

**1. Report of Measurement conducted by TOSHIBA
(With DAEWOO Magnetron of 2M218)**

▶ FCC ID : C5F7NF16MO1000 ◀

TOSHIBA

TOSHIBA HOKUTO ELECTRONICS CORPORATION

MAGNETRON ENGINEERING DEPARTMENT

1975, 23-CHOME, MINAMI 5-JODORI, ASAHIKAWA, HOKKAIDO 078, JAPAN

PHONE. (0166) 31-4728 FACSIMILE (0166) 35-5671

Mr. Byeong-Jun Kim
Research Manager
Microwave Oven
R & D Center
DAEWOO ELECTRONICS Co., LTD.
#412-2, Chongchon 2-Dong,
Pupyong-Ku, Incheon,
KOREA

April 28, 1998
(Ref. No. : 98-049)

RE : Electromagnetic radiation from microwave oven KOR-161G
with Daewoo magnetron 2M218

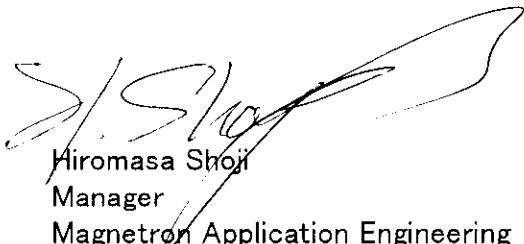
Dear Mr. Kim

We are enclosing herewith the above mentioned test results based on FCC measuring method in our measuring facility of FCC file number 430A.

We confirmed test results are satisfied with FCC limit.

Please feel free to contact us, if you have any question or request.

Sincerely yours,



Hiromasa Shoji
Manager
Magnetron Application Engineering
Magnetron Engineering Department

SY/IS/n2

cc : Mr. Miyauchi TOSHIBA TOKYO
Mr. Ikegami TOSHIBA HOKUTO TOKYO

ELECTROMAGNETIC RADIATION TEST OF MICROWAVE OVEN

The following measurements were conducted in Toshiba Hokuto Electronics Corporation measurement facility of FCC file number 430A.

Date : 1998-4-17

Oven : KOR-161G

Tube : 2M218

Line : 120V/60Hz

1. Output power (Load : 1000ml water (center))

Input power : 1555W

Output power : 990W

* Permissible FIS = $35.2 \mu\text{V/m}$ at 300m

(FIS : Field Intensity Strength)

2. Power Leak (Load : 275ml water (center))

Po leak : 0.3 mW/cm^2

3. FIS measurements

Measurement equipment (Refer Page-4)

Interference analyzer : EMC-60 MK-IV (Bandwidth : 5MHz)

Antenna : CA-S, CA-M and CA-X

3-1 Side band radiation (Load : 700ml water (center))

Frequency (MHz)	FIS ($\mu\text{V/m}$) at 300m
2,357	4.1
2,505	4.1

3-2 Harmonics radiation

Harmonics	Load	FIS ($\mu\text{V/m}$) at 300m	Frequency (MHz)
2nd	700ml center	29.2	4,884
3rd	300ml center	26.3	7,095
4th	700ml center	10.7	10,200

Note : 2nd and 3rd Harmonics : The maximum value with the load condition such as 300ml or 700ml water in the center or side position

**2. Report of Measurement conducted by TOSHIBA
(With TOSHIBA Magnetron of 2M254 : alternate)**

► FCC ID : C5F7NF16MO1000 ◀

TOSHIBA

TOSHIBA HOKUTO ELECTRONICS CORPORATION

MAGNETRON ENGINEERING DEPARTMENT

1975, 23-CHOME, MINAMI 5-JODORI, ASAHIKAWA, HOKKAIDO 078, JAPAN

PHONE (0166) 31-4728 FACSIMILE (0166) 35-5671

Mr. Byeong-Jun Kim
Research Manager
Microwave Oven
R & D Center
DAEWOO ELECTRONICS Co., LTD.
#412-2, Chongchon 2-Dong,
Pupyong-Ku, Incheon,
KOREA

April 29, 1998
(Ref. No. : 98-051)

RE : Electromagnetic radiation from microwave oven KOR-161G
with Toshiba magnetron 2M254

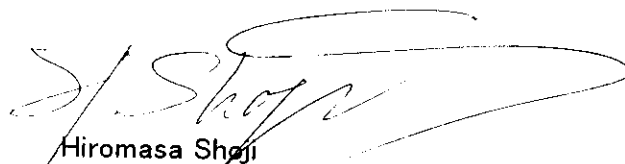
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We confirmed test results are satisfied with FCC limit.

Please feel free to contact us, if you have any question or request.

Sincerely yours,



Hiromasa Shoji
Manager
Magnetron Application Engineering
Magnetron Engineering Department

SY/IS/n2

cc : Mr. Miyauchi TOSHIBA TOKYO
Mr. Ikegami TOSHIBA HOKUTO TOKYO

ELECTROMAGNETIC RADIATION TEST OF MICROWAVE OVEN

The following measurements were conducted in Toshiba Hokuto Electronics Corporation measurement facility of FCC file number 430A.

Date : 1998-4-29

Oven : KOR-161G

Tube : 2M254

Line : 120V/60Hz

1. Output power (Load : 1000ml water (center))

Input power : 1580W

Output power : 995W

* Permissible FIS = $35.3 \mu\text{V/m}$ at 300m
(FIS : Field Intensity Strength)

2. Power Leak (Load : 275ml water (center))

Po leak : 0.11 mW/cm^2

3. FIS measurements

Measurement equipment (Refer Page-4)

Interference analyzer : EMC-60 MK-IV (Bandwidth : 5MHz)

Antenna : CA-S, CA-M and CA-X

3-1 Side band radiation (Load : 700ml water (center))

Frequency (MHz)	FIS ($\mu\text{V/m}$) at 300m
2,355	6.1
2,524	1.4

3-2 Harmonics radiation

Harmonics	Load	FIS ($\mu\text{V/m}$) at 300m	Frequency (MHz)
2nd	700ml center	19.5	4,882
3rd	700ml center	12.8	7,314
4th	700ml center	0	9,662

Note : 2nd and 3rd Harmonics : The maximum value with the load condition such as 300ml or 700ml water in the center or side position

4. Frequency measurements

Measurement equipment (Refer Page-4)

Interference analyzer : EMC-60 MK-IV (Bandwidth : 5MHz)

Antenna : CA-S, CA-M and CA-X

4-1 The variation of frequency for load variation (Load : 1000ml water center)

Volume of water (ml)	Frequency (MHz)
1000	2,444
800	2,442
600	2,441
400	2,445
200	2,448

4-2 The variation of frequency for line voltage variation (Load : 1000ml water center)

Line voltage (V)	Frequency (MHz)
96	2,443
108	2,444
120	2,444
132	2,443
150	2,444

5. Frequency sweeping

Measurement equipment (Refer Page-4)

Spectrum analyzer : HP8562A

Antenna : CA-S, CA-M and CA-X

None of higher FIS value than those shown in the above table existed in the following frequency band.

Frequency (MHz)	Load condition
2000 - 2400	700ml center
2500 - 4000	
4000 - 8000	300ml or 700ml water in the center or side position
8000 - 10000	700ml center

No.	Equipment Name	Model Name & Manufacturer	Specification	Last Calibration Date	Calibration Frequency
1	Interference Analyzer	EMC-60 MK-IV SER. : 44116 ELECTRO-METRICS	0.5 to 18 GHz	March 1998	
2	Antenna	(1) CA-S SER : 22-1 POLARAD	2.1 to 4.34 GHz		
		(2) CA-M SER : 20-15 POLARAD	4.19 to 7.74 GHz		
		(3) CA-X SER : 20-10 POLARAD	7.36 to 10 GHz		
3	Signal Generator	8671B SER : 2545A00106 HEWLETT PACKARD	2.0 to 18 GHz	March 1998	
4	Frequency Counter	85340A SER : 134A01280 HEWLETT PACKARD		March 1998	Annually
5	Power Meter	435A SER : 1312J00144 HEWLETT PACKARD	0 to 1 mW	March 1998	Annually
6	Power Sensor	8481A SER : 1234A871 HEWLETT PACKARD		March 1998	
7	Spectrum Analyzer	8562A SER : 2923A03932 HEWLETT PACKARD	1 kHz to 22 GHz	March 1998	

6. Specification of DAEWOO Magnetron of 2M218

► FCC ID : C5F7NF16MO1000 ◀



DAEWOO
DAEWOO ELECTRONICS CO., LTD

C.P.O. BOX 8003 SEOUL KOREA
981-1 JANGDUCK-DONG
KWANGSAN-VILL. KWANG JU, KOREA
TEL. : (062) 951-2000 ~ 9
FAX. : (062) 951-2010

MAGNETRON DIVISION

TO :

APPROVAL SIGNATURE

S P E C I F I C A T I O N

FOR
DAEWOO MAGNETRON

2 M 2 1 8


NO EUN MYONG
MANAGER, MAGNETRON DEPT.

SPECIFICATION NO. :
REV. :

SFC

This specification is based upon EIAJ ET-145A Testing Methods for Continuous Wave Magnetrons

DAEWOO CONTINUOUS WAVE MAGNETRON 2M218

DESCRIPTION	Magnetron (Fixed Frequency, Integral Magnet)									
FUNCTION	For Microwave Oven (2450MHz Band continuous wave oscillation)									
OUTER DIMENSIONS	See Outline drawing									
ABSOLUTE MAXIMUM RATINGS									NOTE(4)(5)	NOTE(4)
	TERM	Ef	tk	e _{bm}	lb	ibm	Pi	σ_L	T _p	T _{case}
	UNIT	V	s	kV	mAdc	A	kW	-	°C	°C
	MAX.	3.75	-	4.5	350	1.2	1.4	4	250	100
	MIN.	2.20	0	-	-	-	-	-	-	-
STANDARD TEST CONDITION	NOTE (1)(2)(3)	3.30	-	-	300	-	-	1.1MAX	-	-

TEST SPECIFICATION

TEST TERM NOTE (3)	TEST METHOD EIAJ ET-145A	TEST CONDITION	SYMBOL	POGIE	LIMIT		UNIT
					MIN.	MAX.	
*** VIBRATION	5.4.1		-	-	-	-	-
** BREAK DOWN VOLTAGE	4.2	NOTE (6)	-	-	-	-	-
** INSULATION	4.2	Eb=1kVdc R.H.MAX.60%	-	-	100	-	MΩ
** FILAMENT CURRENT	4.1.1	tk=120s	If	10	8	12	A
PEAK ANODE VOLTAGE	4.3.1	NOTE (7)	e _{bm}	4.10	3.95	4.25	kV
AVERAGE POWER OUTPUT(1)	4.3.3.1	NOTE (7)	Po (1)	925	885	965	W
FREQUENCY	4.3.4		f	2452	2448	1468	MHz
*** FULLING RADIANCE	4.3.5	σ_L 11.1	η_d	-	-	15	W/m ²
*** SINK PHASE	4.3.7		λ_{sink} λ_g	0.25	-	-	-
** STABILITY PROBING (1)	4.3.11.2	σ_L 2,411°C	-	-	3	-	-
** FUNDAMENTAL FREQUENCY RADIATION	4.3.15	σ_L 1.4	S ₁	-	-	1	W/m ²
*** LIFE TEST	4.5.1		t	-	500	-	h
*** LIFETEST END POINT	AVERAGE POWER OUTPUT (1)	4.3.3.1	Po (1)	-	710	-	W

SPEC. NO. :

DATE:

PAGE : 2/10

NOTE (1) Prescribed R.F. Coupler (Refer to the attached chart) or the similar type must be used.

(2) Forced air cooling (1000 l/min).

(3) Single phase full wave rectifier without filter shall be used for power supply.

(4) See outline drawing for measuring point.

(5) Maximum saturated anode temperature for normal condition (with load in the cavity) should be 200°C.

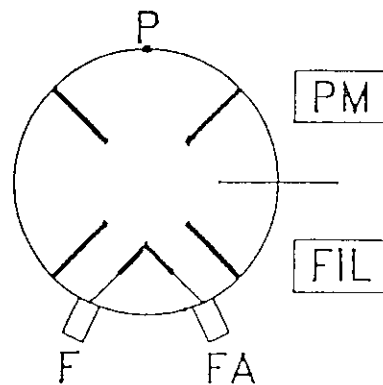
(6) $E_b = 10 \text{ kVdc}$ or 7 kVdc : $t = 60 \text{ s}$

(7) The surrounding temperature will be settled at the value of 25°C and it's variance rate should be $\pm 1.00^\circ\text{C}$.

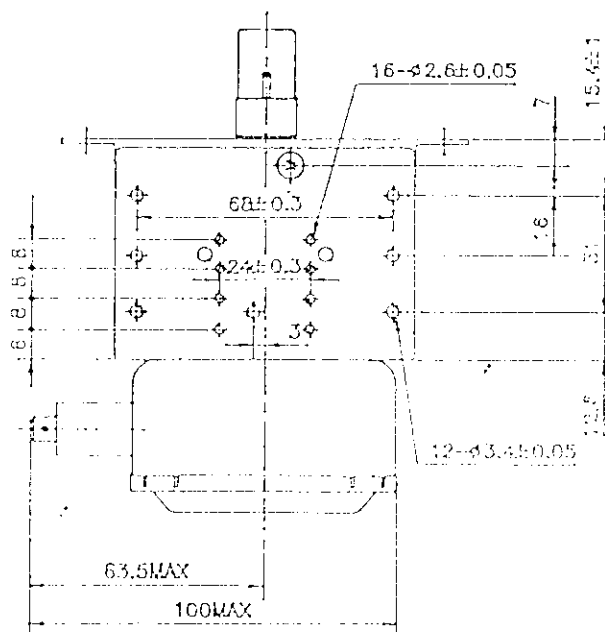
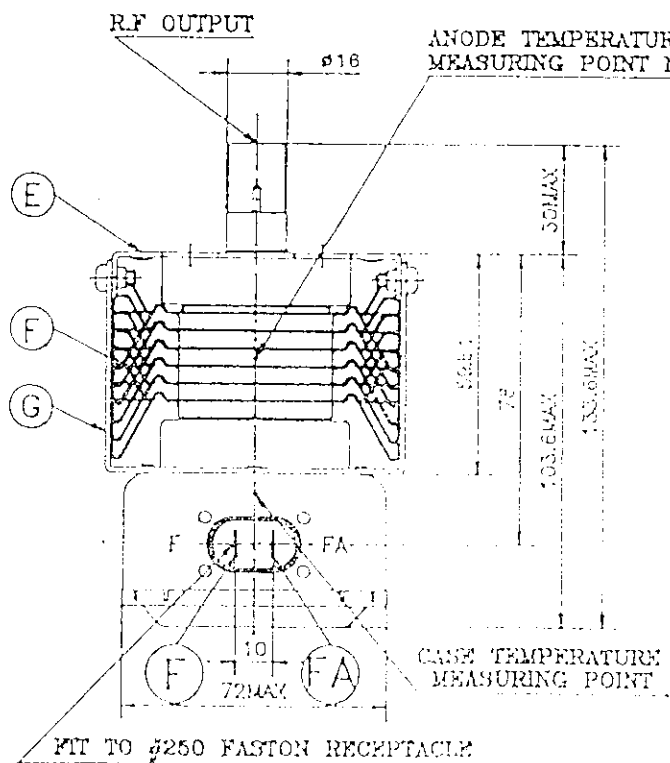
Tests shall be classified as follows.

Test Name	Class	Remarks
Production test	Class	This test is intended to ensure if the production line is being processed in compliance with the standard, and shall be conducted on some typical characteristics which are considered to be affected by change in the process.
Reproduction	Class	This test is intended to ensure the standard shall be conducted on each characteristic which are not affected by change in the production line as long as the design is maintained.
Design change test	Class	This test is intended to ensure the compliance to the standard design which is not affected, and may be omitted under the substantial change in the design.

Technical drawing of a mechanical part, likely a pump housing, showing dimensions and features. The drawing includes a central circular feature with a cross-hatched pattern, labeled "GASKET". Dimensions include 86MAX, 80±1, 50±0.5, 43, 35±0.5, 2-φ10, 6.5, 67, 80±1, 108±0.8, φ20, φ38.5, and 5-φ4.5±0.05. A callout "P" points to a feature on the left side.

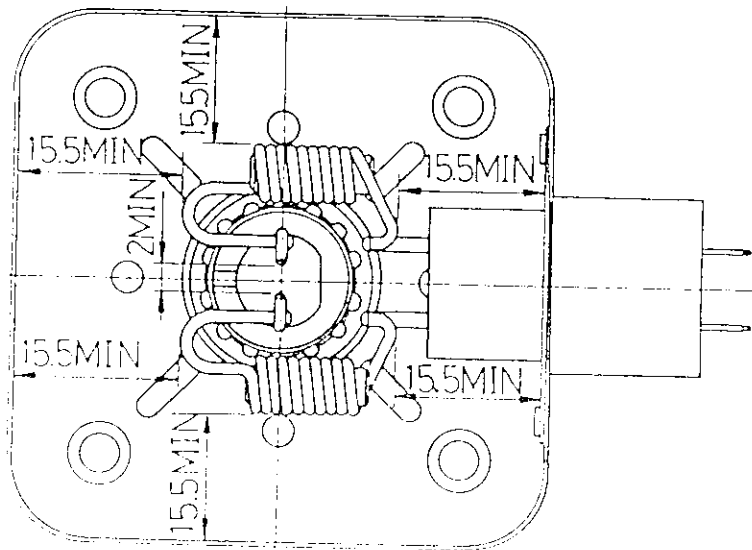
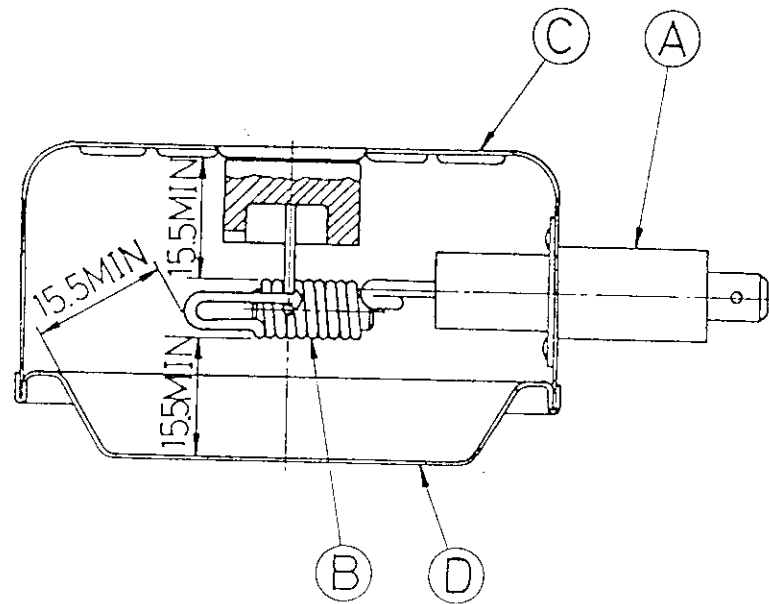


NOTE<1> TEMPERATURE TO BE MEASURED AT THE OUTLET SIDE OF AIRFLOW.



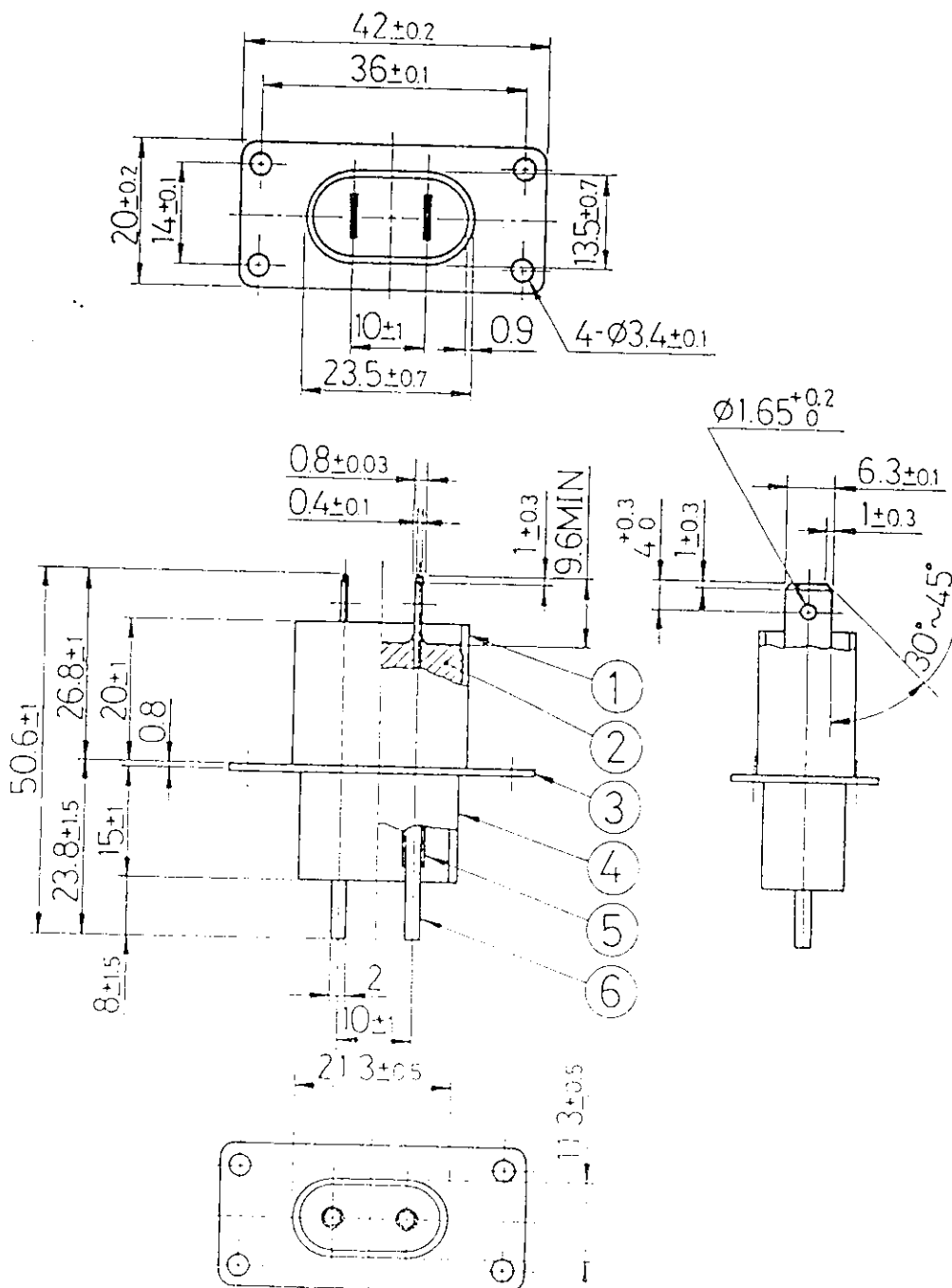
SPACING IN THE SHIELDING CASE

UNIT : mm



DETAILS OF FILTER CAPACITOR

UNIT : min



NOTE<1> THE FASTEN TAB MEETS TO BS 5057 : 1973 AND DIN 46244 : APRIL 1980.

$$\text{SiH}_3\text{CO}_2\text{NO}_2:$$

DATA:

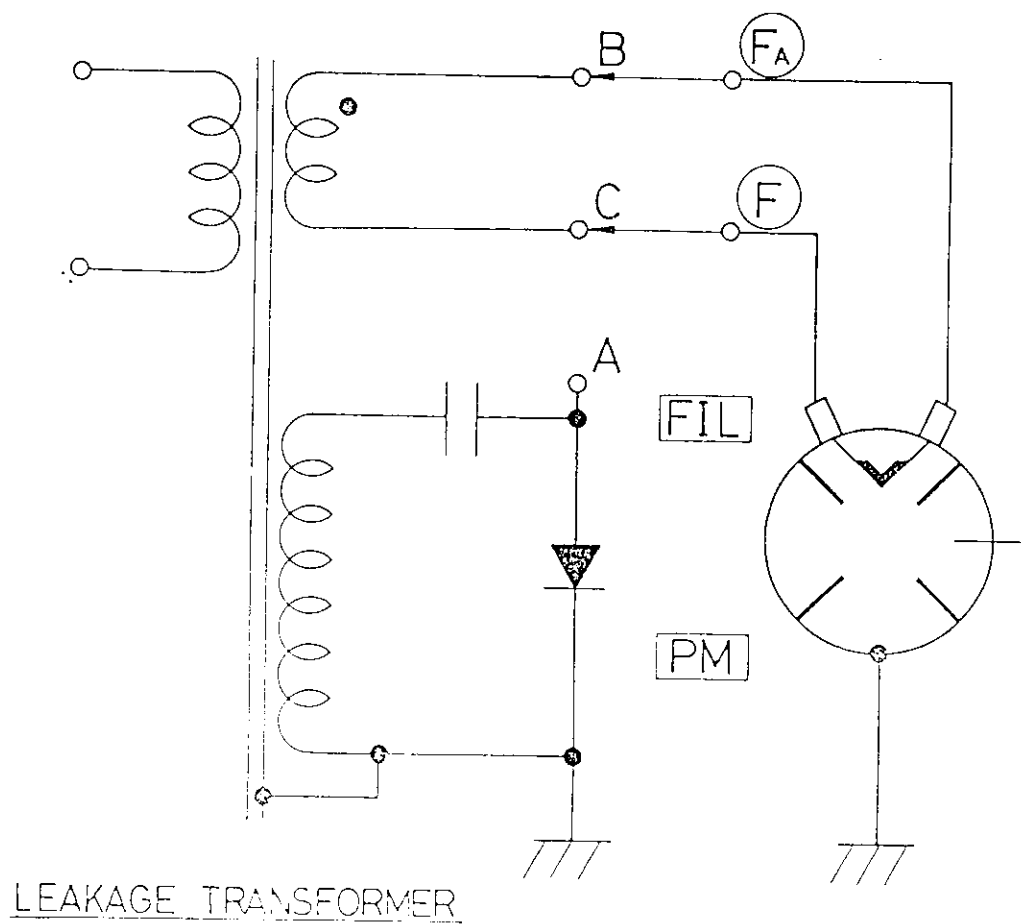
PAGE : 6 / 10

MATERIAL LIST

Part name	Manufacturer	Material	Manufacturer of Materials	U L - No.			Note
				Guide No.	File No.	Grade No.	
A Capacitor (HFC-2S-1)	T D K Corporation	1 Polybutylene terephthalate	Mitsubishi Rayon Co., LTD.	GMFZ2	E54695(M)	G2930	500P.F. WATERPROOF
		2 Epoxy Resin	TDK Corporation	-	-	R-2, R-3	
		3 Steel	TDK Corporation	-	-	-	
		4 Polybutylene terephthalate	Polyplastic Co., LTD.	GMFZ2	E45034(B)	3310	
		5 Silicone Rubber Tube	Shin-etsu Chemical Co., LTD. Toshiba Silicone Co., LTD.	-	-	3009 5053	
		6 Steel	TDK Corporation	-	-	-	

Part name	Manufacturer	Material	Thickness Diameter (mm)	Size (mm)	Note
B Choke coil	Ping An Corporation	Ferrite	-	15 x 15	1.5 turns 1.5 /H x 2
		Enameled copper wire	1.4		
C Shielding case	Daewoo Electronics Co., LTD.	Zinc steel	T 0.4	70 x 70	
D Shielding case cover	do	do	T 0.4	71 x 71	
E Heat sink enclosure (1)	do	do	T 0.4	-	
F Heat sink	do	Aluminium	T 0.7	60 x 60	6 Pin
G Heat sink enclosure (2)	do	Zinc steel	1.4	-	

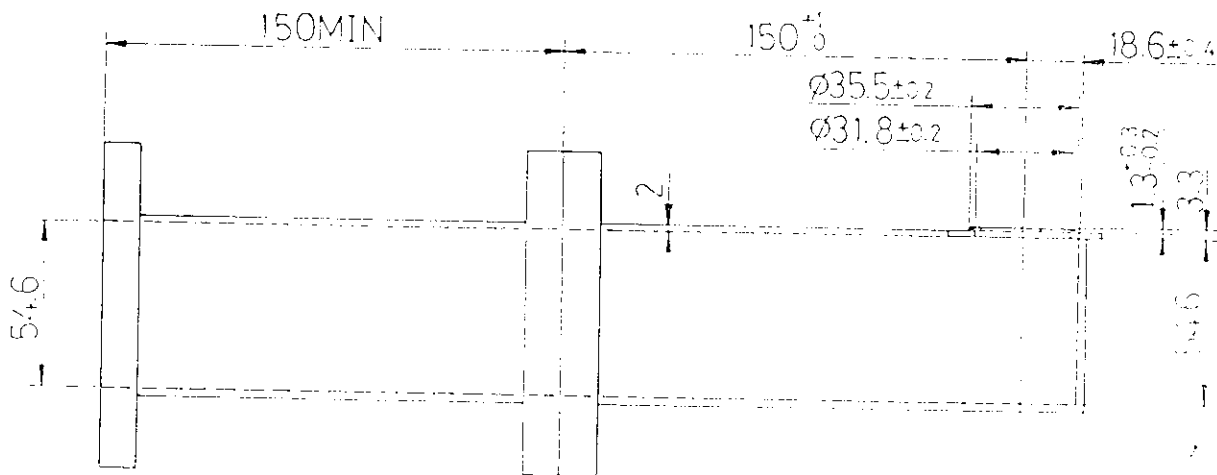
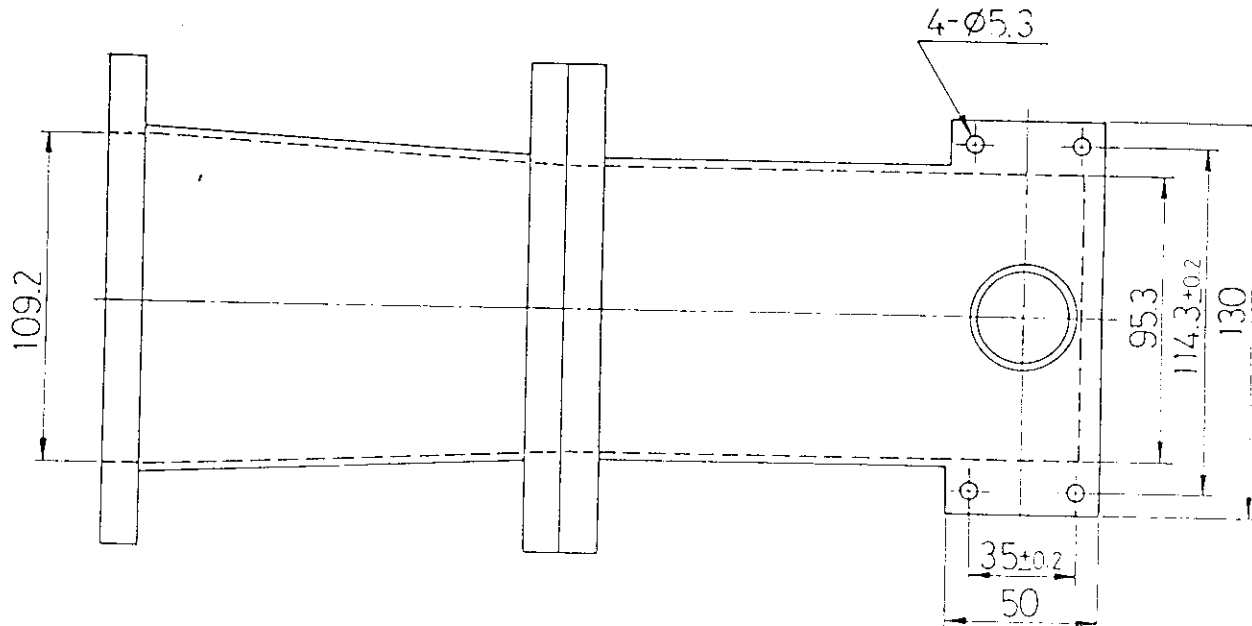
FILAMENT CONECTION



A WILL BE CONNECTED TO B OR C

R.F. COUPLER

UNIT : mm



STANDARD R.F. COUPLER DEFINED BY E.T.A.T.

SPEC. NO. :

DATE:

PAGE : 9/10

7. Specification of TOSHIBA Magnetron of 2M254

► FCC ID : C5F7NF16MO1000 ◀

TOSHIBA

TOSHIBA HOKUTO ELECTRONICS CORPORATION

MAGNETRON QUALITY ASSURANCE GROUP, MAGNETRON DIVISION

1975, 23-CHOME MINAMI-5-JODORI, ASAHIKAWA, HOKKAIDO 078, JAPAN

PHONE (0166) 31-8500 FACSIMILE (0166) 31-8200

To : DAEWOO ELECTRONICS CO., LTD.

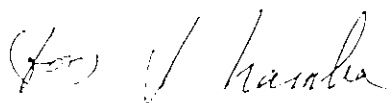
APPROVAL SIGNATURE

SPECIFICATION

FOR

MAGNETRON

2M254



Yoichi Terabayashi

MANAGER,
MAGNETRON QUALITY ASSURANCE GROUP
MAGNETRON DIVISION

SPECIFICATION NUMBER :	E960014-D01	January 24, 1996
REVISION STATUS :	REVISION A	February 28, 1996
	REVISION B	June 21, 1996
	REVISION C	July 17, 1997

REFERENCE FOR THIS SPECIFICATION

MAGNETRON ENGINEERING DEPARTMENT

1975, 23-CHOME, MINAMI-5-JODORI, ASAHIKAWA, HOKKAIDO, JAPAN

PHONE (0166) 31-4728 FACSIMILE (0166) 31-5677

This specification is based on the testing methods for continuous wave magnetrons
ED-1501 set by the Electronic Industries Association of Japan (EIAJ).

Continuous Wave Magnetron												
DESCRIPTION	Magnetron (Fixed Frequency, Integral Magnet, Forced Air Cooled)											
FUNCTION	2450 MHz band continuous wave oscillation											
OUTER DIMENTIONS	See outline drawing											
ABSOLUTE MAXIMUM RATINGS				(⁽²⁾)		(⁽³⁾)			(⁽³⁾)	(⁽⁴⁾)		(⁽⁵⁾)
	Term	Ef	tk	ebm	lb	ibm	Pi	σ L	Tp	Tcase	Tstorage	Tseal
	Unit	V	s	kV	mAdc	A	kW	-	°C	°C	°C	°C
	Max	3.75	-	4.5	350	1.2	1.4	4	300	100	60	320
	Min	2.85	0	-	-	-	-	-	-	-	-30	-
STANDARD TEST CONDITION: (⁽¹⁾)	3.3 5 - 300 - - 1.1Max - - - -											
TEST SPECIFICATIONS												
TEST TERM (⁽⁵⁾)	TEST METHOD (EIAJ ED-1501)	TEST CONDITION	SYMBOL	BOGIE	LIMIT		UNIT					
					Min	Max						
** Vibration	5.4.1		-	-	-	-	-					
Breakdown Voltage	4.2	Et=10kVdc or 8kVac (rms)	-	-	-	-	-					
Insulation	-	Et=1kVdc (⁽⁷⁾)	-	-	-	-	-					
* Cold Start Voltage Transient	-	(⁽⁵⁾)	-	-	-	-	kV					
* Filament Current	4.1.1	tk=120s	If	10.5	8.5	12.5	A					
Peak Anode Voltage	4.3.1	(⁽⁵⁾)	ebm	4.20	4.05	4.40	kV					
Average Output Power (1)	4.3.3.1	(⁽⁵⁾)	Po	900	860	940	W					
* Average Output Power (2)	4.3.3.2	σ L=4, Power Min (⁽⁵⁾)	Po	-	510	-	W					
Frequency	4.3.4	(⁽⁵⁾)	f	2460	2450	2470	MHz					
* Stability/Moding	4.3.11.2	σ L=2,3,4	-	-	-	-	-					
* Stability/Runaway	4.3.11.1	σ L=6, t=30s										
* Pulling Factor	4.3.6	σ L=2	fpl	-	-	26	MHz					
* Sink Phase	4.3.7	σ L=2	λ_{sink} / λ_g	0.200	-	-	-					
** Life Test	4.5.1	(⁽¹⁾)	t	-	500	-	h					
** Life Test End Point	Average Output Power (1)	(⁽¹⁾)	Po	-	620	-	W					
	Stability/ Moding	4.3.11.2	σ L=2,3,4	-	-	-	-					
	Stability/ Runaway	4.3.11.1	σ L=6, t=30s	-	-	-	-					

Note (1) The tube shall be mounted on the output coupler (containing tapered waveguide) shown in the attached drawing (Page-4) and cooled by forced air of 800 l/min. Single phase full wave rectifier without filter shall be used for power supply. The diagram of the test equipment is shown in the attached drawing (Page-3).

(2) During normal oscillation.

(3) The points for measuring anode temperature is shown in the outline drawing. Maximum anode temperature for normal condition (with load in the cavity) should be 250 °C

(4) The point for measuring filter case temperature is shown in the outline drawing.

(5) Tseal means temperature of ceramic-to-metal seal position of the tube. Maximum allowable build-up curve of seal temperature is shown in the attached drawing (Page-5).

(6) Tests shall be classified as follows:

Class	Mark †	Remarks
Production test	None	This test is intended to ensure if the production line is being processed in compliance with the standard, and shall be conducted on some typical characteristics which are considered to be affected by changes in the process.
Design test	*	This test is intended to ensure the standard design, and shall be conducted on such characteristics which are not affected by the ordinary production line as long as the design is maintained.
Type approval test	**	This test is intended to ensure the compliance of the standard design with given specifications, and may be omitted unless a substantial change in the design is made.

†: The Mark is placed on the left of each test item, for instance, **Vibration

(7) See the attached drawing (Page-5, Insulation).

(8) Measurement shall be conducted by standard oven which has a single phase half wave doubler power supply without filter, where no load voltage of the transformer shall be less than 2.2 kV rms. The voltage transient just before start of oscillation shall be measured.

(9) Measurement shall be conducted within 15 seconds after anode power is turned on. Magnetron is kept in the constant ambient temperature for more than 4 hours before testing. Standard ambient temperature is 25 °C. Correction factor of peak anode voltage (ebm) and output power (P_o) vs. temperature is shown in the attached drawing (Page-5).

(10) For each oven model, both microwave oven manufacturer and Toshiba Hokuto should evaluate and agree on the stability characteristics in the design stage of the oven.

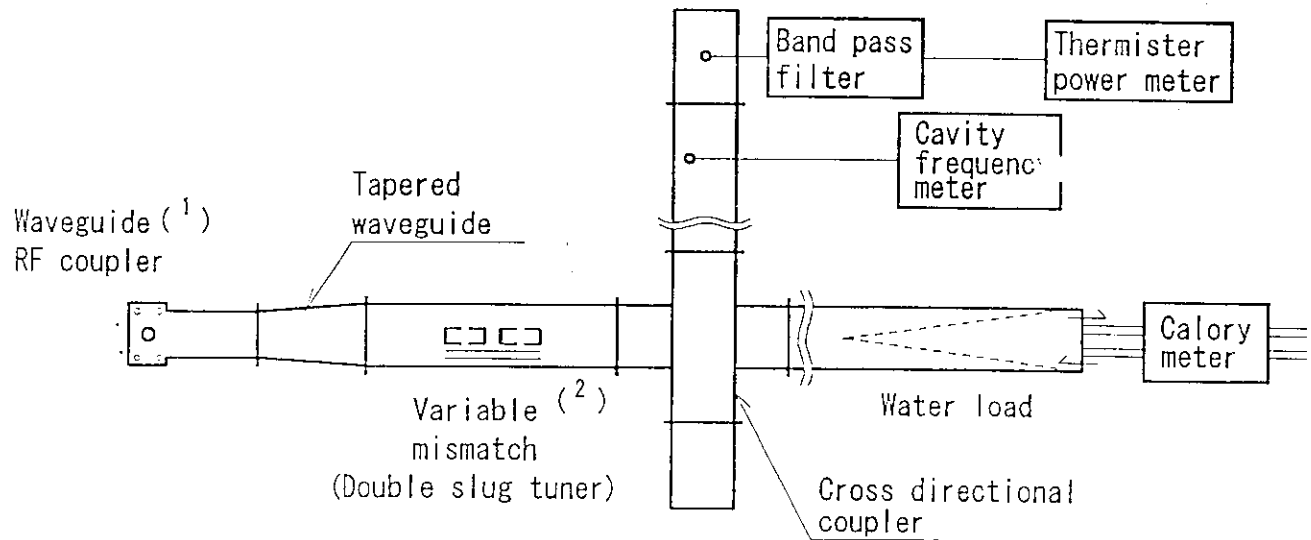
(11) The tube shall not appreciably be damaged in the following abnormal test.

Condition:

Anode temperature (T _p)	Cycle (Time)	Corresponding operating condition
320 °C MAX	10 cycles (30minutes/cycle)	No Load

TEST EQUIPMENT

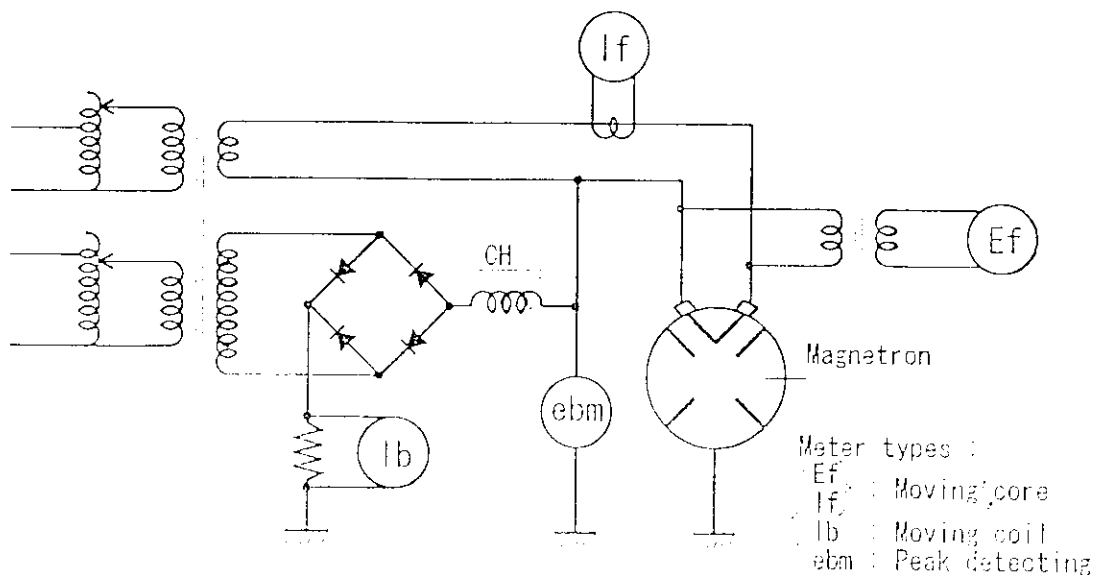
A. Waveguide configuration



Note

- (1) Details are shown in the attached drawing (Page-4).
- (2) Calibrated with the standard standing wave detector.
- (3) WR430 waveguides are used from the double slug tuner to the water load.

B. Power supply connection



Note

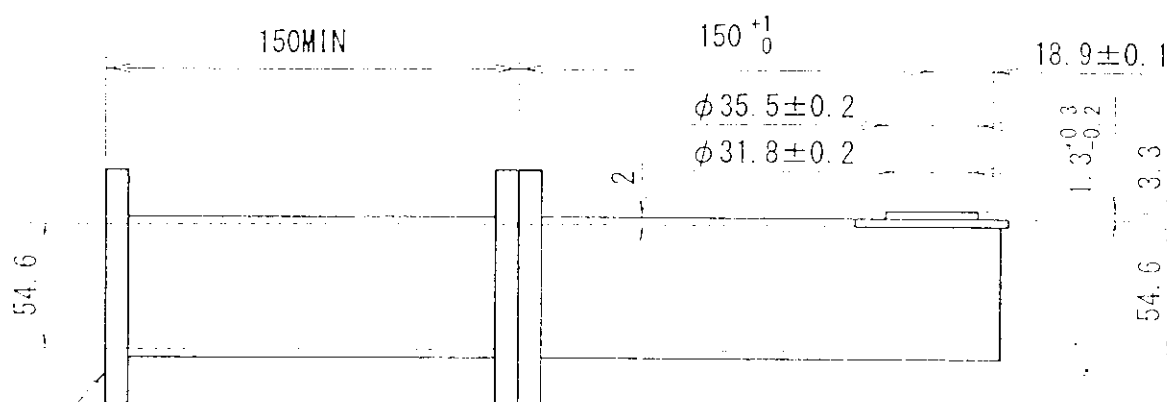
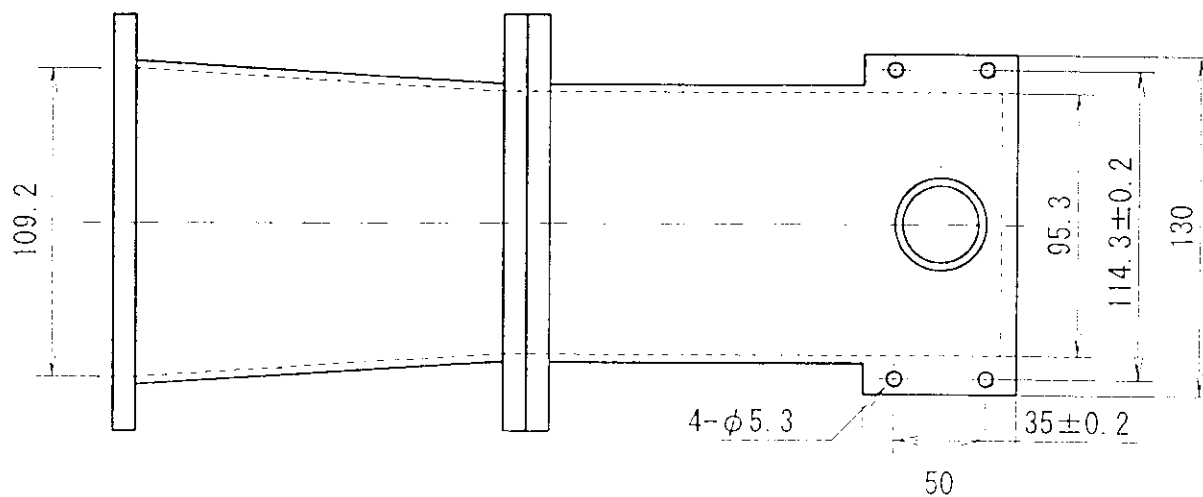
- (1) Choke coil is adjusted such that the peak anode current value becomes three times the average value.

FILAMENT CONNECTION

To minimize possible transient voltage, the terminals (F) and (FA) should be connected to the transformer in such a way that the anode voltage increases and anode current decreases compared with those for reversed connection when a single phase half wave doubler without filter is used as a power supply.

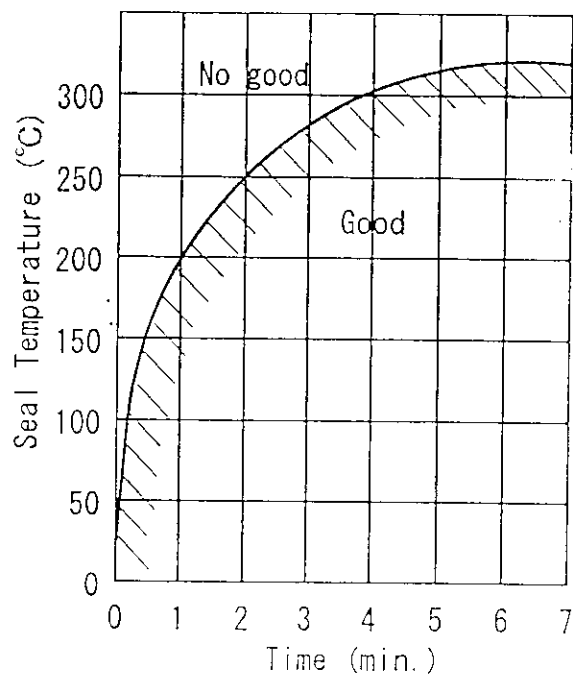
OUTPUT COUPLER (The output coupler used in Toshiba Hokuto inspection)

Unit : mm

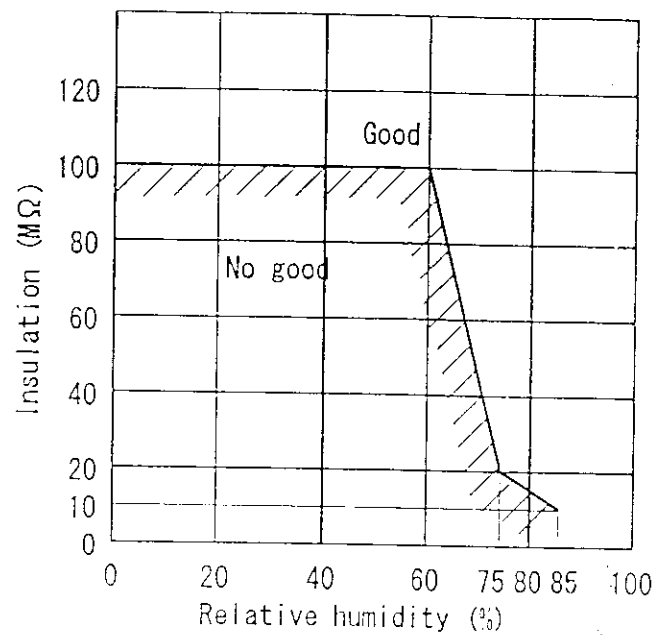


Fit to UG-435A/u or UG-437A/u (BRJ-2)

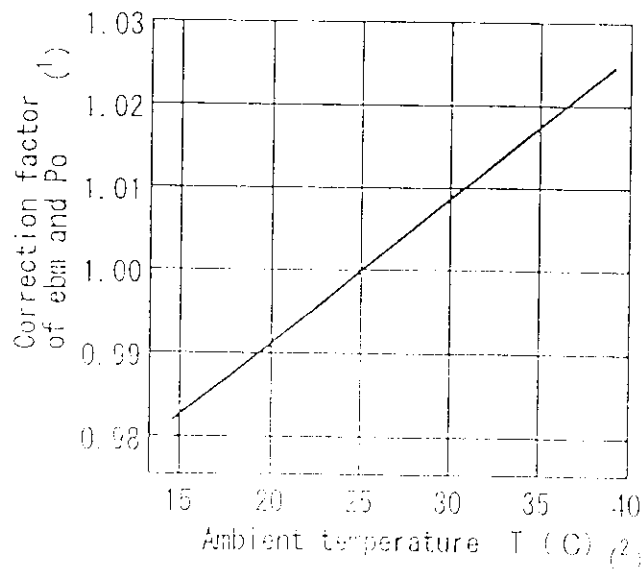
MAXIMUM ALLOWABLE BUILD-UP CURVE OF SEAL TEMPERATURE



INSULATION



CORRECTION FACTOR OF PEAK ANODE VOLTAGE (ebm) AND OUTPUT POWER (Po) VS. AMBIENT TEMPERATURE

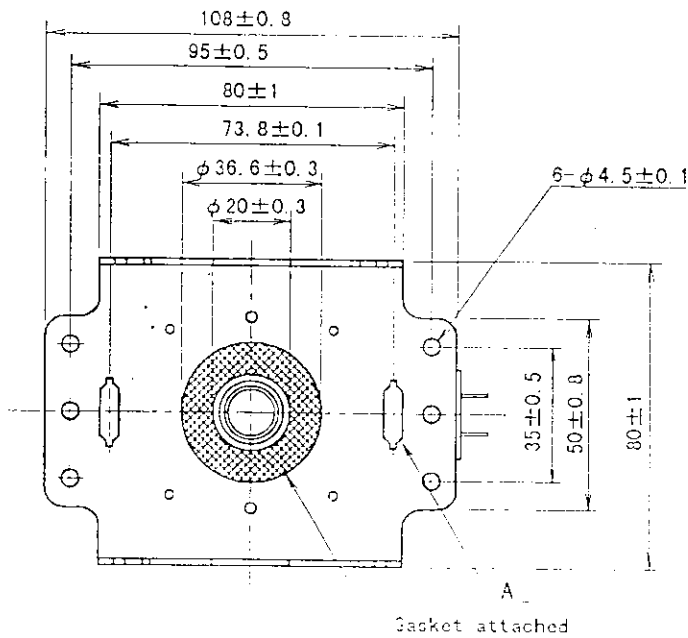


Note

- (1) ebm (or Po) measured at T °C $\times$ Correction factor at T °C = ebm (or Po) at 25 °C
- (2) The temperature shown in this figure is the constant room temperature in which the magnetron has been kept for more than 4 hours before testing.

OUTLINE DRAWING

Unit : mm

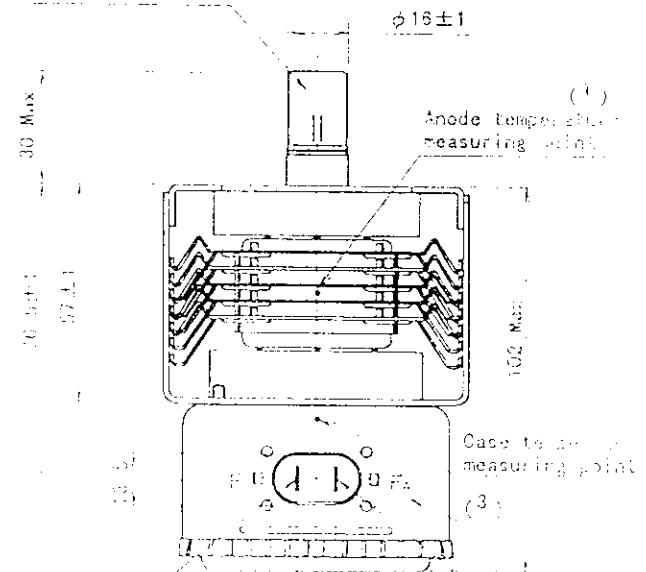
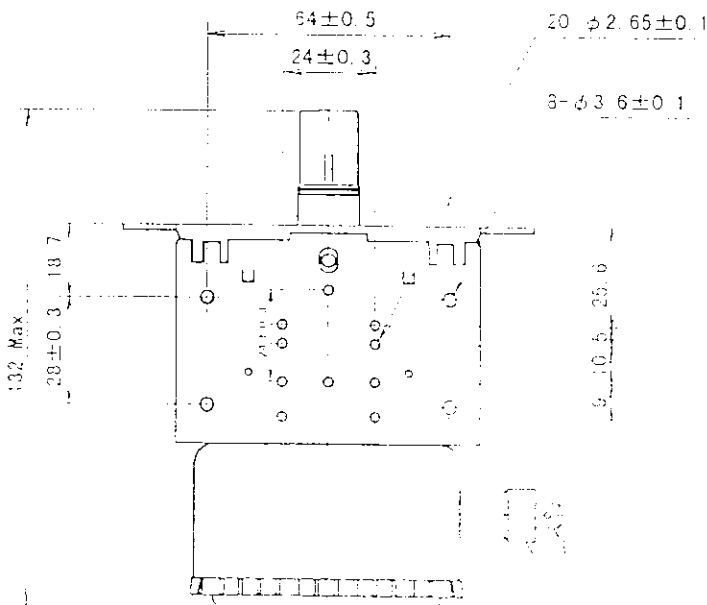
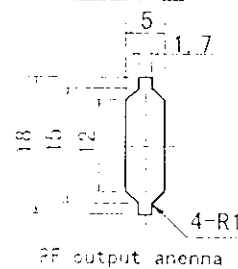


Note(1) Temperature to be measured at the outlet side of air flow.

(2) Refer filament connection.

(3) "F" and "FA" are marked at these positions.

DETAIL A



RF output antenna
Filament capacitor
Pin to RF output receptacle

Anode temperature measuring point
Case temperature measuring point

1 10
2 23.5
3 150
4 172.3 MAX

LABEL

The label as shown below shall be put on each tube.

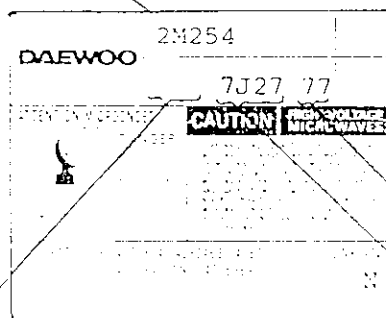
The code stamped on the indicated position of each label consists of three block numbers ;

The first block is the serial number of tube with data. The second block is the date code in which the preceding one numerals shows the last of Christian Era and the continuing block letter and two numerals indicate the three months after the scheduled date of shipment from Japan or UK.

The third block is the numerals only for the production control in Toshiba Hokuto.

Type name

Serial number of (i)
tube with data



Code for production
control in Toshiba Hokuto

Date code

A : January
B : February
C : March
D : April
E : May
F : June
G : July
H : August
J : September
K : October
L : November
M : December

Note

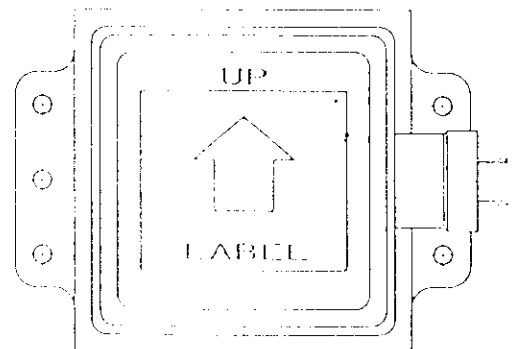
(i) In case of a sample requirement only

Sample

(Made in Japan)

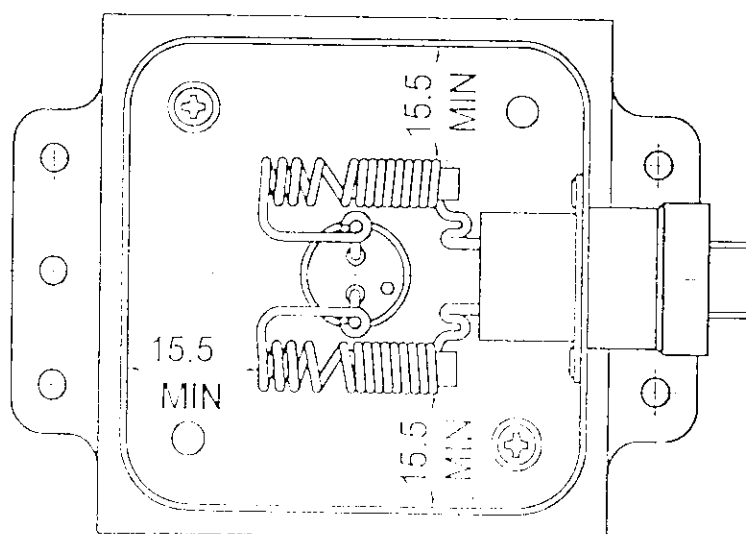
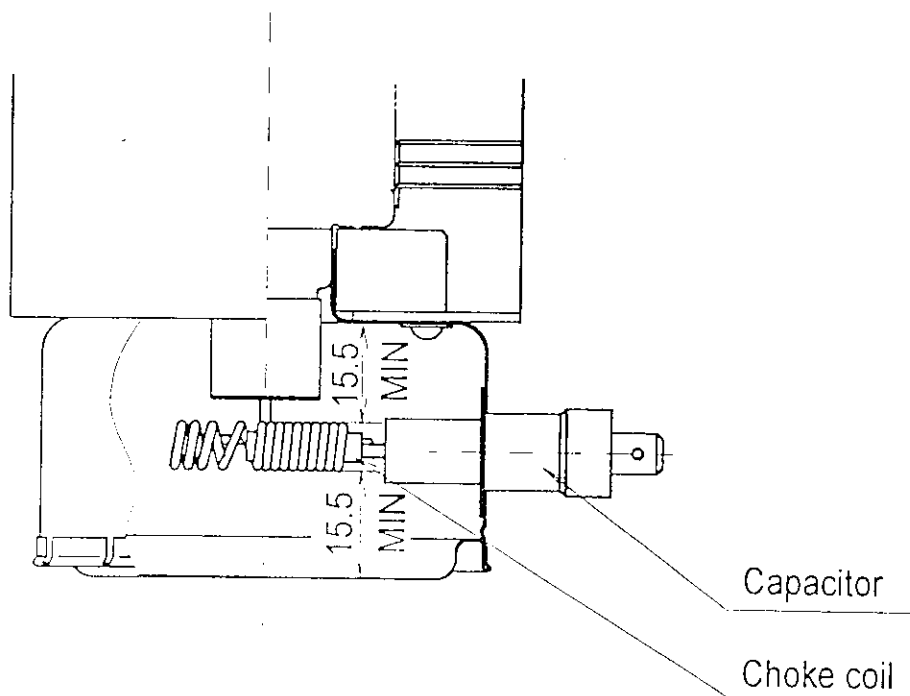
(Made in UK)

Labeling



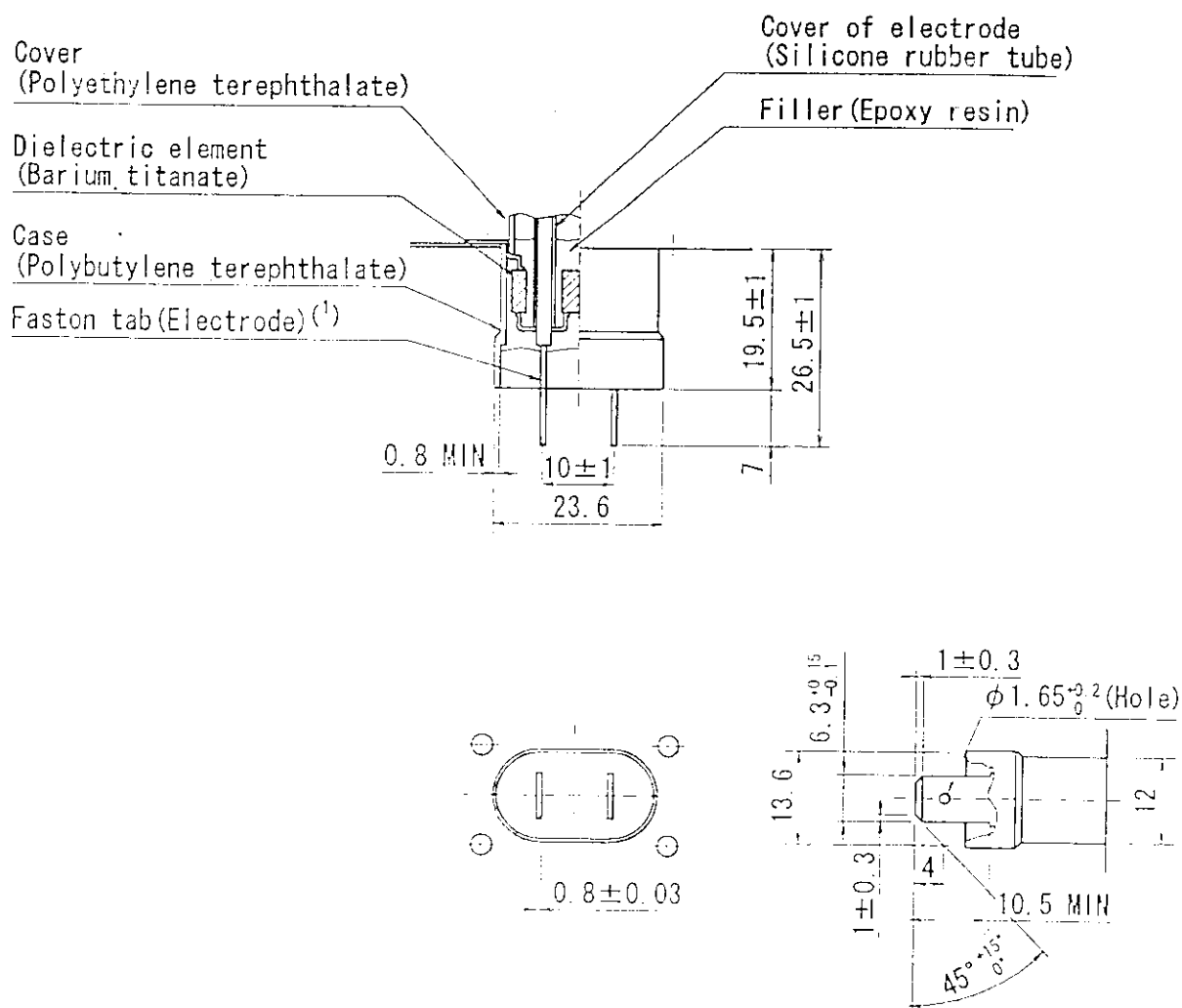
SPACING IN THE FILTER BOX

Unit : mm



DETAILS OF FILTER CAPACITOR

Unit : mm



Note

(1) The faston tab meets to BS 6067 : 1973 and DIN 46 244 : April 1980.

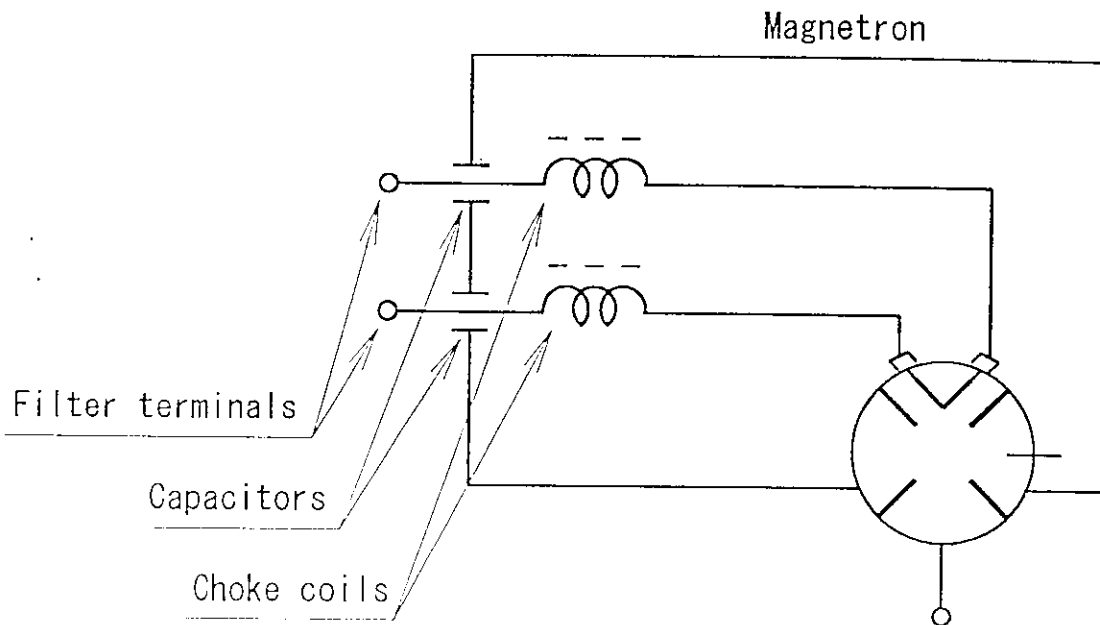
INSULATING MATERIAL (Refer Page-8 & 9)

Part Name	Catalog No./ Manufacturer (¹)	Material	Manufacturer of Materials	UL No. (¹)		
				Guide No.	File No.	Grade No.
Capacitor	Toshiba Hokuto Spec.	Barium Titanate	TDK Corp.	-	-	-
		Epoxy Resin	Ditto	-	-	-
	HFC-2L-3/ TDK Corp.	Silicone Rubber Tube	Shin-etsu Chemical Co., Ltd. or Toshiba Silicone Co., Ltd.	-	-	-
		Polyethylene Terephthalate	Teijin Ltd.	QMF-Z2	E52857M	CN9015
		Polybutylene Terephthalate	Mitsubishi Rayon Co., Ltd.	QMF-Z2	E54695M	G2930
Choke coil	Toshiba Hokuto Spec. Marusan Corporation. or Kokusen Bane Co., Ltd.	Ferrite	Tomita Electric Co., Ltd. or Hitachi Ferrite Co., Ltd. or Fuji Denki Kagaku Co., Ltd. or NWE Industrial Co., Ltd.	-	-	-
		Formal Coated Wire	Daiichi Denko Co., Ltd. or Showa Electric Wire & Cable Co., Ltd. or TAI-I Electric Wire & Cable Co., Ltd.	-	-	-
		Silicone Rubber	Toshiba Silicone Co., Ltd.	-	-	-

Note

(1) UL No. is for the material.

(2) One of them shall be used by Toshiba Hokuto's option.

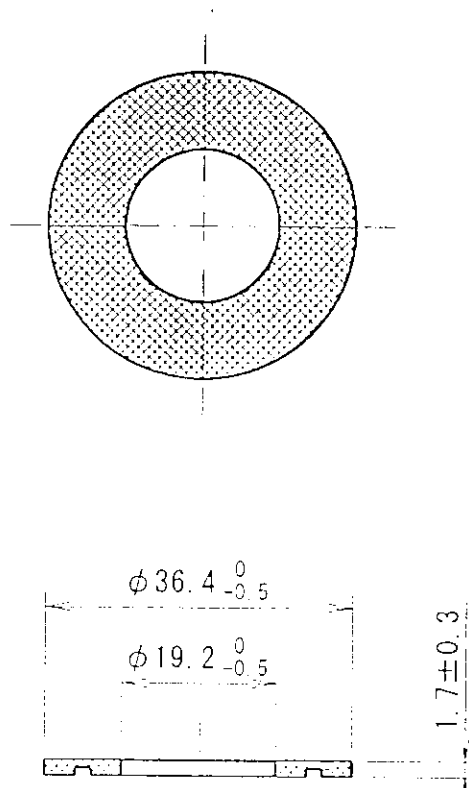
FILTER CIRCUITRATING

	Nominal value	Remarks
Capacitor	500pF × 2 WV 10kVdc	
Choke coil (13.5 turns)	1.2 μH × 2	at about 8MHz

GASKET

Unit : mm

Material : Woven and press formed brass wire



Inspection : By using thick part of slide calipers

PRECAUTIONS FOR SAFETY

Carefully take the following precautions for safety in using the magnetrons for microwave ovens or for other applications.

Magnetrons must be handled by individuals possessing adequate backgrounds of electrical, electronic, microwave and mechanical experience.

Toshiba Hokuto Electronics Corporation cannot be responsible for the interpretation of this information, nor can it be assumed any liability in connection with its use.

1. High Voltage

Since the magnetron is operated with negative high potential at the cathode terminals, a special care must be taken as follows.

- 1-1 Do not touch nor come close to the cathode terminals or their surroundings during operation.
- 1-2 To avoid shock hazards, never insert metallic wire or like into the filter box, and never operate the magnetron with the lid of filter box open.
- 1-3 Before removing the magnetron from the oven, carefully check that power is turned off, and discharge the cathode terminal or the capacitors in the power supply circuit by using the discharging rod adequately designed for safety.

2. Radiation Leakage

Care should be taken for radiation leaked from the magnetron, though the leakage from the input part of magnetron is restricted to a level which human body is not adversely affected.

- 2-1 Properly install and tightly fasten the magnetron in the oven or in the waveguide coupler.
- 2-2 Do not deform the gasket or do not operate the magnetron with the gasket removed, to avoid hazardous conditions such as radiation leakage and arcing.
- 2-3 Never operate the magnetron without installing it in the oven or with the output antenna exposed.
- 2-4 Do not remove the lid of the filter box nor deform the filter box.
- 2-5 Always keep your eyes apart from the operating magnetron in consideration of the unexpected hazardous conditions.

3. Temperature

Although the magnetron is subjected to forced air cooling during operation, high temperature (sometimes more than 200 °C) is observed on the enclosure of magnetron. Care should be taken as follows.

- 3-1 Do not touch the magnetron immediately after turning power off. Allow the magnetron to cool before handling.
- 3-2 Putting on cotton gloves or the equivalents is recommended for safe handling.

4. Alteration

- Do not alter the magnetron.

Factories

- (1) Toshiba Hokuto Electronics Corporation
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Facsimile : (0166) 35-5671
- (2) Toshiba Consumer Products (U.K.) Ltd.,
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Phone : (01752) 208549
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