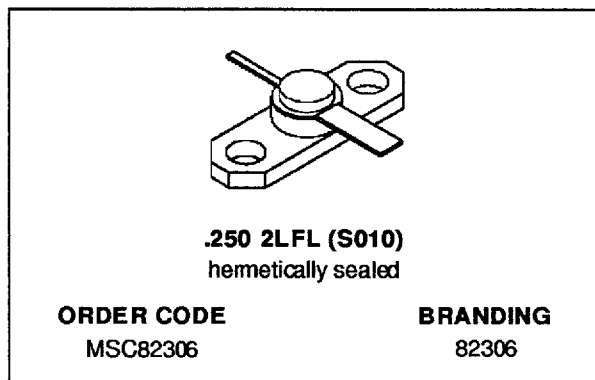


**RF & MICROWAVE TRANSISTORS  
GENERAL PURPOSE AMPLIFIER APPLICATIONS**

PRELIMINARY DATA

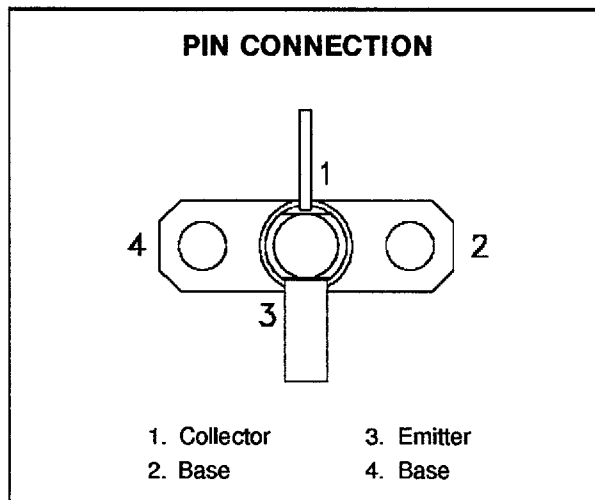
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P<sub>OUT</sub> = 5.5 W MIN. WITH 9.6 dB GAIN



**DESCRIPTION**

The MSC82306 is a common base hermetically sealed silicon NPN microwave power transistor utilizing a rugged overaly die geometry. This device is capable of withstanding 20:1 load VSWR at any phase angle under rated conditions.

The MSC82306 was designed for Class C Amplifier/Oscillator applications in the 1.5 - 2.3 GHz frequency range.



**ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)**

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 50°C)	16.7	W
I <sub>C</sub>	Device Current*	900	mA
V <sub>CC</sub>	Collector-Supply Voltage*	26	V
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

**THERMAL DATA**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	9.0	°C/W
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\*Applies only to rated RF amplifier operation

**MSC82306****ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)****STATIC**

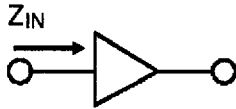
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 1mA	I <sub>E</sub> = 0mA	44	—	—	V	
BV <sub>EBO</sub>	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0mA	3.5	—	—	V	
BV <sub>CER</sub>	I <sub>C</sub> = 5mA	R <sub>BE</sub> = 10Ω	44	—	—	V	
I <sub>CBO</sub>	V <sub>CB</sub> = 22V		—	—	0.5	mA	
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 400mA	30	—	300	—	

**DYNAMIC**

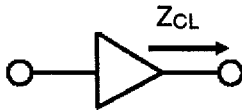
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.6 W	V <sub>CC</sub> = 22 V	5.5	6.3	—	W
η <sub>c</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.6 W	V <sub>CC</sub> = 22 V	40	45	—	%
G <sub>p</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.6 W	V <sub>CC</sub> = 22 V	9.6	10.2	—	dB
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 22 V		—	—	7.0	pF

**IMPEDANCE DATA**

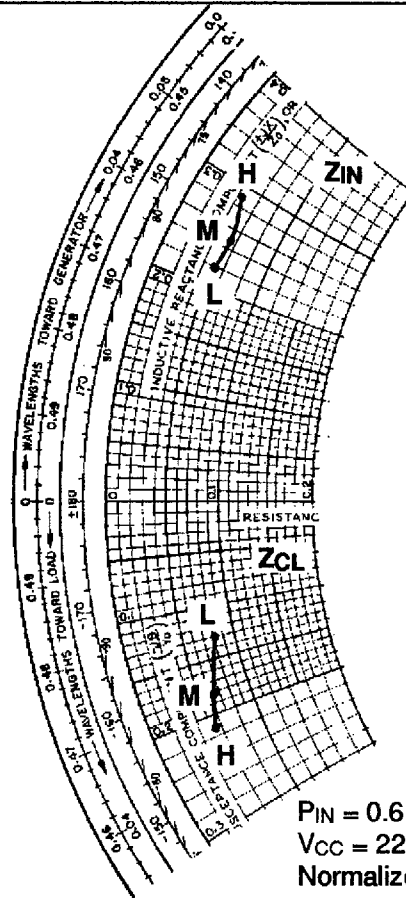
**TYPICAL INPUT  
IMPEDANCE**



**TYPICAL COLLECTOR  
LOAD IMPEDANCE**



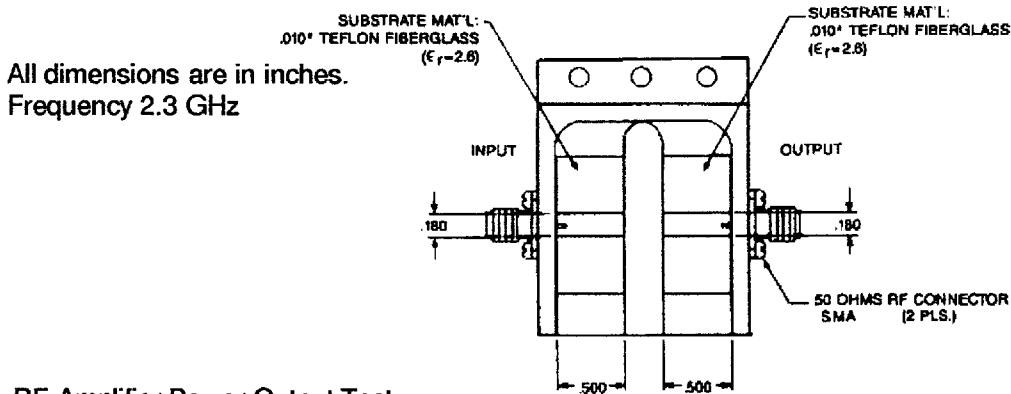
FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
L = 2.0 GHz	2.60 + j 11.0	4.1 - j 6.5
M = 2.15 GHz	2.75 + j 12.5	3.3 - j 9.0
H = 2.3 GHz	2.30 + j 14.5	2.8 - j 10.5



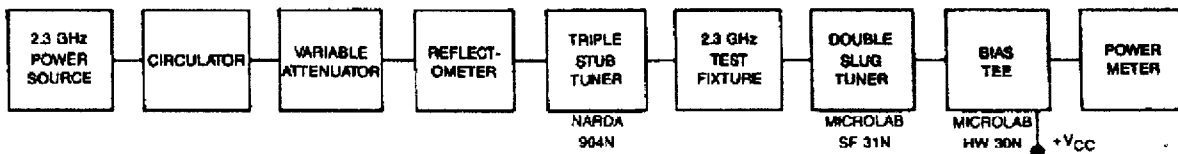
P<sub>IN</sub> = 0.6 W  
V<sub>CC</sub> = 22 V  
Normalized to 50 ohms

**TEST CIRCUIT**

Ref.: Dwg. No. C125518

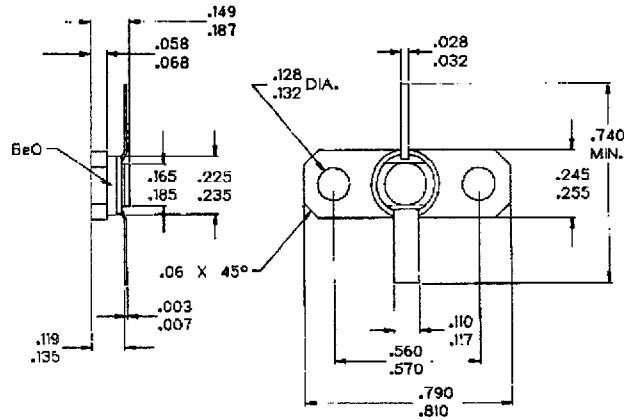


**RF Amplifier Power Output Test**



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



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

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