ELECTRONIC TUBE REFERENCE

M578B

Specialized - Magnetron electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
MAGNETRON

Fixed-frequency high-power pulsed magnetron designed for radar and related short-pulse microwave service in its specified operating band.

General characteristics

BASE DESIGNATION	–	**BASE PINS**	–
NOMINAL HEATER	16 V / 3.1 A	**PARALLEL HEATER**	– / –
HEATING	Indirect	**SERIES OPERATION**	Not specified
CATHODE ARRANGEMENT	Separate cathodes	**SECTION CONSTRUCTION**	Similar

Section ratings

SECTION1 Magnetron

No fixed ratings recorded.

Microwave/special-function section; schema has no directly applicable promoted electrode fields; published electrical data preserved in parameters.

Fixed frequency pulse magnetrons, replacing types Mb77, Mb77A and M578, M578A. Frequency variants of 4J43 and 4J44.

SOURCE OPERATING CONDITIONS

1971 English Electric Valve

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1971 ENGLISH ELECTRIC VALVE

Section 1 · Magnetron

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Fixed frequency pulse magnetrons, replacing types Mb77, Mb77A and M578,	**578**	Fixed frequency pulse magnetrons, replacing types Mb77, Mb77A and M578,
M578A. Frequency variants of 4J43 and 4J44	**44**	M578A. Frequency variants of 4J43 and 4J44.
Typical peak output power	**900 kW**	Typical peak output power 900 kW
Heater current	**3.1 A**	Heater current 3.1 A
Heater starting current (peak)	**15 A**	Heater starting current (peak) 15 A
Anode voltage (peak)	**30 kV**	Anode voltage (peak) 30 kV
Anode current (peak)	**70 A**	Anode current (peak) 70 A
Cathode terminal temperature	**100**	Cathode terminal temperature 100 °c
V.S.W.R. at the output coupler	**1 V**	V.S.W.R. at the output coupler 1.6:1
Heater voltage	**10.5**	Heater voltage 10.5 vV
Anode current (peak)	**70 A**	Anode current (peak) 70 A
Pulse length	**1**	Pulse length 1.0 us
Anode voltage {peak)	**28 kV**	Anode voltage {peak) 28 kV
Output power (peak)	**900 kW**	Output power (peak) 900 kW
Output power (mean)	**450 W**	Output power (mean) 450 W
Heater voltage (for test)	**10**	Heater voltage (for test) 10 10 \Y
Anode current {mean)	**45 mA**	Anode current {mean) 35 45 mA
V.S.W.R. at the output coupler	**1 V**	V.S.W.R. at the output coupler 1.156:1 1.156:1
Anode voltage (peak)	**30 kV**	Anode voltage (peak) 26 30 — - kV

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
R.F. bandwidth at % power	**25 MHz**	R.F. bandwidth at % power — 25 - — MHz
Output power {mean}	**320 W**	Output power {mean} 320 W min
R.F. bandwidth at % power	**2.5 MHz**	R.F. bandwidth at % power 2.5 MHz max
1. (a) With no anode input power.	**1 a**	1. (a) With no anode input power.
minimum capacitance of 4000pF shunted across the heater	**4000**	minimum capacitance of 4000pF shunted across the heater
{b)	**578**	{b) MB77B and M578B have hum-free heaters and have been tested
of frequency 50, 60 and 500Hz. English Electric Valve Company	**500**	of frequency 50, 60 and 500Hz. English Electric Valve Company
between 0 and —B5°C the cathode heating time is 3 minutes minimum	**3 °C**	between 0 and —B5°C the cathode heating time is 3 minutes minimum.
leading edge of the voltage pulse above 80% amplitude. Any capaci-	**80**	leading edge of the voltage pulse above 80% amplitude. Any capaci-
age of the number of input pulses applied during the last 30 seconds of	**30**	age of the number of input pulses applied during the last 30 seconds of
Measured with heater voltage of 16V and no anode input power, the	**16**	Measured with heater voltage of 16V and no anode input power, the
heater current limits are 2.8A minimum, 3.4A maximum	**3.4**	heater current limits are 2.8A minimum, 3.4A maximum.
11	**11**	11. Design test only. The maximum frequency change with anode tempera-
1| OUTPUT POWER	**1**	1| OUTPUT POWER
The periphery of the anode will lie within a 2.160 inch (54.86mm)	**54.86 a**	The periphery of the anode will lie within a 2.160 inch (54.86mm)
13	**13**	13. The common cathode connection is indicated by letter C.

Tube Tinker

An independent reference for electronic tubes, vacuum tubes, and their source documents.

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