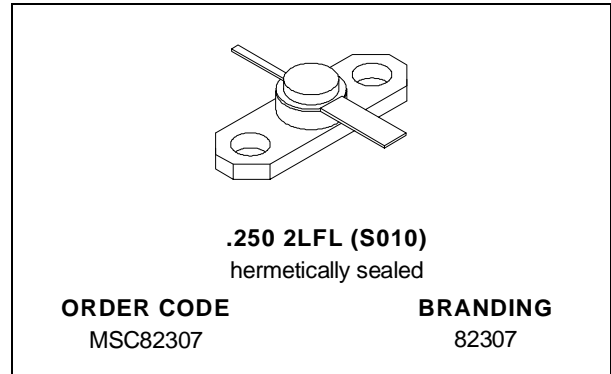


## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

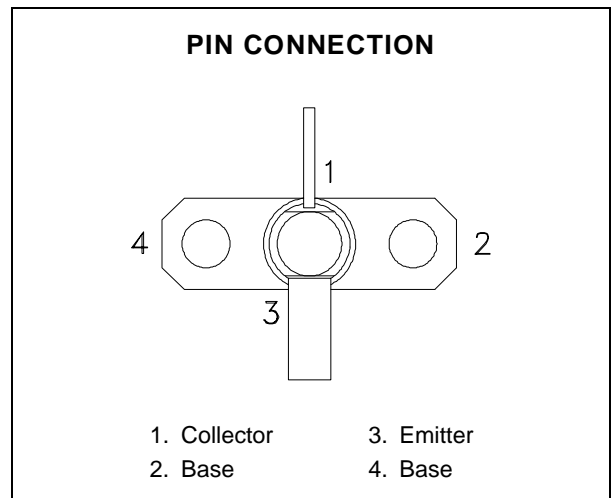
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- $P_{OUT} = 7.0$  W MIN. WITH 9.6 dB GAIN



### DESCRIPTION

The MSC82307 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 MSC82307 was designed for Class C amplifier/oscillator applications in the 1.5 - 2.3 GHz frequency range.



### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$P_{DISS}$	Power Dissipation* ( $T_C \leq 50^{\circ}C$ )	21.4	W
$I_C$	Device Current*	1.2	A
$V_{CC}$	Collector-Supply Voltage*	26	V
$T_J$	Junction Temperature	200	$^{\circ}C$
$T_{STG}$	Storage Temperature	- 65 to +200	$^{\circ}C$

### THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	7.0	$^{\circ}C/W$
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\*Applies only to rated RF amplifier operation

# MSC82307

## 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> = 500mA	30	—	300	—

### DYNAMIC

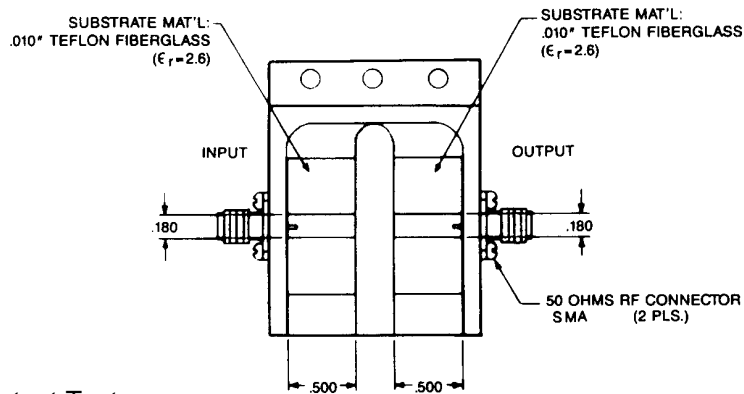
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.76 W	V <sub>CC</sub> = 22 V	7.0	8.0	—	W
η <sub>C</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.76 W	V <sub>CC</sub> = 22 V	40	45	—	%
G <sub>P</sub>	f = 2.3 GHz	P <sub>IN</sub> = 0.76 W	V <sub>CC</sub> = 22 V	9.6	10.2	—	dB
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 22 V		—	—	8.5	pF

### TEST CIRCUIT

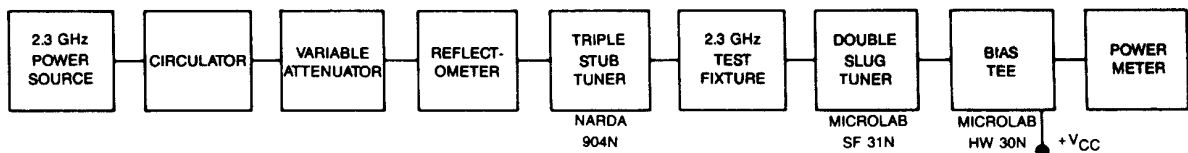
Ref.: Dwg. No. C125518

All dimensions are in inches.

Frequency 2.3 GHz

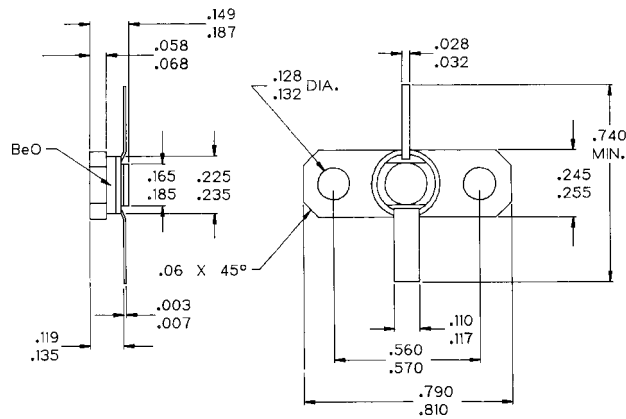


RF Amplifier Power Output Test



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



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

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