

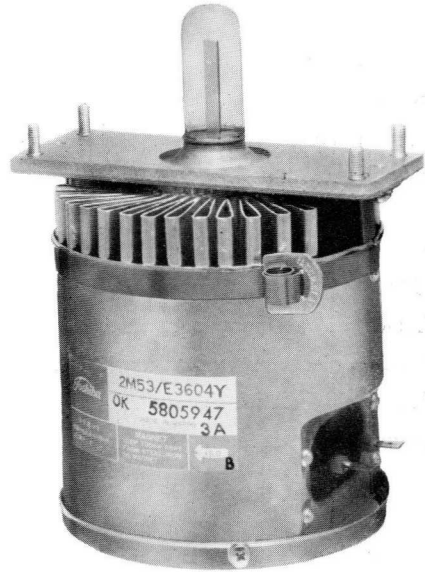


# TOSHIBA MAGNETRON

## 2M53

The Toshiba 2M53 is a fixed frequency continuous wave magnetron intended for use in microwave heating and cooking appliances. The average power output is 800 watts in the frequency range from 2420 MHz to 2480 MHz. This tube is an integral magnet type and requires forced air cooling. The output is fed either into a rectangular wave guide or into a heating oven directly.

In order to minimize the unwanted radiation and to avoid the high voltage danger, the input part of the tube is covered with a metal shield case.



### Features

#### Short Preheating Time

An improved thoriated tungsten direct heating filament requires only a few seconds of preheating.

#### No Filament Voltage Reduction Necessary

Power supply can be made simple, no relay is necessary to reduce filament voltage when operating.

#### Low Spurious Noise Radiation

As an integrated filter suppresses spurious noise radiation through filament leads, no external filter circuit is necessary for oven.

#### Stable under the most severe load conditions

Within acceptable VSWR up to 4 at any phase, high power output with good heating uniformity is ensured.

#### Long Life Expectancy

Selected materials with Toshiba's long experience in vacuum tube production ensures long life expectancy of more than 3000 hours.

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### GENERAL DATA

Electrical :		
Frequency .....	2450 ± 30	MHz
Filament voltage .....	3.15	V
Filament current .....	13	A
Cathode preheating time .....	8	sec.
Cold heater resistance .....	0.03	Ω
Mechanical :		
Physical dimensions .....	See outline drawing	
Base and electrical connection.....	See outline drawing	
Mounting position .....	Any	
RF coupling.....	See attached drawing	
Magnetic field.....	Integral	
Cooling.....	Forced air	
Net weight .....	2.0 kg approx.	
Type of cathode.....	Thoriated tungsten direct heating	

### MAXIMUM RATINGS

	Minimum	Maximum	
Filament voltage (preheat) .....	3.0	3.3	V
Cathode preheating time .....	5	—	sec.
Peak anode voltage .....	—	4.5	kV
Average anode current.....	—	350	mA dc
Anode power input .....	—	1400	W
Load VSWR .....	—	4	
Anode temperature (See outline drawing measuring point) .....	—	150	°C

### TYPICAL OPERATION

Unsmoothed fullwave rectified current

Frequency .....	2450	MHz
Filament voltage (operation) .....	3.15	V
Peak anode voltage (Note 1).....	4	kV
Average anode current .....	300	mA
Power output (matched load) (Note 2).....	800	W
Magnetic field intensity .....	PKG	
Cooling quantity anode (forced air) .....	1500	l/min.

Note 1 Anode power supply is single phase full wave rectified without filter.

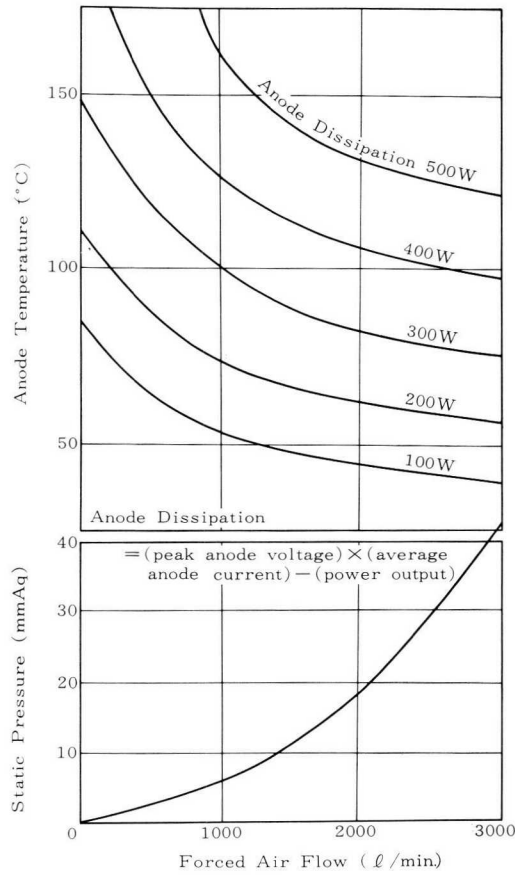
Note 2 Power output for typical microwave oven is expected about 85 percent of the power output at matched load.

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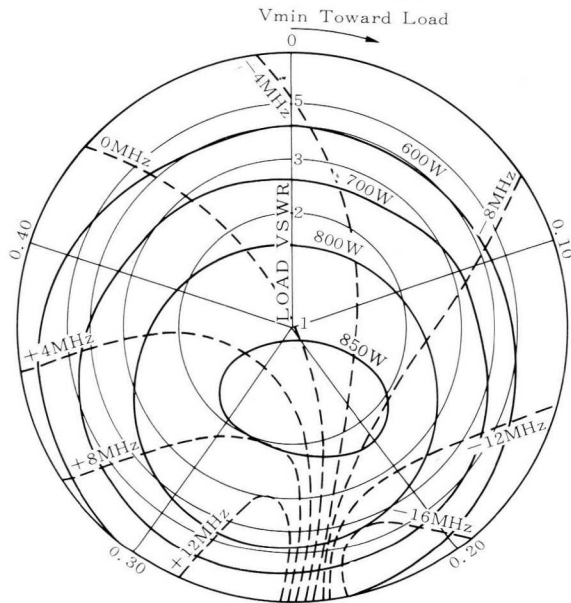
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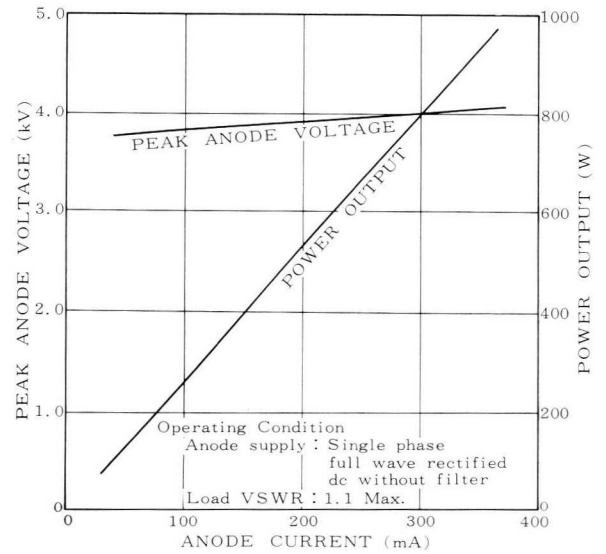
### COOLING CHARACTERISTICS



### RLEKE DIAGRAM



### PERFORMANCE CHART



Operating Conditions  
 Anode Supply : Unsmoothed Fullwave Rectified  
 Average Anode Current : 300mA<sub>dc</sub>  
 Phase Reference Plane : Antenna

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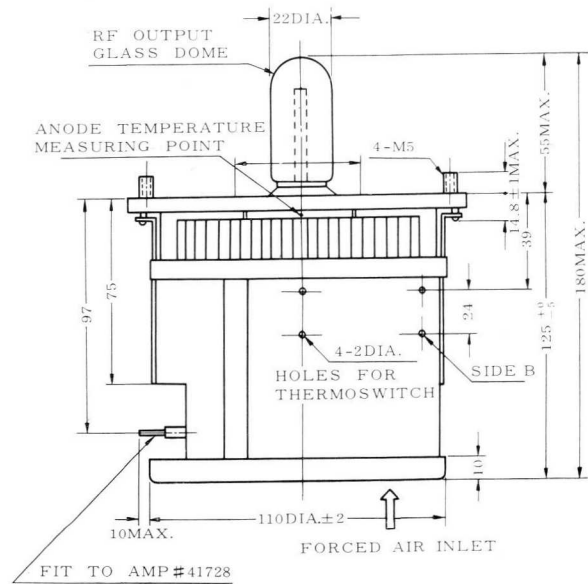
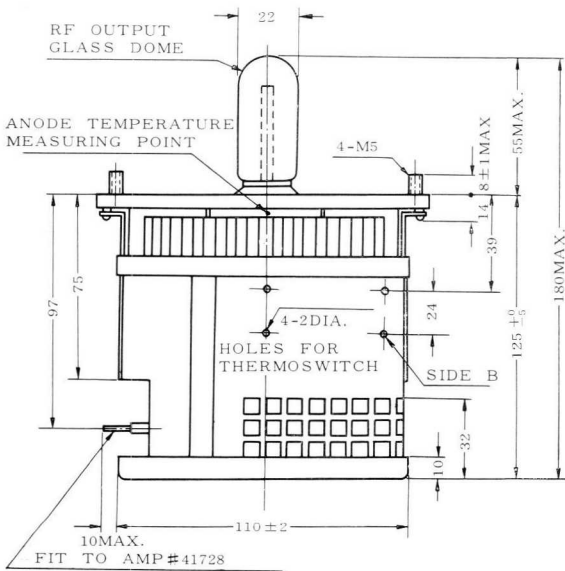
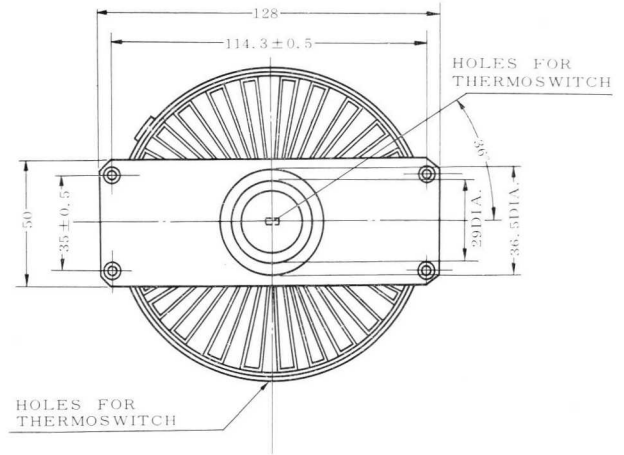
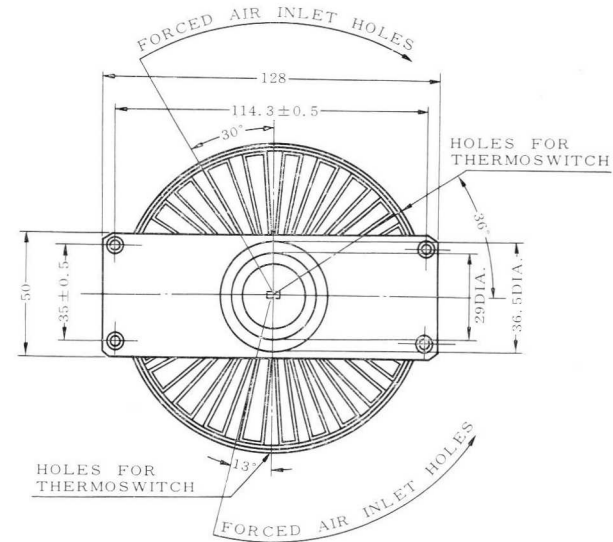
## 2M53

### OUTLINE DIMENSIONS

Unit mm

2M53/E3604Y

2M53/E3604



**TOKYO SHIBAURA ELECTRIC CO., LTD.**

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