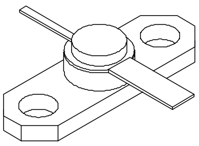
SGS-THOMSON
MICROELECTRONICS

MSC82307

RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

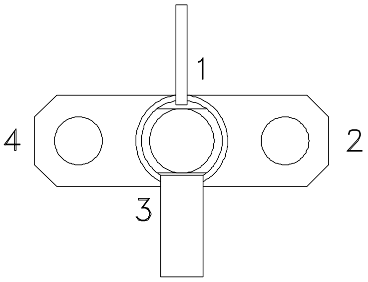
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P_{OUT} = 7.0 W MIN. WITH 9.6 dB GAIN



.250 2LFL (S010)
hermetically sealed

ORDER CODE	BRANDING
MSC82307	82307

PIN CONNECTION



1. Collector
2. Base
3. Emitter
4. Base

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°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 50°C$)	21.4	W
I_C	Device Current*	1.2	A
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*	7.0	°C/W

*Applies only to rated RF amplifier operation

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}	IC = 5mA	R_{BE} = 10Ω	44	—	—	V
I_{CBO}	V_{CB} = 22V		—	—	0.5	mA
h_{FE}	V_{CE} = 5V	I_C = 500mA	30	—	300	—

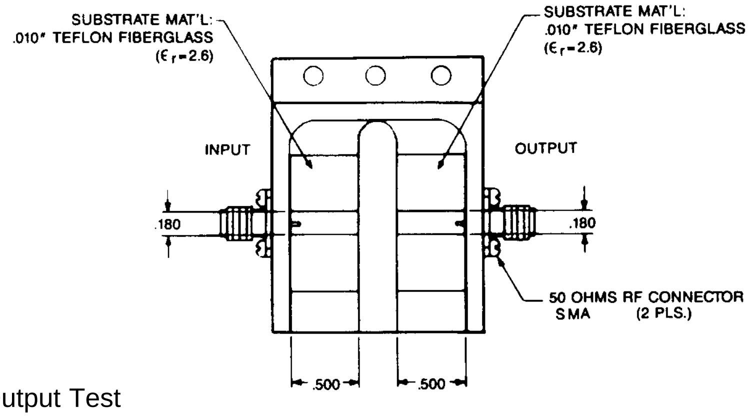
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 2.3 GHz	P_{IN} = 0.76 W	V_{CC} = 22 V	7.0	8.0	—	W
η_c	f = 2.3 GHz	P_{IN} = 0.76 W	V_{CC} = 22 V	40	45	—	%
G_P	f = 2.3 GHz	P_{IN} = 0.76 W	V_{CC} = 22 V	9.6	10.2	—	dB
C_{OB}	f = 1 MHz	V_{CB} = 22 V		—	—	8.5	pF

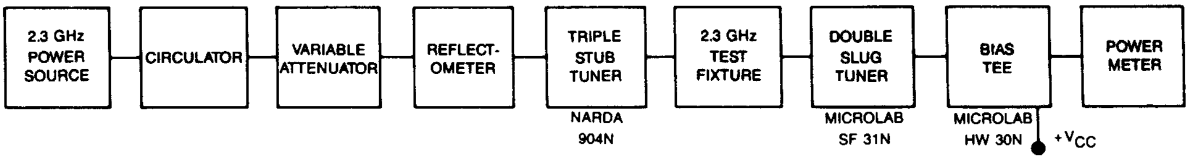
TEST CIRCUIT

Ref.: Dwg. No. C125518

All dimensions are in inches.
Frequency 2.3 GHz

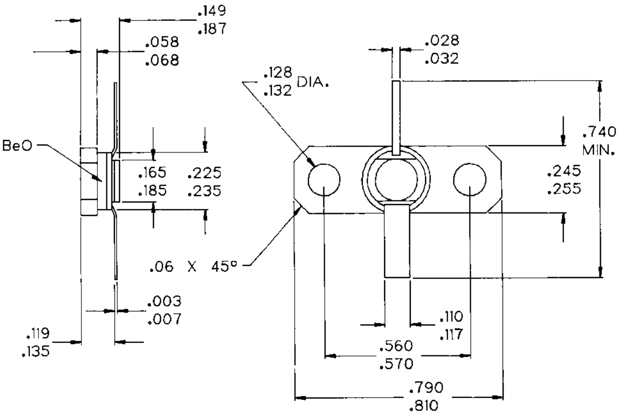


RF Amplifier Power Output Test



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



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