELIMINARY DATA

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	9.345	to 9.475	Gc/s
Pulse voltage ( $I_{\text{pulse}}=5.0\text{A}$ )	4.0	4.5	kV
R.F. pulse power output ( $I_{\text{pulse}}=5.0\text{A}$ )	5.0	—	kW
Frequency pulling factor (v.s.w.r.=1.5)	—	18	Mc/s
Frequency temperature coefficient	—	-0.25	Mc/s per °C
Distance of v.s.w. minimum from face of mounting plate into valve	3.0	9.0	mm
Input capacitance	—	9.0	pF

## CATHODE

Indirectly heated			
$V_h$		6.3	V
$I_h$		500	mA

**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

	0.0002	0.0004	←
Duty cycle			
Heater voltage (running)	6.3	6.3	V
Pulse duration	0.1	0.8	μs
Pulse repetition frequency	2000	500	p/s
Pulse current	5.0	5.0	A
Pulse voltage	4.4	4.4	kV
Pulse input power	22	22	kW
R.F. pulse output power	5.8	5.8	kW
Mean input current	1.0	2.0	mA
Mean input power	4.4	8.8	W
Mean r.f. output power	1.1	2.3	W
Frequency pulling (v.s.w.r.=1.5)	16	16	Mc/s
Rate of rise of pulse voltage	60	50	kV/μs

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## MAGNETRON

### ABSOLUTE MAXIMUM RATINGS

	Min.	Max.	
Pulse current	4.5	6.0	A
Pulse voltage	4.0	4.6	kV
Pulse duration	—	1.0	$\mu$ s
Duty cycle	—	0.0005	
Mean input power	—	13	W
Rate of rise of voltage pulse	—	70	kV/ $\mu$ s
Load mismatch (v.s.w.r.)	—	1.5	
Temperature of anode block	—	120	$^{\circ}$ C

### MOUNTING POSITION

Any

### PHYSICAL DATA

Weight of magnetron	{ 2 lb 1.28	13oz kg
Weight of magnetron in carton	{ 4 1.82	lb kg
Dimensions of storage carton	{ 7.5 x 7.5 x 11 19 x 19 x 28	in cm

### DIMENSIONS

	Inches	Millimetres	
A	1.181	30	
B	1.625 $\pm$ 0.015	41.28 $\pm$ 0.38	
C	3.463 $\pm$ 0.001	87.96 $\pm$ 0.03	
D	0.591	15	max.
E	1.521 $\pm$ 0.001	38.63 $\pm$ 0.03	
F	0.450 $\pm$ 0.001	11.40 $\pm$ 0.03	
G	0.610 $\pm$ 0.001	15.50 $\pm$ 0.03	
H	0.984	25	max.
J	0.200 $\pm$ 0.001	5.10 $\pm$ 0.03	
K	0.640 $\pm$ 0.001	16.23 $\pm$ 0.03	
L	0.175 $\pm$ 0.003	4.44 $\pm$ 0.08	
M	1.850	47	max.
P	4.921	125	max.
Q	0.2	5	min.
R	2.717 $\pm$ 0.156	69 $\pm$ 4	
S	0.157	4.0	min. $\leftarrow$
T	5.335 $\pm$ 0.007	135.5 $\pm$ 0.17	
U	0.175 $\pm$ 0.003	4.45 $\pm$ 0.075	dia.
V	0.170 $\pm$ 0.001	4.32 $\pm$ 0.03	dia.
W	8.0 $\pm$ 0.5	203.2 $\pm$ 12.7	
X	1.772	45	max.
Y	2.165	55	max.

