

ELECTRONIC TUBE REFERENCE

N1047M

Specialized - Traveling Wave electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TRAVELINGWAVE

Low-noise 2.7-3.2 GHz traveling-wave amplifier providing about 24-27 dB gain, with a noise figure around 4.5 dB.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5.25 V / 3 A	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 TravelingWave
<i>No fixed ratings recorded.</i>
<i>Microwave/special-function section; schema has no directly applicable promoted electrode fields; published electrical data preserved in parameters.</i>

Low noise travelling wave tube for use in the input stage of radar and other microwave receivers, and in i.f. amplifier service. The tube is contained in a metal canister and is fitted with coaxial input and output connectors. A separate focusing solenoid is required. Frequencyrange 27t03.2 GHz
Saturation outputpower 15b mw Noisefactor 40 db Low levelgain
. 24 db Recommended solenoid N4Oo41

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 · TravelingWave

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Frequencyrange	3.2 GHz	Frequencyrange 27t03.2 GHz
Low levelgain	24 db	Low levelgain 24 db
Heater current	3 A	Heater current < 03 A
Heater starting current (peak)	40 S	Heater starting current (peak) S 40 A max
Collector voltage	1100	Collector voltage 400 1100
Collector current	200	Collector current - 200
Helix voltage	500	Helix voltage . - 500
Grid 4 voltage	500	Grid 4 voltage — 500
Grid 3 voltage	150	Grid 3 voltage - 150
Grid 1 and 2 voltage	20	Grid 1 and 2 voltage 20
Heater voltage	5.25	Heater voltage 4.75 5.25
Heater voltage	50	Heater voltage 50
Collector current	130	Collector current 130
Helix voltage (see notes 6 and 7)	375	Helix voltage (see notes 6 and 7) 375
Magnetic field (see notes 9 and 10) -	140	Magnetic field (see notes 9 and 10) - 140 mT
Grid 4 current	1	Grid 4 current less than 1 UA
Grid 3 current	1 MA	Grid 3 current less than 1 MA
Grid 1 and 2 current	50 MA	Grid 1 and 2 current 50 MA
Gain	24 db	Gain e e e 24 db
Output power (saturated)	1.6	Output power (saturated) 1.6 mwW

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
input signal, vary grid 3 and grid 4 voltages alternately until the	4	input signal, vary grid 3 and grid 4 voltages alternately until the
are those which will operate the N1047M at the lowest noise factor for	1047	are those which will operate the N1047M at the lowest noise factor for
the adjustment above. Grid 3 and grid 4 voltages should be stabilized	4	the adjustment above. Grid 3 and grid 4 voltages should be stabilized
Grid 1 and 2 voltage is adjusted to give the correct collector current and	2	Grid 1 and 2 voltage is adjusted to give the correct collector current and
06	6 A	06 A L JHELIX VOLTAGE OPTIMIZED
COLLECTOR CURRENT 130pA	130	COLLECTOR CURRENT 130pA
[388	130 A	[388 { [T] COLLECTOR CURRENT 130 A
T FREQUENCY 29GHz	29	T FREQUENCY 29GHz
g HELIX VOLTAGE 3B v	3 v	g HELIX VOLTAGE 3B v
COLLECTOR CURRENT 130 pA	130	COLLECTOR CURRENT 130 pA
FREQUENCY	2.9	FREQUENCY 2.9GHz
™ 660	660	™ 660 HELIX VOLTAGE OPTIMIZED
FREQUENCY	2.9 GHz	FREQUENCY 2.9 GHz
Grid 1 and 2	2	Grid 1 and 2
Grid 4	4	Grid 4
Grid 3	3	Grid 3

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(Over the frequency range 2.7 to 3.2GHz}	3.2	(Over the frequency range 2.7 to 3.2GHz}
Helix voltage (see notes 6 and 7)	400	Helix voltage (see notes 6 and 7) 350 to 400 \
Magnetic field (see notes 9 and 10)	7	Magnetic field (see notes 9 and 10) . 140+7 mT
Heater current	0.5	Heater current 0.2 0.5
Helix current	5 MA	Helix current . 5 MA
Grid 4 current	10 MA	Grid 4 current 10 MA
Grid 3 current	10 MA	Grid 3 current 10 MA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid 1 and 2 current	100	Grid 1 and 2 current 100 LA
Gain	27 db	Gain 21 27 db
Noise factor	4.5 db	Noise factor ... 4.5 db
Output power (saturated)	1	Output power (saturated) 1.0 - mwW
1. The time between the application of full heater voltage a	1	1. The time between the application of full heater voltage and the appli-
helix	10	helix. Fluctuations in collector voltage should be less than +10%.
time of at least 2 minutes, switch on the h.t. voltage with grid 1 and 2	2	time of at least 2 minutes, switch on the h.t. voltage with grid 1 and 2

TUBE TINKER

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