

EITEL-McCULLOUGH, INC.  
SAN CARLOS, CALIFORNIA

**EM-1093**

**VOLTAGE TUNABLE  
MAGNETRON**

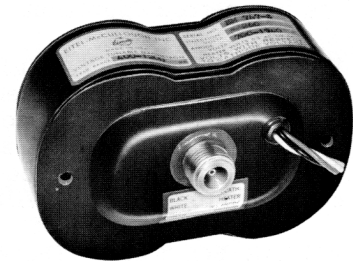
**FREQUENCY  
2.475 - 2.725**

**MINIMUM OUTPUT  
POWER 1.75 W**

**TYPICAL PERFORMANCE**

**ELECTRICAL**

Frequency Range	- - - - -	2475-2725 Mc
Anode Voltage	- - - - -	1100-1200 V
Cathode Current	- - - - -	12-20 mA
Typical Output Power	- - - - -	2-3 W
Anode FM Sensitivity	- - - - -	2.5 Mc/volt
Injection Anode Voltage	- - - - -	300 V
Injection Anode Current	- - - - -	0.0 mA
Heater Voltage (AC) (DC)	- - - - -	6.3 V
Heater Current (AC) (DC)	- - - - -	.65 A
Load Impedance	- - - - -	50 ohms
Service	- - - - -	cw



**S-BAND  
OSCILLATOR**

**\*MAXIMUM RATINGS**

Anode Voltage	- - - - -	1500 V
Cathode Current	- - - - -	25 mA
Injection Anode Voltage	- - - - -	400 V
Injection Anode Current	- - - - -	0.5 mA

\*Damage to the tube may occur if maximum ratings are exceeded.

**MECHANICAL**

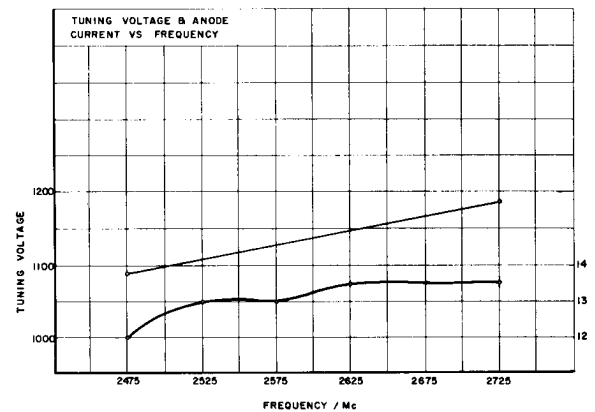
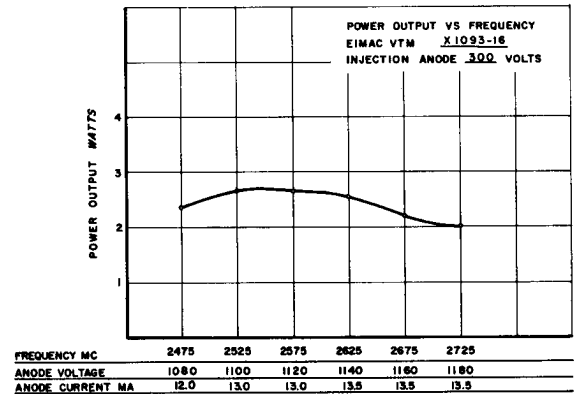
Operating Position	- - - - -	Any
Cooling	- - - - -	Conduction
Electrical Connection	- - - - -	Flexible Leads
RF Output Coupling	- - - - -	Type N Jack
Weight	- - - - -	3.5 Pounds

**ENVIRONMENTAL**

Vibration	- - - - -	10 G-(to 2kc)
Shock	- - - - -	100 G-(11 ms)
Altitude	- - - - -	70,000 ft.

**OUTLINE DIMENSIONS**

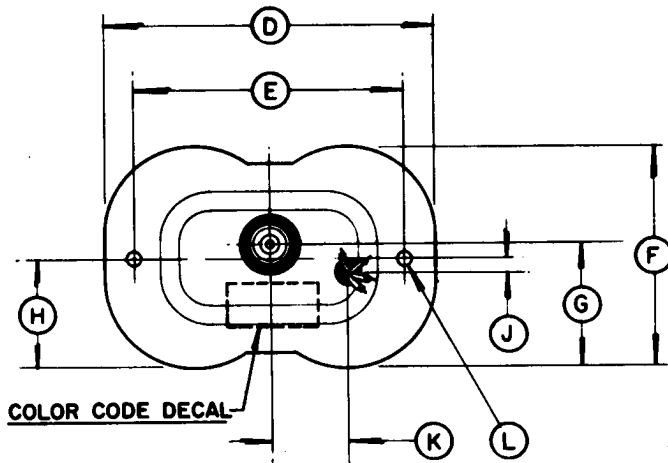
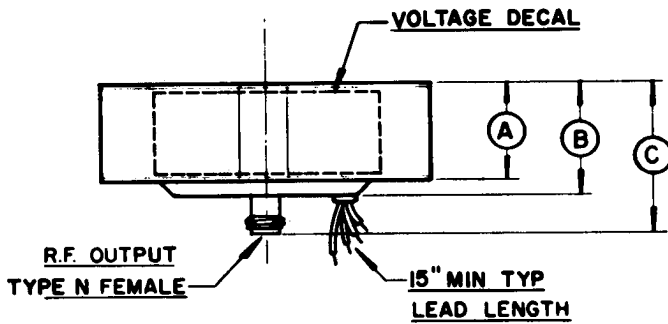
Height	- - - - -	3 inches
Width	- - - - -	2.1 inches
Length	- - - - -	4.5 inches





### APPLICATION NOTES

1. **COOLING:** To insure optimum tube performance the magnet temperature should be maintained below 70°C.
2. **PROXIMITY OF FERROUS MATERIALS:** To minimize variations in performance, ferrous materials should be kept at least 6 inches from the magnetron package. Modulation of the tube may be produced by rotating ferrous materials and such parts as fans, shafts and couplings should be placed as far from the magnetron package as possible. Transformers and chokes should not be placed in such close proximity to the tube that their stray magnetic fields will interfere with the magnetron operation.
3. **TEMPERATURE STABILITY:** The permanent magnet for the EM-1093 has been temperature stabilized to minimize frequency changes caused by variations in the ambient temperature. The temperature/frequency coefficient for the EM-1093 package is typically .008% of the operating frequency per degree Centigrade. Thus, for an operating frequency of 2600 megacycles, the temperature/frequency coefficient is typically 520 kilocycles per degree Centigrade. A positive change in temperature will always produce a positive change in frequency.
4. **ANODE VOLTAGE:** The operating frequency is a function of the anode voltage; therefore, any voltage ripple on the anode supply will appear as frequency modulation on the RF output signal.



DIMENSIONS IN INCHES			
DIMENSIONAL DATA			
REF.	MIN.	MAX.	NOM.
A			1.375
B			1.562
C			2.172
D		4.600	
E	3.640	3.671	
F		3.100	3.000
G			1.656
H			1.500
J			.375
K			1.000
L			.187 D.

**CONNECTIONS**  
 GROUND - GREEN  
 HEATER - WHITE  
 HEATER CATHODE - BLACK  
 INJECTION ANODE - YELLOW