

## FORWARD WAVE AMPLIFIER

Application: Power amplifier.  
Frequency: 4Gc/s band.  
Construction: Unpackaged.

# LB4-8

### PRELIMINARY DATA

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS - MICROWAVE DEVICES which precede this section of the handbook.

CHARACTERISTICS	Min.	Max.	
Frequency band	3.8	4.2	Gc/s
Gain ( $P_{out} = 3W$ )	35	—	dB
Noise factor	—	30	dB
Saturation power output	8.0	—	W
Attenuation ( $I_k = 0mA$ )	60	—	dB

### CATHODE

Indirectly heated

$V_h$		6.3	V
$I_h$		800	mA
Minimum cathode heating time		5.0	min

The absolute maximum variation of heater voltage should be less than  $\pm 2\%$ .

### COOLING

$T_{collector\ max.}$		175	$^{\circ}C$
$T_{ambient} < 55^{\circ}C$	Convection cooled		
$T_{ambient} > 55^{\circ}C$	Low velocity air-flow		

### OPERATING CONDITIONS

As a power amplifier with the helix earthed and using a permanent magnet system of approved design.

All voltages are with respect to the helix which is connected to the mount.

$f$		3.9	Gc/s
$V_{collector}$		+50	V
$V_{helix}$		0	V
$V_{a1}$		0	V
$V_k$ (approx.)		-1.1	kV
$I_{collector}$		50	mA
$I_{helix}$		<3.0	mA
$I_{a1}$		<250	$\mu A$
Gain		37	dB
$P_{out}$		5.0	W
Cold input match v.s.w.r.		<1.5	
Cold output match v.s.w.r.		<1.5	

# LB4-8

## FORWARD WAVE AMPLIFIER

### LIMITING VALUES (absolute ratings)

*All voltages are with respect to the cathode.*

$V_{\text{collector}}$ max.	1.5	kV
$P_{\text{collector}}$ max.	70	W
$V_{\text{helix}}$ max.	1.5	kV
$I_{\text{helix}}$ max.	4.0	mA
$V_{\text{a1}}$ max.	1.5	kV
$V_{\text{a1-helix}}$ max.	500	V
$I_{\text{a1}}$ max.	250	$\mu\text{A}$
$I_{\text{k}}$ max.	55	mA

### ACCESSORY

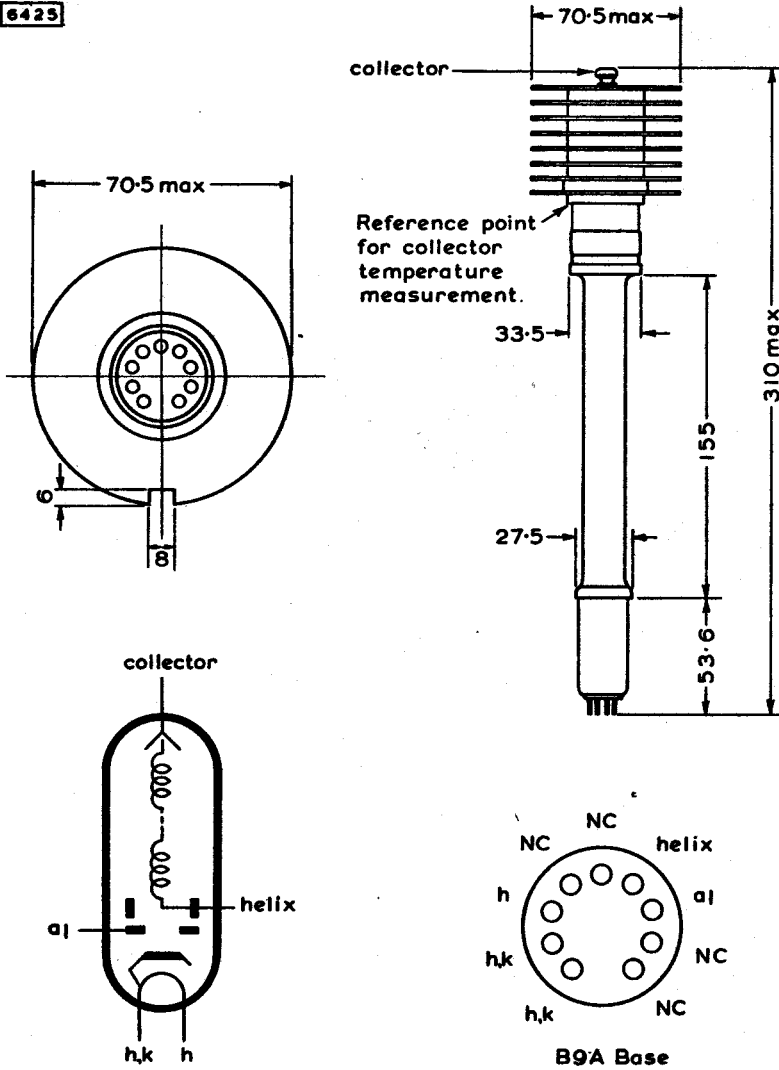
Mount Permanent magnet PL4-4



FORWARD WAVE AMPLIFIER

**LB4-8**

6425



All dimensions in mm

Contacts 2 and 3 should be connected to the heater supply. Contact 1 is intended as the cathode or anode circuit return.

