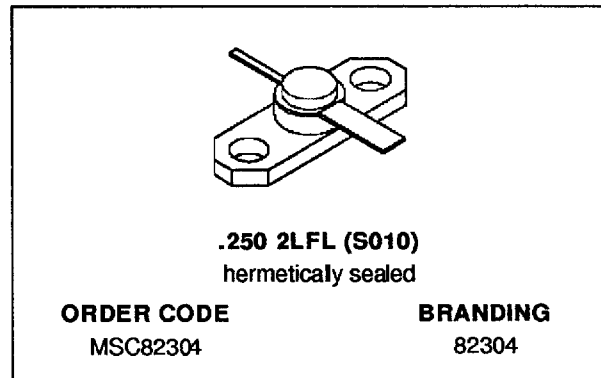


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

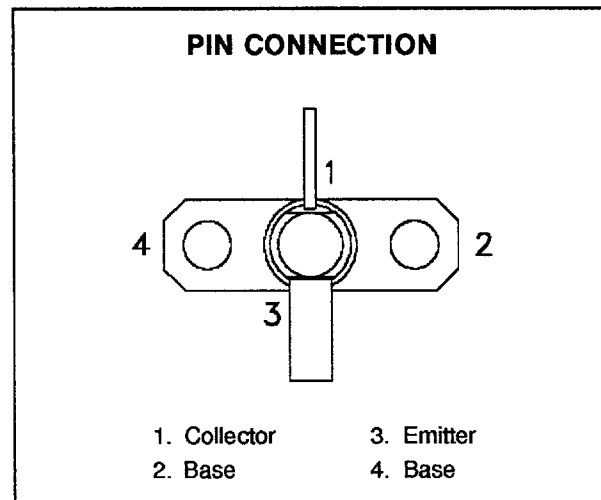
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P_{OUT} = 3.8 W MIN. WITH 10.0 dB GAIN



DESCRIPTION

The MSC82304 is a common base hermetically sealed silicon NPN microwave power transistor utilizing a rugged overlay die geometry. This device is capable of withstanding 20:1 load VSWR at any phase angle under rated conditions.

The MSC82304 was designed for Class C Amplifier/Oscillator applications in the 1.5 - 2.3 GHz frequency range.



ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 50°C)	11.5	W
I _C	Device Current*	600	mA
V _{CC}	Collector-Supply Voltage*	26	V
T _J	Junction Temperature	200	°C
T _{STG}	Storage Temperature	- 65 to +200	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance*	13	°C/W
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*Applies only to rated RF amplifier operation

MSC82304**ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)****STATIC**

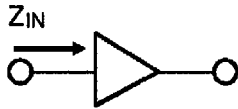
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 1mA	I _E = 0mA	44	—	—	V
BV _{EBO}	I _E = 1mA	I _C = 0mA	3.5	—	—	V
BV _{CER}	I _C = 5mA	R _{BE} = 10Ω	44	—	—	V
I _{CBO}	V _{CB} = 22V		—	—	0.5	mA
h _{FE}	V _{CE} = 5V	I _C = 250mA	30	—	300	—

DYNAMIC

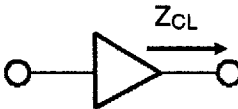
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 2.3 GHz	P _{IN} = 0.38 W	V _{CC} = 22 V	3.8	—	—	W
η _C	f = 2.3 GHz	P _{IN} = 0.38 W	V _{CC} = 22 V	40	—	—	%
G _P	f = 2.3 GHz	P _{IN} = 0.38 W	V _{CC} = 22 V	10.0	—	—	dB
C _{OB}	f = 1 MHz	V _{CB} = 22 V		—	—	5.0	pF

IMPEDANCE DATA

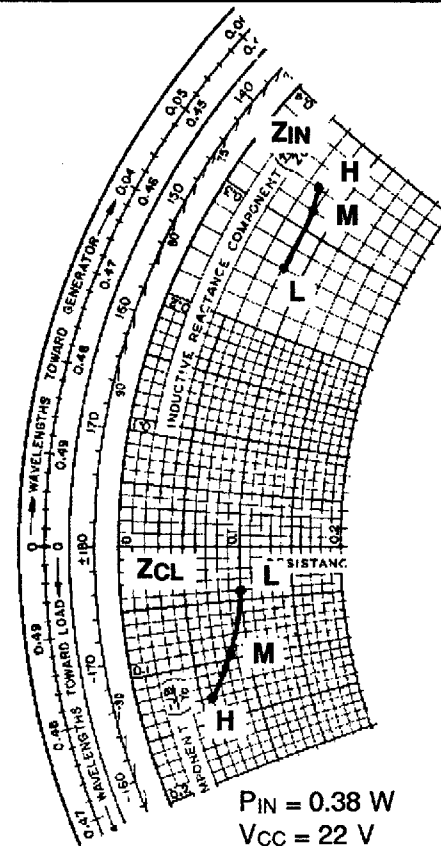
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
L = 2.0 GHz	3.95 + j 13.0	4.9 - j 1.95
M = 2.15 GHz	3.90 + j 16.0	4.2 - j 4.7
H = 2.3 GHz	3.45 + j 17.0	3.0 - j 6.5

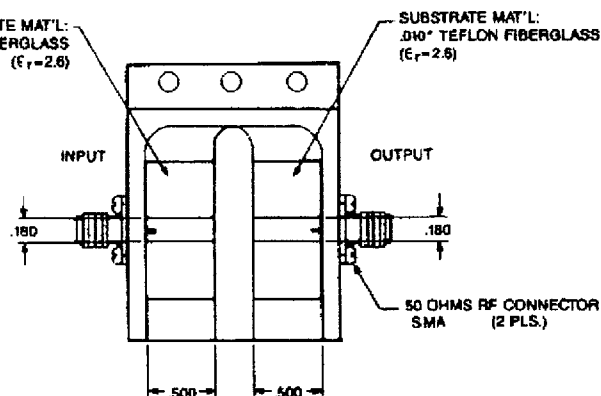


P_{IN} = 0.38 W
 V_{CC} = 22 V
 Normalized to 50 ohms

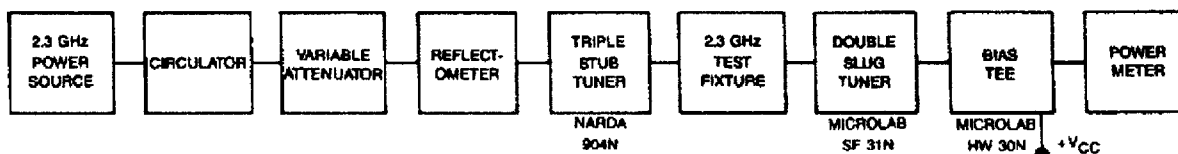
TEST CIRCUIT

Ref.: Dwg. No. C125518

All dimensions are in inches.
 Frequency 2.3 GHz

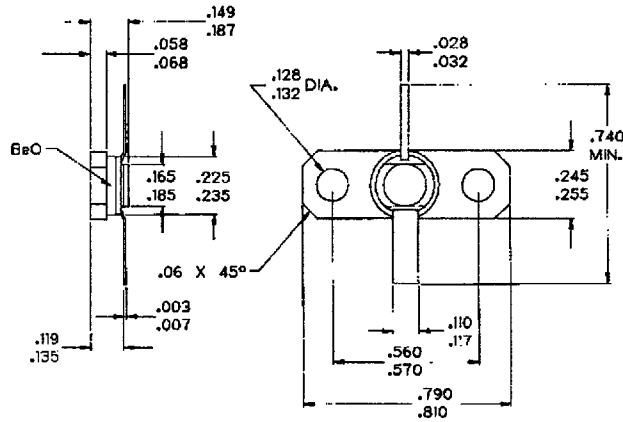


RF Amplifier Power Output Test



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



NOTES:
 1. ALL TOLERANCE \pm .010 EXCEPT WHERE NOTED;
 DIMENSIONS IN INCHES.

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