

JEDEC TYPE DESIGNATION
 REGISTRATION FOR PULSED MAGNETRON

GENERAL CHARACTERISTICS

The 8123 is a pulsed magnetron oscillator tube which operates over the tunable frequency range of 16000 to 17000 Mc. The peak power output is approximately 70 kilowatts and the tube is forced-air cooled. The tube uses an integral magnet. Special vibration resistant design features minimized vibration induced frequency modulation.

GENERAL ELECTRICAL DATA

Pre-heat Heater Voltage	12.6 ± 5% volts
Pre-heat Heater Current at 12.6 Volts	3.25 ± 0.25 amperes
Minimum Pre-heat Time	270 seconds
Heater Cold Resistance (approx.)	0.4 ohm
Anode-Cathode Capacitance (nominal)	14 μf

RATINGS, ABSOLUTE SYSTEM

Heater Voltage (max.)	13.9 volts
Heater Current (max.)	3.5 amperes
Heater Surge Current (max.)	13.6 amperes
Peak Anode Current {max.}	14 amperes
{min.}	5 amperes
Peak Anode Voltage (max.)	16 kilovolts
Average Power Input (max.)225 watts
Duty Cycle (max.)	0.001
Pulse Duration {max.}	3.3 microseconds
{min.}	0.20 microseconds
Rate of Rise of Anode Voltage	
Above 50% Point {max.}120 KV/μsec
{min.}	40 KV/μsec
Output and Input Circuit	
Pressurization {max.}	45 psia
{min.}	15 psia
Maximum Altitude without Pressurization:	
Output Circuit	sea level
Input Terminals	10,000 ft.
Body Temperature (max.)	100°C
Cathode Stem Temperature (max.)	275°C
VSWR (Magnetron Load) (max.)	1.5:1
Tuner Torque (max.)	50 in. oz.

TYPICAL OPERATING VALUES

Frequency	16000 to 17000 Mc
Peak Anode Voltage at 17.0 kmc	15.0 kv
Pulling Figure (VSWR 1.5:1)	6 Mc
Pushing Figure (VSWR 1.5:1)	0.06 Mc/AMP
Atmospheric Frequency Shift (sea level to 75,000 ft.)	3 Mc

TYPICAL OPERATING VALUES (CONT'D.)

Duty Factor 0.001
 Peak Anode Current 12 amperes
 Stability (% Missing Pulses) <0.001 %
 Peak Power Output 70 kw
 Heater Voltage 8.8 ± 5% volts

Current Pulse Duration	Voltage Pulse Rate-of-Rise	RF Band Width at 1/4 po pts.	R.M.S. Jitter		
			F _J	V _J	T _J
μsec	KV per μsec (above 50% point)	σ'=1.5:1 worst phase Mc	kc	db	ns
0.25 2.0	60 60	4.0 .50	- 13	- .02	1.5 -

GENERAL MECHANICAL CHARACTERISTICS

Mounting Position Any
 Mounting Support See 4 hole Mounting Plate in outline drawing
 Weight 7.94 lbs. Max.

Coupling between Tube and Load:

RG 91/U waveguide mates with modified UG 541/U choke flange with clearance holes instead of 6-32 tapped holes.

Cooling Data

To limit rise in body temperature to 50°C for a dissipation of 115 watts - 10 cfm, min.

Pressurization of Output Circuit:

The need for pressurization depends on the particular components used in the output circuit and on the pulse width. In general, pressurization above 15 psia should not be necessary.

