

JEDEC TYPE DESIGNATION  
 REGISTRATION FOR PULSED MAGNETRON

GENERAL CHARACTERISTICS

The 8079 is a pulsed magnetron oscillator tube which operates at a tunable frequency of 17400 to 19500 Mc. The peak power output is approximately 135 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.} . . . . .	20 amperes
{min.} . . . . .	5 amperes
Peak Anode Voltage (max.) . . . . .	20 kilovolts
Average Power Input (max.) . . . . .	350 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.} . . . . .	60 KV/μsec
Output and Input Circuit	
Pressurization {max.} . . . . .	60 psia
{min.} . . . . .	15 psia
Maximum Altitude without Pressurization:	
Output Circuit . . . . .	sea level
Input Terminals . . . . .	sea level
Body Temperature (max.) . . . . .	150°C
Cathode Stem Temperature (max.) . . . . .	300°C
VSWR (Magnetron Load) (max.) . . . . .	1.5:1
Tuner Torque (max.) . . . . .	50 in. oz.

TYPICAL OPERATING VALUES

Frequency . . . . .	17400 to 19500 Mc
Peak Anode Voltage at 19.5 kmc . . . . .	17.5 kv
Pulling Figure (VSWR 1.5:1) . . . . .	6 Mc

Current Pulse Duration	Duty Factor	Peak Anode Current	Stability	Peak Power Output	Voltage Pulse Rate-of-Rise	RF Band Width at 1/4 po pts.	Heater Voltage
$\mu$ sec		Amperes	% Missing Pulses	Kilo-watts	KV per $\mu$ sec (above 50 % point)	$\sigma$ '=1.5:1 worst phase Mc	Volts $\pm$ 5%
0.25	0.0007	19	0.01%	135	100	4.5 Mc	8.6
3	0.001	19	0.01%	135	100	0.45 Mc	6.8

### GENERAL MECHANICAL CHARACTERISTICS

Mounting Position . . . . . any  
 Mounting Support . . . . . See 4 hole  
 Mounting Plate in  
 outline drawing  
 Weight . . . . . 14 lbs. Max.

#### Coupling between Tube and Load:

Waveguide (WR51) per outline drawing. The mating flange may be WR51 cover flange or a modified (clearance holes instead of tapped 6-32) WR51 choke flange.

#### Cooling Data

To limit rise in body temperature to 100°C for a dissipation of 200 watts - 10 cfm, min.

Recommended cathode stem temperature 225°C  $\pm$  25°C.

#### 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, it is recommended that the output circuit be pressurized for peak anode currents greater than 15 amperes.

