FORWARD WAVE AMPLIFIER

LA16-2

Application: *Low power amplifier, broadband.*
Frequency: *'J' band.*
Construction: *Unpackaged.*

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—MICROWAVE DEVICES: INTRODUCTION and FORWARD WAVE AMPLIFIERS which precede this section of the handbook.

CHARACTERISTICS

	Min.	*Max.*	
Frequency band	11.5	18	Gc/s
Gain (low power level)—over frequency band	20	—	dB
*Noise factor	—	28	dB
Saturation power output	1.0	—	mW
Attenuation (at I_k = 0mA)	40	—	dB

CATHODE

Indirectly heated

V_h	8.5	V
I_h	400	mA

TYPICAL OPERATION

As an input amplifier using a periodic permanent magnet system of approved design.

f	15	Gc/s
$V_{collector}$	1.7	kV
V_{helix}	1.6	kV
V_{g3}	150	V
V_{g2}	350	V
V_{g1}	–120	V
$I_{collector}$	450	μA
Gain	32	dB
*Noise factor	23	dB
Power output	10	μW

*Using a solenoid of approved design, up to 6dB improvement in noise factor can be obtained.

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ABSOLUTE MAXIMUM RATINGS

$V_{collector}$ max.	1.85	kV
$I_{collector}$ max.	500	μA
$p_{collector}$ max.	800	mW
V_{helix} max.	1.75	kV
I_{helix} max.	60	μA
V_{g3} max.	200	V
I_{g3} max.	20	μA
V_{g2} max.	450	V
I_{g2} max.	20	μA
$-V_{g1}$ max.	150	V
I_{g1} max.	10	μA
$P_{in\ (signal)}$ max.	300	mW
V_{h-k} max.	50	V

MOUNTING POSITION

Any

ACCESSORIES

Mount	Permanent magnet	P16L–1
	Solenoid	S16L–1

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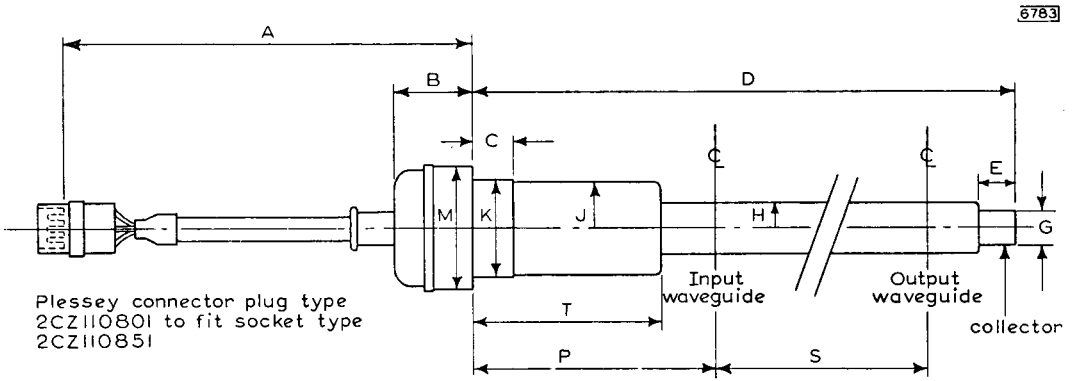

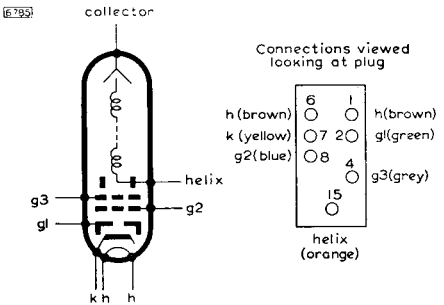

Waveguide dimensions 0.622 × 0.311 in., 15.78 × 7.90 mm.

	Inches	*Millimetres*	
A	4.409 ± 0.197	112 ± 5	
B	1.299	33	max.
C	0.650	16.5	max.
D	12.756 ± 0.118	324 ± 3	
E	0.394	10	min.
G	0.081	2.05	max.
H	0.108	2.75	max.
J	0.5	12.7	max.
K	1.063	27	max.
M	1.259	32	max.
P	2.614 ± 0.008	66.5 ± 0.2	
S	8.130 ± 0.004	206.5 ± 0.1	
T	2.283	58	max.

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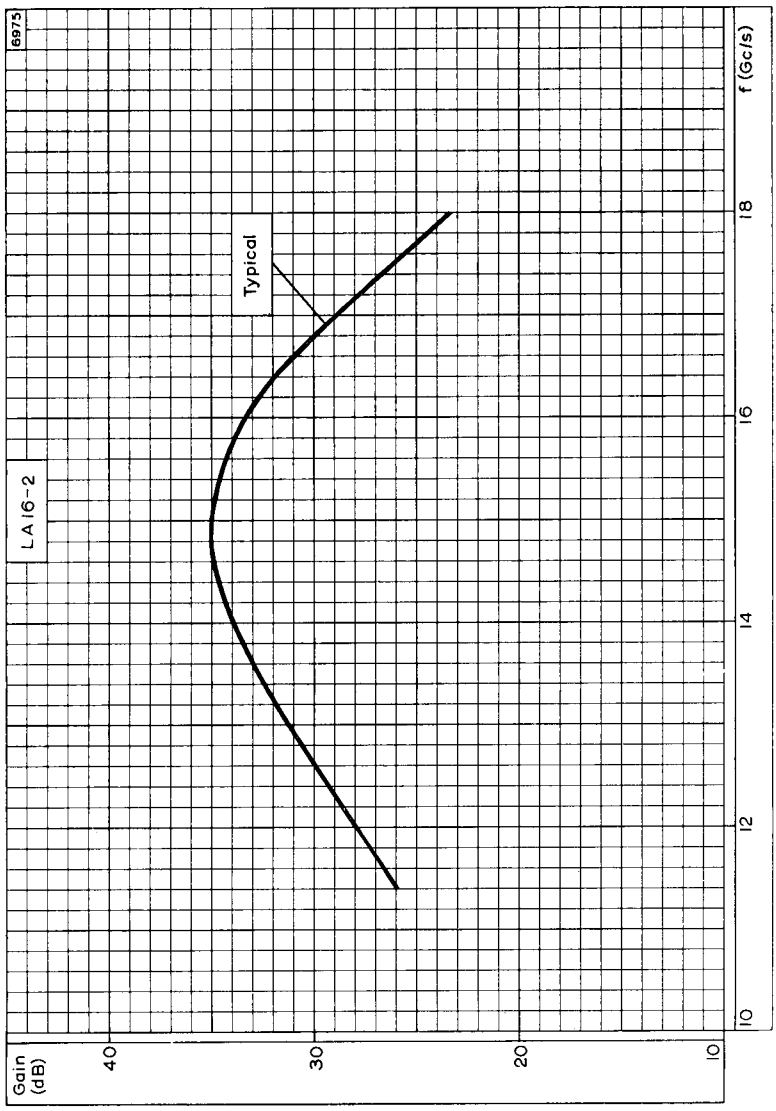
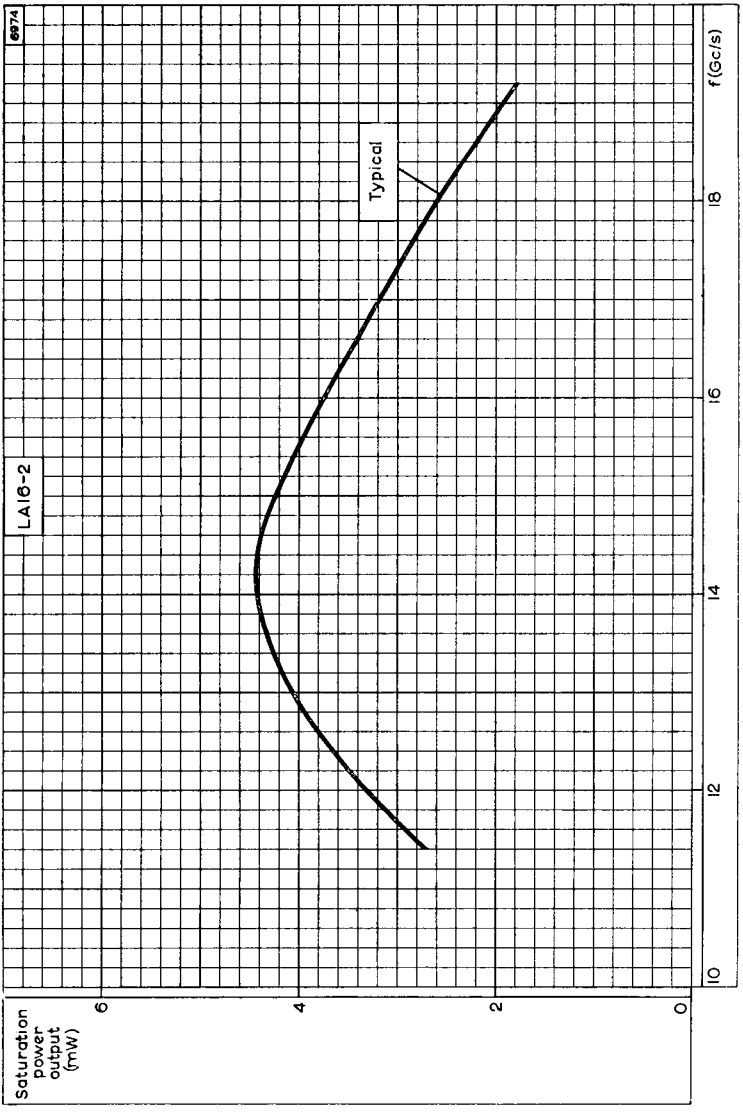
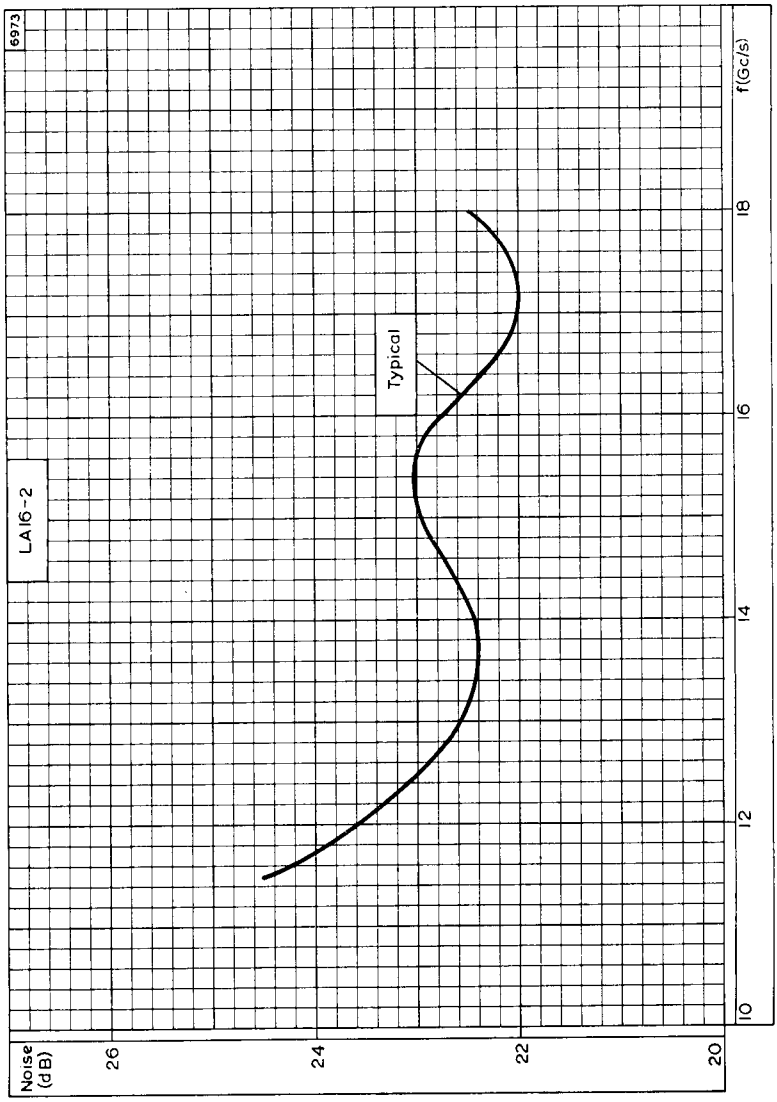


TYPICAL GAIN PLOTTED AGAINST FREQUENCY



SATURATION POWER OUTPUT PLOTTED AGAINST FREQUENCY



TYPICAL NOISE FACTOR PLOTTED AGAINST FREQUENCY USING A PERMANENT-MAGNET MOUNT